



By-Email

Ref.No.: MGM/P&E/ 227

Date: 27/05/2024

To,  
The Additional Director,  
Ministry of Environment and Forest & Climate Change,  
Eastern Region Office,  
A/3, Chandrasekharpur,  
Bhubaneswar-751023

**Subject:** Submission of half-yearly compliance report on the stipulated environmental clearance terms and conditions in respect of Joda West Iron and Manganese Mine of M/s TATA Steel Ltd., for the period from October'2023 to March'2024.

**Reference:**

- 1) MoEFCC's Letter Ref No: J-11015/86/2004-IA. II(M) dated 13<sup>th</sup> September 2005.
- 2) MoEFCC's notification vide S.O-5845 (E), dated 28<sup>th</sup> November 2018.

Respected Sir,

We are herewith submitting the six-monthly compliance report on the status of the implementation of the conditions stipulated in environmental clearance awarded to us vide MoEFCC's Letter Ref No: J-11015/86/2004-IA. II(M) dated 13<sup>th</sup> September 2005 in respect of Joda West Iron and Manganese Mine of M/s TATA Steel Ltd. for the period from October'2023 to March'2024 for your kind perusal.

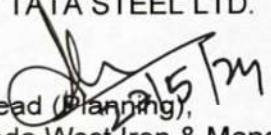
This is in reference to the above referred MoEFCC's notification, the six-monthly compliance report is being submitted only in soft copy mode, shared with your good office at e-mail @ [roez.bsr-mef@nic.in](mailto:roez.bsr-mef@nic.in).

We believe the above submission is in order.

Thanking You,

Yours Faithfully,

F: TATA STEEL LTD.

  
Head (Planning),  
Joda West Iron & Manganese Mines,  
Ferro Alloys Mineral Division

**Encl:** As above.

**Copy To:**

- 1) Zonal Office Kolkata, Central Pollution Control Board, South end Conclave, Block 502, 5<sup>th</sup> and 6<sup>th</sup> Floors, 1582 Rajdanga Main Road, Kolkata, West Bengal 700107.
- 2) The Member Secretary, State Pollution Control Board, A/118, Nilakantha Nagar, Bhubaneswar, Odisha-751012.
- 3) The Regional Officer, State Pollution Control Board, Baniapat, DD College Road, Keonjhar, Odisha-758001.

**TATA STEEL LIMITED**

Ferro Alloys & Manganese Division, Manganese Group of Mines, At/P.O.: Bichhakundi, Via: Joda,

Dist: Keonjhar Odisha – 758 034 Tel.: 9238101370, email : [mnminesadmin@tatasteel.com](mailto:mnminesadmin@tatasteel.com)

Regd. Office : Bombay House, 24 Homi Modi Street, Mumbai – 400 001 Tel 912266658282, Fax 912266657724

Corporate Identity Number L27100MH1907PLC000260 Website [www.tatasteel.com](http://www.tatasteel.com)



Your (**Environment Clearance**) application has been **Submitted** with following details

<b>Proposal No</b>	IA/OR/MIN/11664/2005
<b>Compliance ID</b>	59702898
<b>Compliance Number(For Tracking)</b>	EC/M/COMPLIANCE/59702898/2024
<b>Reporting Year</b>	2024
<b>Reporting Period</b>	01 Jun(01 Oct - 31 Mar)
<b>Submission Date</b>	27-05-2024
<b>IRO Name</b>	ARTATRANA MISHRA
<b>IRO Email</b>	jhk109@ifs.nic.in
<b>State</b>	ODISHA
<b>IRO Office Address</b>	Integrated Regional Offices, Bhubaneswar

**Note:-** SMS and E-Mail has been sent to ARTATRANA MISHRA, ODISHA with Notification to Project Proponent.



**Half Yearly Compliance Report  
2024  
01 Jun(01 Oct - 31 Mar)**

**Acknowledgment**

<b>Proposal Name</b>	Joda West Manganese Ore Mine of M/s Tata Steel, Dist. Keonjhar, State-Odisha {Production Capacity: 1.80 LTPA of Manganese Ore }, ML Area 1437.719 Ha.		
<b>Name of Entity / Corporate Office</b>	Tata Steel		
<b>Village(s)</b>	N/A		
<b>District</b>	KENDUJHAR		
<b>Proposal No.</b>	IA/OR/MIN/11664/2005	<b>Category</b>	Non-Coal Mining
<b>Plot / Survey / Khasra No.</b>	N/A	<b>Sub-District</b>	N/A
<b>State</b>	ODISHA	<b>Entity's PAN</b>	NA
<b>MoEF File No.</b>	No.J-11015/86/2004-IA.II(M)	<b>Entity name as per PAN</b>	NA

**Compliance Reporting Details**

<b>Reporting Year</b>	2024
<b>Remarks (if any)</b>	Six Monthly EC Compliance Report for Joda West Iron & Mn Mine Project Proponent: Tata Steel Limited Project Type: Mining (Opencast) Mineral: Manganese
<b>Reporting Period</b>	01 Jun(01 Oct - 31 Mar)

**Details of Production and Project Area**

<b>Name of Entity / Corporate Office</b>	Tata Steel	
	<b>Project Area as per EC Granted</b>	<b>Annual Project Area in Possession</b>
Private	9.347	71.273
Revenue Land	229.029	119.894
Forest	1199.34	1246.55
Others	0	0
Total	1437.716	1437.7169999999999

**Production Capacity**



Sr. no	Product Name	units	Valid Upto	Capacity	Production last year	Capacity as per CTO
1	Manganese Ore	Tons per Annum (TPA)	31/03/2026	180000	178830	180000

## Conditions

### Specific Conditions

Sr.No.	Condition Type	Condition Details
1	WATER QUALITY MONITORING AND PRESERVATION	Dimension of retaining wall at the toe of OB dumps and benches within the mine to check run-off and siltation should be based on the rainfall data.

**PPs Submission:** Complied

While designing network of garland drains, checkdams, retention walls and rain passes for slope protection as well as arresting silt and sediment during monsoon season, following factors are considered such as Rainfall (peak scenarios), catchment area, gradient slope and retention hours.

Date:  
24/05/2024

2	AIR QUALITY MONITORING AND PRESERVATION	Trace Metals such as Ni, Co, As and Hg should be analyzed in dust fall and soil samples for at least one year during summer, monsoon and winter seasons. If concentrations of these metals are found below the standards then with prior approval of MOEF this specific monitoring could be discontinued.
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**PPs Submission:** Complied

Yearly monitoring of trace metals both in dust fall and soil samples for parameters like Ni, Co, As and Hg is being carried out. So far, no such trace mineral has been detected in the collected samples. An abstract of dust fall analysis carried out during year FY 24 is [enclosed herewith](#).

Date:  
27/05/2024

3	Statutory compliance	Mining shall not be undertaken in areas of forestland within the lease for which necessary approval/ forestry clearance has not been obtained.
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**PPs Submission:** Complied

The present leasehold area of Joda West Iron & Manganese Mine is 437.719 ha. Out of which, forest land and non-forest land prevails over 1246.552 ha and 191.167 ha. respectively. Stage-II Forest clearance has been accorded vide letter no F F.No.8-89/2004-FC, dated 10.08.2007 for 436.678 ha of forest land. FC for balance area of 809.874 ha (Sabik Forest & Balance forest) has been applied. Presently mining is restricted to only 436.678 ha diverted forest land, non-forestland of 191.167 ha and some portions of the broken-up forestland (broken up prior to 1980).

Date:  
24/05/2024

4	MINING PLAN	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.
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**PPs Submission:** Complied

A Final Mine Closure Plan (FMCP) shall be prepared in accordance with the provisions laid down under the "GUIDELINES FOR PREPARATION OF FINAL MINE CLOSURE PLANS" as prescribed by Indian Bureau of Mines. As per the said guideline, FMCP is required to be prepared 2 years in advance from the date of closure/life of the mine. However presently during the approval of Mine Plan, a progressive mine closure plan (PMCP) is being submitted for approval. During the process of such approval, based on the "area put to use" for excavation and allied activities, we have deposited a sum of Rs. 30.5990 Cr to Indian Bureau of Mines (IBM) in the form of Bank Guarantees towards financial assurance for the implementation of measures of PMCP provisions. This approval was communicated to the Regional office, MoEF & CC, Bhubaneswar vide our letter no MGM/P&E/106/23 dated 31.03.2023. Copy of the letter is [enclosed herewith](#).

Date:  
27/05/2024



5	LAND RECLAMATION	Topsoil should be stacked properly with proper slope at earmarked site(s) with adequate measures and should be used for reclamation and rehabilitation of mined out area.
<b>PPs Submission:</b> Complied No topsoil generated during the period October 2023 to March 2024 since mining has not advanced into any virgin land. Whenever topsoil is generated, it will be stacked in a designated place earmarked for the same. Topsoil recovered during mining operation earlier has been concurrently used for plantation over matured dumps and for roadside avenue plantation.		Date: 24/05/2024
6	WASTE MANAGEMENT	OB and other wastes should be stacked at earmarked sites only and should not be kept active for long periods of time. Plantation should be taken up for soil stabilization along the slopes of the dump and terraced after every 5-6 m of height and overall slope angle shall be maintained not exceeding 28°. Sedimentation pits shall be constructed at the corners of the garland drains. Retention/toe walls shall be provided at the base of the dumps.
<b>PPs Submission:</b> Complied Mining and all its associated operational activities are ensured in line with the provisions of approved mining plan. Dedicated sites have been earmarked for storing overburden (OB) and other waste and/or minerals/ mineral rejects. The status thereof is updated in the surface plan on quarterly basis. All matured dumps are stabilized by bio-reclamation with the plantation of Vetiver grass on the slopes and native varieties of forestry saplings. The dump is terraced at every 5-6 mtrs and overall slope is maintained well within 28°. Environmental Protection Measures ensured at site especially for the dump management aspects are as follows: 1. Network of Garland Drains and/or Toe Walls 2. Intermittent Sedimentation tanks/settling pits 3. Slope stabilization by means of coir matting and/or vetiver grass plantation 4. Final rehabilitation measures by means of native varieties of forestry saplings both on the slope and benches of the dump. Copy of latest surface plan along with photos of the implemented dump stabilization measures is <a href="#">enclosed herewith</a> .		Date: 24/05/2024
7	WATER QUALITY MONITORING AND PRESERVATION	Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The drains should be regularly desilted and maintained properly. Garland drains (size, gradient & length) and sump capacity should be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Storm water return system should be provided. Storm water should not be allowed to go to the effluent treatment plant during high rainfall/super cyclone period. A separate storm water sump for this purpose should be created.
<b>PPs Submission:</b> Complied Existing catch drains & garland drains have been constructed all along the periphery of dump at the toe, so that silt/sediments in the surface runoff can be arrested. Size, gradient and length of the drains and the ponds are adequately made with respect to the size of the same to take care of the peak flow during the rainy season. The garland drain, catch drains and sedimentation pits are periodically de-silted and maintained properly every year before the onset of monsoon. The storm water which gets collected in the lower most areas of the leasehold, during rains, is connected to a series of drains which lead to D Quarry mine pit to store the water and also recharge the ground water table.		Date: 24/05/2024
8	AIR QUALITY MONITORING AND PRESERVATION	Mineral and OB transportation shall be done in trucks/dumpers covered with tarpaulins. Vehicular emissions should be kept under control and regularly monitored. Suitable measures should be taken to check fugitive emissions from haulage roads, transfer points, etc.
<b>PPs Submission:</b> Complied Mineral Transportation is ensured by tippers and all the trucks are covered with tarpaulins before		Date: 24/05/2024



		issuance of transit permits for their onward transportation. All the despatch vehicles are mandatorily required to have "Pollution under Check (PuC)" certificate to enter the mine. To restrict the fugitive emissions from haul roads, the following measures have been taken up: -1. Fixed Sprinkling System for the Haul Roads 2. Mist Canons at sorting yards 3. Automatic Wheel wash facility at the exit point of the mines 4. Dust suppression by means of mobile water tanker (capacity 10Kl) deployed for Haul Roads and other locations. 5. Fixed sprinkling arrangement at railway siding	
9	GREENBELT	A green belt of should be raised around ML area (296.163 ha), along roads, OB dump sites (64.774 ha), township (21.242 ha) and in other areas within the lease (227.63 ha) covering a total area of not less than 409.809 ha by planting native species in consultation with local DFO/Agriculture department. The density of the trees should be around 2500 plants per ha.	
	<b>PPs Submission:</b> Complied Plantation activities are ensured in accordance with the provisions of Progressive Mine Closure Plan (PMCP). Tata Steel Limited has developed a site-specific biodiversity management plan for implementation of measures for protection and conservation of biodiversity in and around the mine. Accordingly, emphasis on the principles of restoration is ensured by following scientific plantation strategies with the help of mixed varieties of native (non-exotic) forestry saplings in the scheme of plantation. So far, around 114.830 hectares of area (including waste dump, safety zone, back filled area and avenue plantation zones) have been covered under plantation with 500164 nos of saplings (approx.). In the process of afforestation, the mine has ensured rehabilitation of around 45.1 hectares over OB dump, 62.881 ha of Avenue Planation and 6.848 ha of Safety zone plantation where the saplings have attained self-sustaining stage. The mine management has also established a centralized nursery over an area of 2000 sq-mtr with a generation potential of around 1 lakh saplings/year within the lease area for promoting greenbelt/ afforestation related measures which caters to all the sapling requirement of all the three leases in Manganese Group of Mines. Glimpses of Greenbelt and associated afforestation measures undertaken at mine level is <a href="#">enclosed herewith</a> .		Date: 24/05/2024
10	WATER QUALITY MONITORING AND PRESERVATION	Groundwater shall not be used for mine operations. Prior approval of CGWA shall be obtained for using groundwater.	
	<b>PPs Submission:</b> Complied Ground water is not being used for any mining associated processes. There are no wet beneficiation plants within the lease. Majorly water is used for meeting domestic requirements of office areas, rest shelters areas for workers, supply to villagers in nearby villages nearby and Haul Road dust suppression purposes. Presently, mine draws around 146 KLD of ground water from 3-4 bore wells which is exclusively used for drinking & domestic consumption and is also supplied to local villagers for drinking purposes. As there is seepage evidenced for one of the quarries thus it's dewatering potential of 246KLD has been included in the purview of NOC granted by CGWA vide NOC no. CGWA/NOC/MIN/REN/2/2023/7840 which is valid till 22nd July 2024. Copy of the said NOC is <a href="#">enclosed herewith</a> .		Date: 24/05/2024
11	MINING PLAN	Mining shall not intersect groundwater. Prior permission of the MOEF and CGWA shall be taken to mine below water table.	
	<b>PPs Submission:</b> Complied As per the approved mining plan and status thereof, it is conclusive that ultimate pit depth of the mine at the end of mine plan period will not intercept the regional ground water table however during the advancement of mining operation at Gangeiguda Quarry feeble seepage from one of its face (attributed to some localized aquifer) was encountered and accordingly a detailed hydrogeological investigation was carried out in this regard by engaging a CGWA accredited/empanelled agency. With the help of ground water modelling studies, it was estimated that peak seepage for mine would be around 246 KLD. Based on the above said studies and deliberations at CGWA, NOC was granted to Joda west mine for the Abstraction of 146 KLD (from bore wells) and 246 KLD from Mine pits (as seepage) vide NOC no. CGWA/NOC/MIN/REN/2/2023/7840 valid till 22nd July 2024.		Date: 24/05/2024



12	WATER QUALITY MONITORING AND PRESERVATION	Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers. The monitoring should be done for quantity four times a year in pre-monsoon (April / May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected should be submitted to the Ministry of Environment & Forest and the Central Ground Water Authority quarterly.
<b>PPs Submission:</b> Complied A network of open dug wells and bore wells have been identified for monitoring of GW levels and quality in and around the mine areas. A copy of the abstract of GW level recorded during the monitoring period is <a href="#">enclosed herewith</a> .		Date: 24/05/2024
13	WATER QUALITY MONITORING AND PRESERVATION	Trace metals such as Fe, Cr+6, Cu, Se, As, Cd, Hg, Pb, Zn and Mn shall be periodically monitored at specific locations in both surface water downstream and in ground water at lower elevations from mine area, in consultation with the OSPCB and State Ground Water Board. Suitable treatment measures shall be undertaken in case levels are found to be higher than permissible limits.
<b>PPs Submission:</b> Complied Water Quality parameters are regularly tested for both surface water and ground water. Monitoring reports are submitted to SPCB from time to time. So far from the water quality analysis result of both surface and ground water attributes, no such adverse impacts have been observed when compared with applicable permissible limits/standards prescribed. An abstract of water quality assessment for Oct'23 to Mar'24 is <a href="#">enclosed herewith</a> .		Date: 27/05/2024
14	Statutory compliance	"Consent to Operate" should be obtained from SPCB before expanding mining activities.
<b>PPs Submission:</b> Complied Consent to Operate for Production of Mn Ore for 180000 TPA and Operation of stationary Screening Plant of 1X70 TPH has been accorded by SPCB, Odisha vide letter No. 4234/IND-I-CON-186 dated 17-03-2022 which is valid up to 31/03/2026. A copy of the valid CTO is <a href="#">enclosed herewith</a> .		Date: 27/05/2024
15	Statutory compliance	A plan for conservation Plan for conservation of endangered fauna including the Indian Elephant found in and around the mine area shall be prepared and implemented in consultation with identified agencies/institutions and with the State Forest Department. The Plan should be dovetailed with that prepared/under implementation/ proposed for the endangered fauna found in the Reserve Forest in the buffer zone of the project site. The costs for the specific activities/tasks should be earmarked in the Conservation Plan and shall not be diverted for any other purpose. Year-wise status of the implementation of the Plan and the expenditure thereon should be reported to the Ministry of Environment & forests, RO, Bhubaneswar.
<b>PPs Submission:</b> Complied A site specific wildlife conservation plan has been approved by PCCF, Bhubaneswar, Odisha and Chief Wildlife Warden Odisha vide memo no. 7726/1WL-SSP-93/2015 dated 31.08.2015. Following funds have been deposited by PP to State Forest Dept till date for – • Rs. 9,79,48,000/- for the implementation of various provisions of site-Specific wildlife conservation plan like avifauna monitoring, solar fencing and other • Rs 6,18,21,917/- for the implementation of regional wildlife conservation as per the demand notices. A copy of the approval of site-specific wildlife conservation plan is <a href="#">enclosed herewith</a> .		Date: 27/05/2024



## General Conditions

Sr.No.	Condition Type	Condition Details
1	MINING PLAN	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.
<b>PPs Submission:</b> Complied There is no change in the mining technology and scope of working of the mines. Mining is carried out as proposed by using shovel-dumper combination. Dry mobile screening is carried out with the help of a 1X75 TPH screen plant.		Date: 27/05/2024
2	MINING PLAN	No change in the calendar plan including excavation, quantum of manganese ore and waste should be made.
<b>PPs Submission:</b> Complied Production and excavation quantum is regulated by the Mine Plan approved by Indian bureau of Mines (IBM). No change in the calendar plan has been made. Total annual production achieved from the mine is well within the EC limit of 1.8 Lakh tonnes per annum.		Date: 27/05/2024
3	AIR QUALITY MONITORING AND PRESERVATION	Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO <sub>2</sub> , NO <sub>x</sub> & CO monitoring. Location of the stations should be decided based on the meteorological data, topographical features, and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Data on ambient air quality (RPM, SPM, SO <sub>2</sub> , NO <sub>x</sub> & CO) should be regularly submitted to the Ministry including its regional office at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.
<b>PPs Submission:</b> Complied In consultation with Regional Office, State Pollution Control Board (Keonjhar Region), 06 nos of dedicated Ambient Air Quality monitoring station have been established and regular monitoring is being carried out twice a week. Photographs of fixed type platforms properly geotagged with the spatial coordinates have been shared with State Pollution Control Board and the same was accepted to SPCB during renewal of CTO. In addition to this, 12 nos of locations have also been identified in the buffer zone for regular monitoring. Abstract of Ambient Air Quality monitoring result for the period during October 2023 to March 2024 is <a href="#">enclosed herewith</a> .		Date: 27/05/2024
4	AIR QUALITY MONITORING AND PRESERVATION	Drills should be wet operated or with dust extractors and controlled blasting should be practiced.
<b>PPs Submission:</b> Complied Wet drilling concept is already in place and practiced. Exploratory drills have been provided with inbuilt DE system. Controlled blasting technique with NONEL is in practice. Ground vibrations are being checked for every blast done in the mine. Blasting parameters are assessed periodically by engaging agency like CIMFR, Dhanbad. Based on the recommendation of such assessments, the blasting rounds are designed and fired.		Date: 27/05/2024
5	AIR QUALITY MONITORING AND PRESERVATION	Fugitive dust emissions from all the sources should be controlled regularly monitored and data recorded properly. Water spraying arrangements on haul roads, wagon loading, dumpers/ trucks, loading & unloading points should be provided and properly maintained.
<b>PPs Submission:</b> Complied Following measures are ensured for containment of fugitive dust emission: 1. Mobile water tanker (cap-10KI) for Haul Roads, Dump yards and other locations) 2. Mist Canons (30 LPH) for sorting		Date: 27/05/2024



yards and screening plants 3. Fixed Sprinkling system for static haul roads 4. Automatic Wheel wash facility at Railway Siding and exit point of the mines. Photographs of the fugitive dust pollution control measures deployed at the mine are <a href="#">enclosed herewith</a> .			
6	Noise Monitoring & Prevention	Adequate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operations of HEMM, etc. should be provided with ear plugs/ muffs.	
<b>PPs Submission: Complied</b> Ear plugs & Earmuffs are provided to the workers working in mining operation & DG operations and other high noise generating equipment's. Provision of acoustic enclosures are invariably ensured before the installation of such noise generating instruments. Following monitoring measures are ensured for the regulation of noise pollution associated impacts: 1. Monitoring of Noise level (both ambient noise survey) and workplace noise survey is carried out on monthly basis using an integrated sound level meter. 2. Occupational Noise Exposure assessment is also carried out for the persons engaged in high noise generating areas on quarterly basis by sampling individual workers over eight-hour durations. Noise level monitoring data for the period during October 2023 to March 2024 is <a href="#">enclosed herewith</a> .			Date: 27/05/2024
7	WATER QUALITY MONITORING AND PRESERVATION	Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	
<b>PPs Submission: Complied</b> For effective management of effluent following mitigative measures are ensured at the mine level: 1. Effluents from Workshop/Garage: Vehicle washing system and associated operational activities are provided with separate catchment drains and finally the effluents are collected in Oil-Water Separation system having skimming arrangements for oil and grease 2. Wastewater/runoff collected from the mine pits: Since there is no wet process thus no wastewater is generated at any stage from any process. 3. Surface runoff is channelized and accumulated in the mine pit. After adequate retention period, the same is pumped to water treatment plant for final treatment before domestic consumption. 4. Periodically water samples from mine pits and oil-water separation system are collected and analysed by an NABL accredited agency for checking compliance w.r.t applicable standards.			Date: 27/05/2024
8	MISCELLANEOUS	Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.	
<b>PPs Submission: Complied</b> Environmental Monitoring services are carried out by engaging an NABL Accredited agency having it's laboratory recognized by Ministry of Environment, Forest & Climate Change. Though no captive laboratory has been established at site but the entire services is outsourced to the third party who have an environmental laboratory within 20 Kms from the mine.			Date: 27/05/2024
9	Human Health Environment	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	
<b>PPs Submission: Complied</b> Personnel Protective Equipment's (PPEs) are being mandatorily used by all the workers as per applicability. It is regularly ensured at the entry points. Safe Operating Procedure based training is imparted to all the workers apart from the initial VT training. Periodical Medical Examination of employees (departmental & contractual) are conducted as per prescribed norms of Mines Rule, 1955.			Date: 27/05/2024



<p>Besides, Occupational health surveillance assessment as mentioned below are also carried out: 1. Personal Dust Sampling &amp; Free Silica exposure assessment by a DGMS approved agency. 2. Hand-Arm Vibration &amp; Whole Body Vibration Exposure Assessment report by a DGMS approved laboratory 3. Mn Poisoning test (periodic) by a medical laboratory. A sample of vibration exposure assessment carried out in the past is <a href="#">enclosed herewith</a>.</p>		
10	MISCELLANEOUS	A separate environmental management cell with suitable qualified personnel should be set up under the control of a Senior Executive, who will report directly to the Head of the Organization.
<p><b>PPs Submission:</b> Complied The company has made a robust arrangement for reviewing and monitoring the implementation of Environment management plan. A Centralized Environmental Management Department has been set up headed by the Chief (Environment) and supporting staff. The operation and legal sections at mine level include Head (Mine Planning), Head (Environment), Senior Manager - Mine Planning, Area Manager (RM Environment), Environment Engineer, Chemists, etc.</p>		Date: 27/05/2024
11	MISCELLANEOUS	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.
<p><b>PPs Submission:</b> Complied A dedicated cost Centre for maintaining all environmental expenditure is maintained in a separate GL account having a unique cost centre mapped in the SAP system. All sorts of environmental protection related expenditures are booked in the said cost centre for accounting purpose. The details of expenditure incurred during the last 3 financial years is as under: • FY-2021-22: Rs. 274.5 Lakhs • FY-2022-23: Rs. 272.92 Lakhs • FY-2023-24: Rs. 378.33 Lakhs</p>		Date: 27/05/2024
12	MISCELLANEOUS	The State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's Office/Tehsildar's Office for 30 days.
<p><b>PPs Submission:</b> Complied The EC documents was displayed in the office of Regional Office, District Industry Centre and Collector's Office/ Tehsildar's Office for 30 days.</p>		Date: 27/05/2024
13	MISCELLANEOUS	The project authorities should advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at Website of the Ministry of Environment & Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> . and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.
<p><b>PPs Submission:</b> Complied A copy of Environmental Clearance with regard to Joda West Manganese Mine was published in Oriya News Papers Dharitri &amp; Sambad on 17.10.2005.</p>		Date: 27/05/2024
14	Statutory compliance	The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.
<p><b>PPs Submission:</b> Complied The company has been extending full co-operation to the officers of the Regional Office and other</p>		Date: 27/05/2024



statutory agencies by furnishing the requisite data / information / monitoring reports as and when required. The same shall be continued in future as well.		
15	PUBLIC HEARING	A copy of clearance letter will be marked to the concerned Panchayat/local NGO, if any, from whom suggestion/ representation has been received while processing the proposal.
<b>PPs Submission:</b> Complied The clearance letter has been uploaded on the website of the Company. Copy of the clearance letter marked to Chairman, Municipal Council, Joda on 12.01.2006.		Date: 27/05/2024
<b>Visit Remarks</b>		
<b>Last Site Visit Report Date:</b>		N/A
<b>Additional Remarks:</b>		



**DUST FALL ANALYSIS RESULT ABSTARCT**

<b>DUST FALL ANALYSIS (SUMMER SEASON – APRIL'24)</b>										
<b>Location</b>	<b>Heavy Metal concentrations (g/m<sup>2</sup>-mo)</b>									
	<b>Arsenic</b>	<b>Cadmium</b>	<b>Copper</b>	<b>Hexavalent Chromium</b>	<b>Iron</b>	<b>Lead</b>	<b>Manganese</b>	<b>Mercury</b>	<b>Selenium</b>	<b>Zinc</b>
Stocking Yard, D Quarry	<0.0016	<0.0016	1.657	<0.0003	1.835	0.0018	0.546	<0.0003	<0.0016	0.0213
Stocking Yard, Gangaigora	<0.0016	<0.0016	1.4099	<0.001	14.009	<0.0016	6.637	<0.0010	<0.0016	0.025
Admin Office, Bichhakundi	<0.0016	<0.0016	0.953	<0.0023	31.603	<0.0016	6.993	<0.0023	<0.0016	0.0586
Haul Road, H Quarry	<0.0016	<0.0016	0.9533	<0.0005	5.993	<0.0016	1.718	<0.0005	<0.0016	0.0154
Dumping Yard, H Quarry	<0.0016	<0.0016	1.0779	<0.0003	2.86	0.0027	0.567	<0.0003	<0.0016	0.0379
Screen Plant, D Quarry	<0.0016	<0.0016	0.8275	<0.0007	15.409	<0.0016	4.034	<0.0007	<0.0016	0.0199





**The Dy. Director General of Forest (FC)  
Ministry of Environment, Forest & Climate Change,  
Regional Office (EZ), Government of India,  
A-3, Rail Vihar, Chandrasekharapur,  
Bhubaneswar – 751023**

Ref. No. MGM / P&E / 106 / 23

Date: 31.03.2023

**Sub: Submission of Approved Review of Mining for Joda West Iron & Manganese  
Mine over an area of 1437.719 ha for the period 2023-24 to 2027-28.**

Dear Sir,

With reference to above cited subject, we would like to inform you that the Review of Mining Plan & Progressive Mine Closure Plan in respect of Joda West Iron & Mn. Mine was submitted to Indian Bureau of Mines under Rule 17(2) of the MCR 2016 & Rule 23 of MCDR 2017 and duly approved vide letter no. MCDR-MiFL0Mn/3/2022-BBS-IBM\_RO\_BBS, Dtd. 28.03.2023.

Hence, we are enclosing herewith the approved copy of the Review of Mining Plan for your kind perusal.

Thanking you,

Yours faithfully,  
F: Tata Steel Ltd.

(Sabyasachi Mishra)  
Qualified Person &  
Head (Mine & Production Planning),  
Ferro Alloys & Minerals Division,

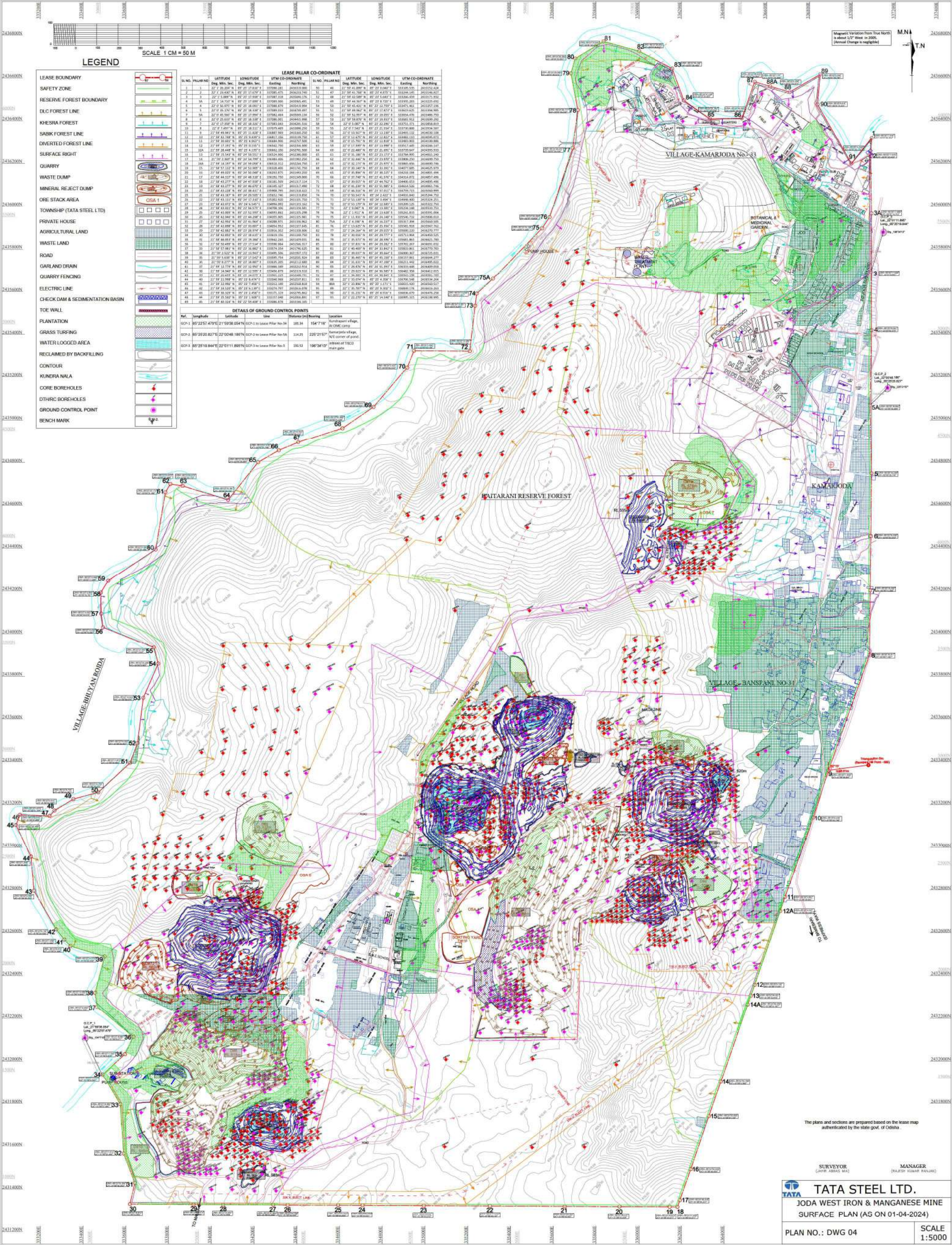
Encl: As above.



**TATA STEEL LTD.**

Ferro Alloys & Minerals Division, Manganese Group of Mines, At/P.O. Bichakundi, Via – Joda,  
Dist. Keonjhar, Odisha – 758034, Tel. +91 6372901872, e-mail: mnminesadmin@tatasteel.com  
Regd. Office - Bombay House 24 Homi Mody Street Fort Mumbai 400 001 India Tel 91 22 6665 8282 Fax 91 22 66657724  
Corporate Identity Number L27100MH1907PLC000260 Website [www.tatasteel.com](http://www.tatasteel.com)







**Old Stabilized Dump**





**Garland Drains, & Retaining walls**



**Concrete Rain Pass**





Photographs of Plantation Area of Joda West Mines







भारत सरकार  
जल शक्ति मंत्रालय  
जल संसाधन, नदी विकास  
और गंगा संरक्षण विभाग  
केन्द्रीय भूमि जल प्राधिकरण  
Government of India  
Ministry of Jal Shakti  
Department of Water Resources,  
River Development & Ganga Rejuvenation  
Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)  
**NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION**

Project Name:	Joda West Manganese Mines Tata Steel Ltd		
Project Address:	Joda West Manganese Mines, Tata Steel Ltd, Post Office : Bichakundi, Tahsil / Taluk : Barbil / Champua		
Village:	Camp Of Tisco	Block:	Joda
District:	Kendujhar	State:	Odisha
Pin Code:			
Communication Address:	Joda West Iron And Manganese Mine Of M/s Tata Steel Limited, Village-Bichhakundi, Post- Bichhakundi, Block-joda, Kendujhar, Odisha, Joda, Kendujhar, Odisha - 758034		
Address of CGWB Regional Office :	Central Ground Water Board South Eastern Region, Bhujal Bhawan, Khandagiri Square, Nh-5, Bhubaneshwar, Khordha, Odisha - 750001		

1.	<b>NOC No.:</b>		CGWA/NOC/MIN/REN/2/2023/7840				2.	<b>Date of Issuance</b>		13/05/2023															
3.	Application No.:		21-4/1195/OR/MIN/2017				4.	Category: (GWRE 2020)		Safe															
5.	Project Status:		Existing With Additional Ground Water Requirment				6.	NOC Type:		Renewal															
7.	<b>Valid from:</b>		23/07/2022				8.	<b>Valid up to:</b>		22/07/2024															
9.	Ground Water Abstraction Permitted:																								
Fresh Water				Saline Water				Dewatering				Total													
m³/day		m³/year		m³/day		m³/year		m³/day		m³/year		m³/day		m³/year											
146.00		143080.00						246.00		89790.00															
10.	Details of ground water abstraction /Dewatering structures																								
<b>Total Existing No.:</b> 4								<b>Total Proposed No.:</b> 1																	
		DW		DCB		BW		TW		MP		MPu		DW		DCB		BW		TW		MP		MPu	
Abstraction Structure*		0		0		4		0		0		0		0		0		0		0		0		0	
Dewatering Structure*		0		0		0		0		0		0		0		0		0		0		1		0	
*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps																									
11.	Ground Water Abstraction/Restoration Charges paid (Rs.):								286160.00																
12.	Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.						No. of Piezometers				Monitoring Mechanism														
										Manual		DWLR**		DWLR With Telemetry											
**DWLR - Digital Water Level Recorder						1				0		1		0											

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011

Phone: (011) 23383561 Fax: 23382051, 23386743

Website: cgwa-noc.gov.in

पानी बचाये - जीवन बचाये  
SAVE WATER - SAVE LIFE



**(Compliance Conditions given overleaf)**

This is an auto generated document & need not to be signed.

CENTRAL GROUND WATER AUTHORITY

---

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011

Phone: (011) 23383561 Fax: 23382051, 23386743

Website: [cgwa-noc.gov.in](http://cgwa-noc.gov.in)

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**SAVE WATER - SAVE LIFE**



Validity of this NOC shall be subject to compliance of the following conditions:

**Mandatory conditions:**

- 1) Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate.
- 2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.
- 3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II of the guidelines.
- 4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.
- 5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.
- 6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.
- 7) The firm shall report compliance of the NOC conditions online in the website ([www.cgwa-noc.gov.in](http://www.cgwa-noc.gov.in)) within one year from the date of issue of this NOC.
- 8) Industries abstracting ground water in excess of 100 m<sup>3</sup>/d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.
- 9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.
- 10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

**General conditions:**

- 11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).
- 12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).
- 13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.
- 14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.
- 15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.
- 16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.
- 17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.
- 18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.
- 19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.
- 20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.
- 21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.
- 22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.
- 23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.
- 24) Proponents, who have installed/constructed artificial recharge structures in compliance of the NOC granted to them previously and have availed rebate of upto 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, shall continue to regularly maintain artificial recharge structures.
- 25) Industries which are likely to cause ground water pollution e.g. Tanning, Slaughter Houses, Dye, Chemical/ Petrochemical, Coal washeries, pharmaceutical, other hazardous units etc. (as per CPCE list) need to undertake necessary well head protection measures to ensure prevention of ground water pollution as per Annexure III of the guidelines.
- 26) In case of new infrastructure projects having ground water abstraction of more than 20 m<sup>3</sup>/day, the firm/entity shall ensure implementation of dual water supply system in the projects.
- 27) In case of infrastructure projects, paved/parking area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting.
- 28) In case of coal and other base metal mining projects, the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid contamination of surface water.
- 29) The NOC issued is conditional subject to the conditions mentioned in the Public notice dated 27.01.2021 failing which penalty/EC/cancellation of NOC shall be imposed as the case may be.
- 30) This NOC is issued subject to the clearance of Expert Appraisal Committee (EAC) (if applicable).

(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)

## CENTRAL GROUND WATER AUTHORITY

Department of Water Resources, River Development and Ganga Rejuvenation  
Ministry of Jal Shakti, Govt. of India

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011

Phone: (011) 23383561 Fax: 23382051, 23386743

Website: [cgwa-noc.gov.in](http://cgwa-noc.gov.in)

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**Anacon  
Laboratories**

**Anacon Laboratories Pvt. Ltd. Nagpur Lab**

Q FP-34, 35, Food Park, Five Star Industrial Estate,  
MIDC Butibori, Nagpur, Maharashtra, India - 441 122

+ 91 8045685558 Email : info@anacon.in

https://www.anaconlaboratories.com

Test Report

**M/s Joda East Iron Mine**

(M/s TATA Steel Limited)

District - Kendujhar,

State - Odisha-758 034.

**Ground Water Table Measurement**

**October-2023**

Sl. No.	Village Name	Date of Measurement	Details of location	Static Water Level from Measuring Point in Mtrs. (Level in mbmp)	Measuring Point i.e. MP distance above ground level in Mtrs. (magl)	Water level Below Ground Level in Mtrs. = mbmp - magl
1	Khuntapani Basti	16/10/2023	Dugwell near School	4.16	0.80	3.36
2	Komar Joda Basti	16/10/2023	Dugwell near Road	4.97	0.80	4.17
3	Hudi Sahi Basti	16/10/2023	Dugwell (Mr. Jagbandhu Nayar)	5.16	0.80	4.36
4	Banaikala Basti	16/10/2023	Gov. Dugwell	3.52	0.70	2.82
5	Ramjan Hutting Basti	16/10/2023	Dugwell	4.27	0.50	3.77

Chemist:-

*Sony*

-----End of Report-----

Authorized Signatory

*Seam*





Test Report

**M/s Joda East Iron Mine**  
 (M/s TATA Steel Limited)  
 District - Kendujhar,  
 State - Odisha-758 034.

**Ground Water Table Measurement**  
**November-2023**

Sl. No.	Village Name	Date of Measurement	Details of location	Static Water Level from Measuring Point in Mtrs. (Level in mbmp)	Measuring Point i.e. MP distance above ground level in Mtrs. (magl)	Water level Below Ground Level in Mtrs. = mbmp - magl
1	Khuntapani Basti	16/11/2023	Dugwell near School	4.48	0.80	3.68
2	Komar Joda Basti	16/11/2023	Dugwell near Road	5.16	0.80	4.36
3	Hudi Sahi Basti	16/11/2023	Dugwell (Mr. Jagbandhu Nayar)	5.39	0.80	4.59
4	Banaikala Basti	16/11/2023	Gov. Dugwell	3.81	0.70	3.11
5	Ramjan Hutting Basti	16/11/2023	Dugwell	4.62	0.50	4.12

Chemist:- *S.D. Singh*

-----End of Report-----

Authorized Signatory

*Signature*





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9 FP-34, 35, Food Park, Five Star Industrial Estate,  
MIDC Butibori, Nagpur, Maharashtra, India - 441 122  
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https://www.anaconlaboratories.com

Test Report

**M/s Joda East Iron Mine**  
(M/s TATA Steel Limited)  
District - Kendujhar,  
State - Odisha-758 034.

**Ground Water Table Measurement**  
**December-2023**

Sl. No.	Village Name	Date of Measurement	Details of location	Static Water Level from Measuring Point in Mtrs. (level in mbmp)	Measuring Point i.e. MP distance above ground level in Mtrs. (magl)	Water level Below Ground Level in Mtrs. = mbmp - magl
1	Khuntapani Basti.	14/12/2023	Dugwell near School	4.62	0.80	3.82
2	Komar Joda Basti	14/12/2023	Dugwell near Road	5.38	0.80	4.58
3	Hudi Sahi Basti	14/12/2023	Dugwell (Mr. Jagbandhu Nayar)	5.47	0.80	4.67
4	Banaikala Basti	14/12/2023	Gov. Dugwell	4.16	0.70	3.46
5	Ramjan Hutting Basti	14/12/2023	Dugwell	4.79	0.50	4.29

Chemist:- *Spnd*

-----End of Report-----

Authorized Signatory

*Signature*







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MIDC Butibori, Nagpur, Maharashtra, India - 441 122

+ 91 8045685558 Email : info@anacon.in

https://www.anaconlaboratories.com

**M/s Joda East Iron Mine**  
(M/s TATA Steel Limited)  
District - Kendujhar,  
State - Odisha-758 034.

**Ground Water Table Measurement**  
**January-2024**

Sl. No.	Village Name	Date of Measurement	Details of location	Static Water Level from Measuring Point in Mtrs. (Level in mbmp)	Measuring Point i.e. MP distance above ground level in Mtrs. (magl)	Water level Below Ground Level in Mtrs. = mbmp - magl	Test Report
1	Khuntapani Basti	18/01/2024	Dugwell near School	4.73	0.80	3.93	
2	Komar Joda Basti	18/01/2024	Dugwell near Road	5.94	0.80	5.14	
3	Hudi Sahi Basti	18/01/2024	Dugwell (Mr. Jagbandhu Nayar)	5.81	0.80	5.01	
4	Banaikala Basti	18/01/2024	Gov. Dugwell	4.76	0.70	4.06	
5	Ramjan Hutting Basti	18/01/2024	Dugwell	4.92	0.50	4.42	

*Signature*

Authorized Signatory

-----End of Report-----

Chemist:-



Thank you for instilling your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavor towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on [feedback@anacon.in](mailto:feedback@anacon.in).





# Anacon Laboratories

Anacon Laboratories Pvt. Ltd. Nagpur Lab

FP-34, 35, Food Park, Five Star Industrial Estate,  
MIDC Butibori, Nagpur, Maharashtra, India - 441 122

+ 91 8045685558 Email : info@anacon.in

https://www.anaconlaboratories.com

## Test Report

Sl. No.	Village Name	Date of Measurement	Details of location	Static Water Level from Measuring Point in Mtrs. (Level in mbmp)	Measuring Point i.e. MP distance above ground level in Mtrs. (magl)	Water level Below Ground Level in Mtrs. = mbmp - magl
1	Khuntapani Basti	12/02/2024	Dugwell near School	4.82	0.80	4.02
2	Komar Joda Basti	12/02/2024	Dugwell near Road	6.03	0.80	5.23
3	Hudi Sahi Basti	12/02/2024	Dugwell (Mr. Jagbandhu Nayar)	5.92	0.80	5.12
4	Banaikala Basti	12/02/2024	Gov. Dugwell	4.81	0.70	4.11
5	Ranjian Hutting Basti	12/02/2024	Dugwell	5.12	0.50	4.62

## Ground Water Table Measurement

February-2024

M/s Joda East Iron Mine

(M/s TATA Steel Limited)

District - Kendujhar,

State - Odisha-758 034.

Chemist:-

*[Signature]*

Authorized Signatory

*[Signature]*

-----End of Report-----



Thank you for instilling your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavor towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on [feedback@anacon.in](mailto:feedback@anacon.in).





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Q FP-34, 35, Food Park, Five Star Industrial Estate,  
MIDC Butibori, Nagpur, Maharashtra, India - 441 122  
☎ + 91 8045685558 ✉ Email : info@anacon.in  
🌐 [https:// www.anaconlaboratories.com](https://www.anaconlaboratories.com)

Test Report

**M/s Joda East Iron Mine**

(M/s TATA Steel Limited)

District - Kendujhar,

State - Odisha-758 034.

**Ground Water Table Measurement**

**March-2024**

Sl. No.	Village Name	Date of Measurement	Details of location	Static Water Level from Measuring Point in Mtrs. (Level in mbmp)	Measuring Point i.e. MP distance above ground level in Mtrs. (magl)	Water level Below Ground Level in Mtrs. = mbmp - magl
1	Khuntapani Basti	18/03/2024	Dugwell near School	4.92	0.80	4.12
2	Komar Joda Basti	18/03/2024	Dugwell near Road	6.13	0.80	5.33
3	Hudi Sahi Basti	18/03/2024	Dugwell (Mr. Jagbandhu Nayar)	6.04	0.80	5.24
4	Banaikala Basti	18/03/2024	Gov. Dugwell	4.87	0.70	4.17
5	Ramjan Hutting Basti	18/03/2024	Dugwell	5.26	0.50	4.76

Verified by

Snehal Raut  
Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway  
Quality Manager

----End of Report----



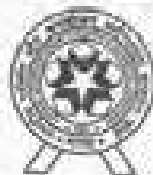


## WATER MONITORING REPORT



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044038120  
Email: udayantab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695024000004135F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd. (MGMD) Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. &amp; Date :

Discipline:

MSKPL/FO/2023-24/N11285

13/03/2024

MSKNB/FO/2023-24/03/JJ553X

06/03/2024

06/03/2024 - 13/03/2024

Permanent Facility

3000156017/056, Date - 16/03/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Drinking Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	05/03/2024
5. Place of sampling	BICHAKUDI WTP-OUTLET
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17514( P-5) 2022
8. Identification of the personnel performing sampling by MSK	PRANAB SETHI, LAJIN NAIK

Report No. : MSKPL/FO/2023-24/N11285

Sample No. : MSKNB/FO/2023-24/03/JJ553X

## RESULT

## Chemical

Sl.No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Cadmium as Cd	mg/l	IS 3025 (Part 2)	1.003	No Relaxation	BDL(DL:0.001)
2	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BDL(DL:0.01)
3	Silver as Ag	mg/l	IS 3025 (Part 2)	0.1	No Relaxation	BDL(DL:0.005)
4	Silica (as SiO <sub>2</sub> )	mg/l	IS 3025 (Part 35)	Not Specified	Not Specified	DL(DL:0.1)
5	Selenium as Se	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BDL(DL:0.005)
6	Mercury as Hg	mg/l	IS 3025 (Part 48)	0.001	No relaxation	BDL(DL:0.0002)
7	Zinc as Zn	mg/l	IS 3025 (Part 2)	5	15	BDL(DL:0.02)
8	Colour	Hazen	IS 3025 (Part 4)	5	15	DL(DL:1.0)
9	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	1.05	No relaxation	DL(DL:0.02)
10	Fluoride as F	mg/l	IS 3025 (Part 60)	1.0	1.5	BDL(DL:0.2)
11	Nitrate as NO <sub>3</sub>	mg/l	APHA (24th EDITION) 4500-NO <sub>3</sub> -B	45	No Relaxation	0.58
12	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No Relaxation	BDL(DL:0.02)
13	Arsenic as As	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.005)
14	Manganese as Mn	mg/l	IS 3025 (Part 2)	1.1	0.3	BDL(DL:0.02)
15	Lead as Pb	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BDL(DL:0.005)
16	Copper as Cu	mg/l	IS 3025 (Part 2)	0.05	1.5	BDL(DL:0.02)

Reviewed By:

Signature

Name

Designation

Atraya Saha P. Ganguly

Ms. Atraya Saha, Ms. Poo Ganguly

Sr. E&amp;C Chemist, Executive Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Soumyadeep Mukhopadhyay

Lab In-charge

Head Office:

Branch Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700046, India  
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Email: udayanlab@mitrask.com



TC-6950



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## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd (MGM), Joda West

As/To : Joda, Dist. : Keonjhar, Odisha - 758004 India

Report No. :

MSKPL/FD/2023-24/N1128S

Date :

13/03/2024

Sample No. :

MSKNB/FD/2023-24/03/JJ553X

Date of receipt of sample:

06/03/2024

Date(s) of performance:

06/03/2024 - 06/03/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000158017/056, Date - 16/09/2023

Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Drinking Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	06/03/2024
5. Place of sampling	BACHAKUDI WTP-OUTLET
6. Environmental conditions during sampling & transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17914( P-25) 2022
8. Identification of the personnel performing sampling by MSK	PRANAB SETHI, LALIN NAIK

Report No. : MSKPL/FD/2023-24/N1128S

Sample No. : MSKNB/FD/2023-24/03/JJ553X

## RESULT

**Micro Biology**

Sl No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Total coliform	#100ml	IS:15185	Not Detectable	Not Applicable	Detected
2	E. coli	#100ml	IS:15185	Not Detectable	Not Applicable	Not Detected

Opinion : Acceptable limit & Permissible limit are as per IS:10500:2012.

Statement of Conformity NA

— END —

Reviewed By

Signature

Name : Mr. Maheswar Chakraborty

Designation : Executive Microbiologist

Authorized Signatory

Signature

Name : Mr. Maheswar Chakraborty

Designation : Executive Microbiologist

The results relate only to the sample(s) tested.

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCR guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Service Centre (Bn Floor), T4B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
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Email : info@mitrask.com Website : www.mitrask.com



Report No. MSKGL/ED/2023-24/405481

Date: 25.03.2024

## ANALYSIS REPORT OF DRINKING WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	05.03.2024
Location	Bichakundi WTP Out let (JWIMM)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unit	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH3-F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500-Ca B	75	200	14.4
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500-Cl B	250	1000	8
4	Odour	Hazen	3025 (Part 5)-1983 Rfm:2012	Agreeable	Agreeable	Agreeable
5	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	---	109
6	Iron (as Fe)	mg/l	APHA (24th Edition), 3500-Fe B	0.3	No Relaxation	<0.05
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500-Mg B	30	100	2.9
8	Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500-K B	---	---	<1.0
10	Salinity	PSU	APHA (24th Edition), 2520B	---	---	0.057
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500-Na B	---	---	4.1
12	Sulphate (as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500-SO <sub>4</sub> -E	200	400	1.4
13	Taste	None	IS 3025 (Part 8)-1983 Rfm:2012, (0)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2320B	200	600	44
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	66
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340-C	200	600	48
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	---	---	<2.5
18	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0
19	pH value at 25 deg C	None	APHA 24th Edition, 2023, 4500-H+B	6.5-8.5	No Relaxation	7.77

Checked by:-

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

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3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7046036120  
Email: udayanlab@mitrask.com



TC-6950



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URL: TC-695024000004134F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

As/To : Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/FD/2023-24/71128V

Date :

13/03/2024

Sample No. :

MSKNB/FD/2023-24/03/CL452K

Date of receipt of sample:

06/03/2024

Date(s) of performance:

06/03/2024 - 13/03/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date : 16/06/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Drinking Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	05/03/2024
5. Place of sampling	Bishakundi WTP-INLET
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17514( P-5) 2022
8. Identification of the personnel performing sampling by MSK	PRANAB SETHI, LALIN NAIK

Report No. : MSKPL/FD/2023-24/71128V

Sample No. : MSKNB/FD/2023-24/03/CL452K

## RESULT

Sl.No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Cadmium as Cd	mg/l	IS 3025 (Part 2)	1.003	No Relaxation	BDL(DL:0.001)
2	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BDL(DL:0.01)
3	Silver as Ag	mg/l	IS 3025 (Part 2)	0.1	No Relaxation	BDL(DL:0.005)
4	Silica (as SiO2)	mg/l	IS 3025 (Part 35)	Not Specified	Not Specified	BDL(DL:0.1)
5	Selenium as Se	mg/l	IS 3025 (Part 2)	1.01	No relaxation	BDL(DL:0.005)
6	Mercury as Hg	mg/l	IS 3025 (Part 48)	0.001	No relaxation	BDL(DL:0.0002)
7	Zinc as Zn	mg/l	IS 3025 (Part 2)	5	15	BDL(DL:1.0)
8	Colour	Hazen	IS 3025 (Part 4)	5	15	BDL(DL:1.0)
9	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	0.05	No relaxation	BDL(DL:0.02)
10	Fluoride as F	mg/l	IS 3025 (Part 60)	1.0	1.5	BDL(DL:0.2)
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3-B	45	No Relaxation	BDL(DL:0.4)
12	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No Relaxation	BDL(DL:0.02)
13	Arsenic as As	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.005)
14	Manganese as Mn	mg/l	IS 3025 (Part 2)	0.1	0.3	BDL(DL:0.02)
15	Lead as Pb	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BDL(DL:0.005)
16	Copper as Cu	mg/l	IS 3025 (Part 2)	0.05	1.5	BDL(DL:0.02)

Reviewed By:

Signature

Atreyee Sam P. Ganguly

Name

Mr. Atreyee Sam P. Ganguly

Designation

Sr. Env. Chemist, Executive Officer

Authorized Signatory

Signature

Name

Designation

 Dr. [Signature]  
Lab in Charge

Head Office:

Branch Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
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West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-8950



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ULR: TC-895034000004134F

## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd (MGM), Joda West

AsPo - Joda, Dist. - Keonjhar, Odisha - 755034 India

**Report No. :**

MSKPL/FD/2023-24/71128V

**Date :**

13/03/2024

**Sample No. :**

MSKNB/FD/2023-24/03/GL452K

**Date of receipt of sample:**

06/03/2024

**Date(s) of performance:**

06/03/2024 - 06/03/2024

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/056, Date - 16/09/2023

**Discipline:**

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Drinking Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	06/03/2024
5. Place of sampling	Bihakundi WTP-INLET
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17514( P-25) 2022
8. Identification of the personnel performing sampling by MSK	PRANAB SETHI, LALIN NAIK

**Report No. :** MSKPL/FD/2023-24/71128V**Sample No. :** MSKNB/FD/2023-24/03/GL452K

## RESULT

**Micro Biology**

Sr No.	Parameter	JOM	Method	Acceptable Limit	Permissible Limit	Result
1	Total coliform	#100ml	IS 15185	Not Detectable	Not Applicable	Detected
2	E. coli	#100ml	IS 15185	Not Detectable	Not Applicable	Not Detected

**Opinion :** Acceptable limit & Permissible limit are as per IS:10500:2012

**Statement of Conformity** NA

— END —

Reviewed By:

Signature

Name

Ms. Malayee Chakraborty

Designation : Executive Microbiologist

Reviewed (Signature)

Signature

Name

Ms. Malayee Chakraborty

Designation

Executive Microbiologist

The results relate only to the item(s) tested.

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 7 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Sol, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (A) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed Food) shall be retained for 15-days from the date of issue of the Test Report.

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Report No. MSKGL/ED/2023-24/005487


Date: 25.03.2024

## ANALYSIS REPORT OF DRINKING WATER

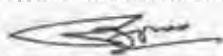
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	05.03.2024
Location	Bichakundi WTP Inlet (JWIMM)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unit	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH3-F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500-Ca B	75	200	12.8
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500-Cl B	250	1000	12
4	Odour	Hazen	3025 (Part-5)-1983 Rfm:2012	Agreeable	Agreeable	Agreeable
5	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	---	93
6	Iron (as Fe)	mg/l	APHA (24th Edition), 3500-Fe B	0.3	No Relaxation	<0.05
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500-Mg B	30	100	1.9
8	Phenolic Compound (as C6H5OH)	mg/l	APHA (24th Edition), 5510C (Chloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500-K B	---	---	<1.0
10	Salinity	PSU	APHA (24th Edition), 2520B	---	---	0.049
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500-Na B	---	---	3.8
12	Sulphate (as SO4)	mg/l	APHA (24th Edition), 4500-SO42-E	200	400	1.8
13	Taste	None	IS 3025 (Part B)-1983 Rfm:2012 (0)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	32
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	58
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340-C	200	600	40
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	---	---	<2.5
18	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0
19	pH value at 25 deg C	None	APHA 24th Edition, 2023, 4500, H+B	6.5-8.5	No Relaxation	7.3

Checked by: 

For Mitra S. K. Private Limited

  
Authorized Signatory



## Address of Laboratory :

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West Bengal  
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Email: udayanlab@mitrask.com



TC-6950



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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd. (MGM), Joda West

As/To. - Joda, Dist. - Keonjhar, Odisha - 758004 India

## Report No. :

MSKPL/FD/2023-24/X/11327

## Date :

09/03/2024

## Sample No. :

MSKNB/FD/2023-24/03/YDS64N

## Date of receipt of sample:

02/03/2024

## Date(s) of performance:

02/03/2024 - 09/03/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/03/2024
5. Place of sampling	Bichakundi Vegetable Garden Pond
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17814( P-23) 2021
8. Identification of the personnel performing sampling by MSK	LALIN NAIK

Report No. : MSKPL/FD/2023-24/X/11327

Sample No. : MSKNB/FD/2023-24/03/YDS64N

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	30
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	0.33
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 46)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.70
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

— END —

Received By:

Signature

Mr. Anupam Saha, Mr. P. Ganguly

Name

Mr. Anupam Saha, Mr. P. Ganguly

Designation

Sr. Lab. Chemist, Executive Chemist

Authorized Signatory

Signature

Name

Designation

Lab. In-charge

Head Office:

Branch Centre (5th Floor), 148, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
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Email : info@mitrask.com Web site : www.mitrask.com



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Email: udayanlab@mitrask.com



TC-6950



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## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ID/2023-24/X/11327

Date :

09/03/2024

Sample No. :

MSKNM/ID/2023-24/03/YD664N

Date of receipt of sample:

02/03/2024

Date(s) of performance:

02/03/2024 - 07/03/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/03/2024
5. Place of sampling	Bachkund Vegetable Garden Pond
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17514( P-25) 2022
8. Identification of the personnel performing sampling by MSK	LALIN NAIK

Report No. : MSKPL/ID/2023-24/X/11327

Sample No. : MSKNM/ID/2023-24/03/YD664N

## RESULT

**Micro Biology**

Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods or the examination of water & waste water, 24th edn, 92216	790

Opinion : NA

Statement of Conformity : NA

END

Reviewed By:   
Signature:   
Name: Ms. Malleswari Chakraborty  
Designation: Executive Microbiologist

Reviewed By:   
Signature:   
Name: Ms. Malleswari Chakraborty  
Designation: Executive Microbiologist

The results relate only to the items tested.  
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The retained part of sample(s) for chemical analysis (Non - perishable sample(s): Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.  
The retained part of sample(s) for chemical analysis (Semi, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (WWT) 1 month from the date of issue of the Test Report.  
The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s): Food, Water, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shree Ganga (2nd Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
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Email: info@mitrask.com Website: www.mitrask.com



Report No. MSKGL/ED/2023-24/005475


Date: 25.03.2024

## ANALYSIS REPORT OF SURFACE WATER

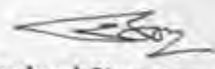
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	31.03.2024
Location	3ichakundi Vegetable Garden Pond (JWIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	10
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl <sup>-</sup>	---	8
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	6.5
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	109
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.2
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	1.9
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.057
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	2.6
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	44
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	66
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	32
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	47
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-I+B	5.5-9.0	6.83

Checked by:- 

For Mitra S. K. Private Limited

  
Authorized Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044038120  
Email: udayanlab@mitrasak.com



TC-6950



Scan for Portal

ULR: TC-695024000003865F

## Name & Address of Customer :

Tata Steel Ltd. (MGMD), Joda West

At Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FO/2023-24/F1132P

09/03/2024

MSKNB/FO/2023-24/03/XS8NSW

02/03/2024

02/03/2024 - 09/03/2024

Permanent Facility

3000156017/056, Date - 16/06/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/03/2024
5. Place of sampling	Sona River Near Mahanadi Guest House
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17814( P-23) 2021
8. Identification of the personnel performing sampling by MSK	LALIN NAIK

Report No. : MSKPL/FO/2023-24/F1132P

Sample No. : MSKNB/FO/2023-24/03/XS8NSW

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 50)	BDL(DL:0.3)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.65
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

END

Initiated By:

Signature

Name : Mr. Arjun Kumar, Mr. Pankaj Ganguly

Designation : Sr. Exec. Chemist, Executive Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Soumyadeep Mukhopadhyay  
Lab in charge

Head Office: 3000156017/056, Date - 16/06/2023  
Tel : 91 33 40140000 / 22660000 Fax : 91 33 22660000  
Email : info@mitrasak.com Website : www.mitrasak.com



## Address of Laboratory :

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3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044035120  
Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695024000003865F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

Au/Pe. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FO/2023-24/F1132P

09/03/2024

MSKMB/FO/2023-24/03/XS9N9W

02/03/2024

02/03/2024 - 07/03/2024

Permanent Facility

3000158017/058, Date - 16/06/2023

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/03/2024
5. Place of sampling	Song River Near Mahanadi Guest House
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17014( P-25) 2022
8. Identification of the personnel performing sampling by MSK	LALIN NAIK

Report No. : MSKPL/FO/2023-24/F1132P

Sample No. : MSKMB/FO/2023-24/03/XS9N9W

## RESULT

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 8271B	40

Opinion : NA

Statement of Conformity : NA

— END —

Received By:

Signature

Name : Mr. Manoj Kumar Chatterjee

Designation : Executive Microbiology

Authorized Signatory

Signature

Name : Mr. Manoj Kumar Chatterjee

Designation : Executive Microbiology

No results shall be reported for the sample tested.

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 12 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 12 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shree Centre (5th Floor), 148, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.

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Email : info@mitrask.com Website : www.mitrask.com



Report No. MSKGL/ED/2023-24/005469

Date: 25.03.2024

## ANALYSIS REPORT OF SURFACE WATER

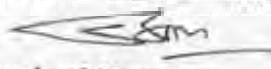
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	01.03.2024
Location	Sona River Near Mahanadi Guest House (JWIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	8
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	6
5	DO	mg/l	APHA 24th Edition, 2023 4500-3-C/G	---	6.6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	89
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.12
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	2.9
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.047
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> 2-E	---	<1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	40
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	54
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	32
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	10
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H-B	5.5-9.0	6.59

Checked by: 

For Mitra S. K. Private Limited

  
Authorized Signatory



## Address of Laboratory :

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Tel : +91 7044038120  
Email: udayanlab@mitrask.com



TC-6950

Doc No.: MSK/GEN/0001



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URL: TC-695004000005274F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2023-24/M12440

27/03/2024

MSKNB/FD/2023-24/03/OL120H

14/03/2024

14/03/2024 - 27/03/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

We hereby certify that the following sample Driven by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	13/03/2024
5. Place of sampling	Keth-huting Up Stream H-quarry (Sona River).
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-23) 2021
8. Identification of the personnel performing sampling by MSK	Akash Kr Sany

Report No. : MSKPL/FD/2023-24/M12440

Sample No. : MSKNB/FD/2023-24/03/OL120H



## RESULT


Chemical				
Sl No.	Parameter	DOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.54
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

END

Reviewed By:   
Signature:   
Name: Mr. Anupam Saha, Mr. Paul Ganguly  
Designation: Sr. Env. Chemist, Executive Chemist

Authorized Signatory:  
Signature:   
Name: Dr. Gouryadip Mukherjee  
Designation: Lab in charge



## Address of Laboratory :

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West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-8850



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URL: TC-885024000005274F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 756034 India

Report No. :

MSKPL/FD/2023-24/M12440

Date :

27/03/2024

Sample No. :

MSKMB/FD/2023-24/03/OL120H

Date of receipt of sample:

14/03/2024

Date(s) of performance:

14/03/2024 - 19/03/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000158017/056, Date - 16/09/2023

Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	13/03/2024
5. Place of sampling	Keth-huffing Up Stream H-quarry (Sona River).
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17814( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Akash Kr Sany

Report No. : MSKPL/FD/2023-24/M12440

Sample No. : MSKMB/FD/2023-24/03/OL120H

## RESULT

### Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	Total Coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn, 9221B	220

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name : Mr. Mahendra Chandra

Designation : Executive Microbiologist

Authorized Signatory:

Signature

Name : Mr. Mahendra Chandra

Designation : Executive Microbiologist

The results relate only to the item(s) tested.  
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The reserved part of sample(s) for chemical analysis (Heat - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.  
The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Plastic) shall be retained for 15 days as per IS:17814 (Part 1) clause 10.1 from the date of issue of the Test Report.  
The reserved part of sample(s) for Microbiological analysis (Heat - perishable sample(s) Food, Sealed Water, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: District Centre (1st Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel : 91 33 40143000 / 23050001 Fax : 91 33 23652008  
Email : info@mitrask.com Website : www.mitrask.com



# Mitra S. K. Private Limited

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E : barbit@mitrask.co.in  
W : www.mitrask.com



Report No. MSKGL/ED/2023-24/0000057

Date: 05.04.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	13.03.2024
Location	Keth -Hutting before H-Quarry Up Stream (JWIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	8
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	8
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/H	---	6.8
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	70
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.49
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	1.9
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.038
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> 2-E	---	1.3
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	28
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	42
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	28
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	4
18	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H-B	5.5-9.0	6.86

Checked by:-

For Mitra S. K. Private Limited

Authorized Signatory



Report No. MSKCL/ED/2023-24/005473


Date: 25.03.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	01.03.2024
Location	Leath-Hutting after H- Quarry Down Stream (JWIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	8
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl II	---	6
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	6.8
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	80
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	<0.05
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	1.9
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.043
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	1.1
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	36
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	48
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	28
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	<2.5
18	pH value at 25.3 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.34

Checked by: 

For Mitra S. K. Private Limited

  
Authorized Signatory



## Address of Laboratory :

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West Bengal  
Tel : +91 7044035120  
Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695024000003854F

## Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

AuPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2023-24/R1132N

09/03/2024

MSK/NBM/FD/2023-24/03/P1FX63

02/03/2024

02/03/2024 - 09/03/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/03/2024
5. Place of sampling	Baitani River (Kendra Village)
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-2.3) 2021
8. Identification of the personnel performing sampling by MSK	LALIN NAIK

Report No. : MSKPL/FD/2023-24/R1132N

Sample No. : MSK/NB/FD/2023-24/03/P1FX63

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3-B	0.74
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature: *Aranya Saha P. Ganguly*

Name: Mr. Aranya Saha, Mr. Priti Ganguly

Designation: Sr. Exec. Chemist, Executive Chemist

Authorized Signatory:

Signature:

Name:

Designation:

Dr. Subhrajit Majumdar

Lab In charge

Head Office: Branch/ Centre (3rd Floor), T-48, A.J.C. Road, Kolkata - 700016, West Bengal, India.  
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West Bengal  
Tel : +91 7044038120  
Email: udayanlab@mitrask.com



TC-8950



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ULR: TC-69502400503854F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West  
At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2023-24/R1132N

09/03/2024

MSKNB/FD/2023-24/03/P1FX83

02/03/2024

02/03/2024 - 07/03/2024

Permanent Facility

3000158017/098, Date - 16/08/2023

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/03/2024
5. Place of sampling	Baitani River (Kandra Village)
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17514( P-25) 2022
8. Identification of the personnel performing sampling by MSK	LALIN NAIK

Report No. : MSKPL/FD/2023-24/R1132N

Sample No. : MSKNB/FD/2023-24/03/P1FX83

## RESULT

### Micro Biology

Sl No.	Parameter	UCM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 922B	220

Opinion : NA

Statement of Conformity : NA

END

Reviewed By:

Signature

Name

Designation

Mr. Madhura Chatterjee

Executive Microbiologist

Authorized Signature

Signature

Name

Designation

Mr. Madhura Chatterjee

Executive Microbiologist

The results relate only to the sample(s) tested.  
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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food/Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.  
The retained part of sample(s) for chemical analysis (Spill, Solid & Liquid Waste) shall be retained for 15 days as per CPCRI guidelines & (NA) 1 month from the date of issue of the Test Report.  
The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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W : www.mitrask.com



Report No. MSKGL/ED/2023-24/005061

Date: 25.03.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	01.03.2024
Location	Bal arni River Kandra Village (JWIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	10
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	6
5	DO	mg/l	APHA 24th Edition, 2023 4500-3-C/G	---	6.9
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	130
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe E	3	<0.05
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	3.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.067
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	2.9
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	56
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	78
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	40
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	11
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-14-B	5.5-9.0	6.63

Checked by:

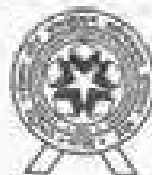
For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

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Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



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URL: TC-695034000003853F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

### Report No. :

MSKPL/FD/2023-24/Y1132E

### Date :

09/03/2024

### Sample No. :

MSKNB/FD/2023-24/03KJUR3H

### Date of receipt of sample:

02/03/2024

### Date(s) of performance:

02/03/2024 - 09/03/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156017/058, Date - 16/09/2023

### Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/03/2024
5. Place of sampling	Sona River (Kandra Village) before Confluence with Baitarni River
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS-17514(P-23) 2021
8. Identification of the personnel performing sampling by MSK	LALIN NASK

Report No. : MSKPL/FD/2023-24/Y1132E

Sample No. : MSKNB/FD/2023-24/03KJUR3H

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	0.25
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.70
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature: *Mr. Ananta Saha, P. Ganguly*

Name: Mr. Ananta Saha, Mr. Pail Ganguly

Designation: Sr. Ex. Chemist, Executive Chemist

Authorized Signatory:

Signature: *[Signature]*

Name:

Designation:



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West Bengal  
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Email: udayanlab@mitrask.com



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## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd.(MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. &amp; Date :

Discipline:

MSKPL/FD/2023-24/Y1132E

09/03/2024

MSKNB/FD/2023-24/03/KJUR3H

02/03/2024

02/03/2024 - 07/03/2024

Permanent Facility

3000156017/055, Date - 16/09/2023

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/03/2024
5. Place of sampling	Sona River (Kandra Village) before Confluence with Baitarni River
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614(P-20) 2022
8. Identification of the personnel performing sampling by MSK	LALIN NAIK

Report No. : MSKPL/FD/2023-24/Y1132E

Sample No. : MSKNB/FD/2023-24/03/KJUR3H

## RESULT

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn, 822 B	32

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By

Signature

Name: Ms. Madhavi Chakraverty

Designation: Executive Microbiologist

Authorized Signatory

Signature

Name: Ms. Madhavi Chakraverty

Designation: Executive Microbiologist

Our results relate only to the sample(s) tested.

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of this Test Report. Perishable sample(s) shall be retained 2 days

from the date of issue of this Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Wastes) shall be retained for 15 days as per CPCB guidelines &amp; (any 1 month from the date of issue of the Test Report).

The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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Report No. MSKGL/ED/2023-24/005451

Date: 25.03.2024

## ANALYSIS REPORT OF SURFACE WATER

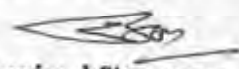
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	01.03.2024
Location	Sona River Kandra Village before confluence with Baitarni River (JWIMM)

### CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	14
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	10
5	DO	mg/l	APHA 24th Edition, 2023 4500-D-C/G	---	6.7
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	156
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	<0.05
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	4.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.08
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	3.5
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	70
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	94
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	56
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	15
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H-8	5.5-9.0	6.99

Checked by:- 

For Mitra S. K. Private Limited

  
Authorized Signatory



## Address of Laboratory :

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West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



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ULR: TC-695024000003650F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2023-24/311327

09/03/2024

MSKNB/FD/2023-24/0348019R

02/03/2024

02/03/2024 - 09/03/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique identification of sample(if any)	NA
4. Date of sampling	01/03/2024
5. Place of sampling	Pichaghat down Stream
6. Environmental conditions during sampling & transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17814( P-23) 2021
8. Identification of the personnel performing sampling by MSK	LALIN NAIK

Report No. : MSKPL/FD/2023-24/311327

Sample No. : MSKNB/FD/2023-24/0348019R

## RESULT

### Chemical

Sl No.	Parameter	UCM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.60
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By

Signature : *Mr. Anupam Saha, Mr. Palli Garguly*

Name : Mr. Anupam Saha, Mr. Palli Garguly  
Designation : Sr. Exec. Chemist, Executive Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Saunhyogesh Munda  
Lab in charge

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Report No. MSKGL/ED/2023-24/005449

Date: 25.03.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	03.03.2024
Location	Pichlaghat Down Stream (JWIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	10
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	5
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C <sub>1</sub> /G	---	6.6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	69
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	<0.05
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	1.9
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.038
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> 2.G	---	<1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	28
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	42
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	32
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	2.9
18	pH value at 19.8 deg C	None	APHA 24th Edition, 2023 4500-H-B	5.5-9.0	6.94

Checked by:-

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

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West Bengal  
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Email: udayanlab@mitrask.com



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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ID/2023-24/81244N

Date :

27/03/2024

Sample No. :

MSKNB/ID/2023-24/031G11E6

Date of receipt of sample:

14/03/2024

Date(s) of performance:

14/03/2024 - 27/03/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	13/03/2024
5. Place of sampling	Pichlegat Up Stream
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17514( P-23) 2021
8. Identification of the personnel performing sampling by MSK	Akash Kr Sanyal

Report No. : MSKPL/ID/2023-24/81244N

Sample No. : MSKNB/ID/2023-24/031G11E6

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.51
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

END

Reviewed By:

Signature:

Name: Mr. Anil Kumar Singh, Mr. Prad Kumar Singh

Designation: Sr. Lab. Chemist, Executive Chemist

Authorized Signatory:

Signature:

Name: Mr. Anil Kumar Singh

Designation: Lab In charge

Head Office:

Shreeji Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
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Email : info@mitrask.com Website : www.mitrask.com



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Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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URL: TC-695024000005275F

## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

APD: - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :****Date :****Sample No. :****Date of receipt of sample:****Date(s) of performance:****Location of performance of****Reference No. & Date :****Discipline:**

MSKPL/FD/2023-24/B1244N

27/03/2024

MSKNS/FD/2023-24/03/1G11E6

14/03/2024

14/03/2024 - 19/03/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique identification of sample(if any)	NA
4. Date of sampling	13/03/2024
5. Place of sampling	Pichaghat Up Stream
6. Environmental conditions during sampling & Transport	2-5 deg C Cold chain maintained
7. Sampling Plan & Method used	IS-17814( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Akash Kr Sanyal

**Report No. :** MSKPL/FD/2023-24/B1244N**Sample No. :** MSKNS/FD/2023-24/03/1G11E6

## RESULT

**Micro Biology**

Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn, 9221B	110

**Opinion :** NA**Statement of Conformity** NA

— END —

Reviewed By

Signature

Name: Mr. Mahendra Chatterjee

Designation: Executive Microbiologist

Authorized Signatory

Signature

Name: Mr. Mahendra Chatterjee

Designation: Executive Microbiologist

The results relate only to the sample(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days

on the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Wastes) shall be retained for 15 days as per ISO 9001 guidelines &amp; (Ann) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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Report No. MSKGL/ED/2023-24/0000058


Date: 05.04.2024

**ANALYSIS REPORT OF SURFACE WATER**


Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	13.03.2024
Location	Richlaghat Pump House Up Stream (JWIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	10
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	10
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	6.5
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	87
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe E	3	0.17
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg F	---	2.9
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.046
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> 2-B	---	3
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	36
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	52
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	36
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	5
18	pH value at 20.5 deg C	None	APHA 24th Edition, 2023 4500-14-B	5.5-9.0	7.02

Checked by: 

For Mitra S. K. Private Limited

  
Authorized Signatory



## Address of Laboratory :

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3, Pagladanga Road, Kolkata 700015  
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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000004352F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM) ,Joda West

AsPo. - Joda, Dist. - Keonjhar, Odisha - 756034 India

Report No. :

MSKPL/FD/2023-24/V1164V

Date :

15/03/2024

Sample No. :

MSKNB/FD/2023-24/03AWUQD2R

Date of receipt of sample:

07/03/2024

Date(s) of performance:

07/03/2024 - 15/03/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156917/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Ground Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	06/03/2024
5. Place of sampling	Bichakundi Borewell No-1 (Near Community Toilet) (AMMM)
6. Environmental conditions during sampling & Transport	(2-5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 13989 (P-11) 2018
8. Identification of the personnel performing sampling by MSK	PRANAB SETHI, DAMBARUCHAR DAS

Report No. : MSKPL/FD/2023-24/V1164V

Sample No. : MSKNB/FD/2023-24/03AWUQD2R

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
3	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
4	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
5	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
6	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
7	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
8	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
9	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
10	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.78
12	Selenium as Se	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
13	Silica as SiO2	mg/l	IS 3025 (Part 36)	BDL(DL:0.1)
14	Silver as Ag	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
15	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
16	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By:

Signature

Name

Designation Lab In charge

Dr. Soumyadeep Mukhopadhyay

Authorized Signatory:

Signature

Name

Designation

Dr. Soumyadeep Mukhopadhyay

Lab In charge



**Address of Laboratory :**

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West Bengal  
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Email: udayanlab@mitrask.com



TC-6960



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ULR: TC-696024000004352F

## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd (MGM), Joda West

As/To : Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/V1164V

**Date :**

16/03/2024

**Sample No. :**

MSKNS/FD/2023-24/03/WUQD2R

**Date of receipt of sample:**

07/03/2024

**Date(s) of performance:**

07/03/2024 - 08/03/2024

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/058, Date - 16/09/2023

**Discipline:**

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Ground Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	08/03/2024
5. Place of sampling	Bichakundi Borewell No-1 (Near Community Toilet) (JWMM)
6. Environmental conditions during sampling & Transport	(2 -5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17814 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	PRANAB SETHI, DAMBARUDHAR DAS

**Report No. :** MSKPL/FD/2023-24/V1164V**Sample No. :** MSKNS/FD/2023-24/03/WUQD2R

## RESULT

**Micro Biology**

Sl No.	Parameter	UOM	Method	Result
1	E. coli	/100ml	IS: 1185	Detected
2	Total coliform	/100ml	IS: 1185	Detected

**Opinion :** NA**Statement of Conformity** NA

— END —

**Reviewed By:****Signature****Name**

Mr. Malayee Chakraborty

**Designation**

Executive Microbiologist

**Authorized Signatory****Signature****Name**

Mr. Malayee Chakraborty

**Designation**

Executive Microbiologist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Solid, Solid & Liquid Waste) shall be retained for 15 days as per ISO 9001 guideline & (Per) is exception from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report.

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# Mitra S. K. Private Limited

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W: www.mitrask.com



Report No. MSKGL/ED/2023-24/005492

Date: 25.03.2024

## ANALYSIS REPORT OF GROUND WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	06.03.2024
Location	Bhachundi Borewell No -1 Near Community Toilet (JWIMM)

## CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unit	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH3-P	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	14
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 -Cl B	250	1000	14
4	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	---	133
5	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	<0.05
6	Odour	None	IS 3025 (Part-5)-1983; Rtfm:2012	Agreeable	Agreeable	Agreeable
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	2.9
8	pH value at 23 deg C	None	APHA 24th Edition, 2023, 4500, H+B	6.5-8.5	No Relaxation	6.46
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	---	---	<1.0
10	Phenolic Compound (as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
11	Salinity	PSI	APHA (24th Edition), 2520B	---	---	0.069
12	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	---	---	4.6
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	200	400	3
14	Taste	None	IS 3025 (Part-8)-1983 Rtfm:2012 (0)	Agreeable	Agreeable	Agreeable
15	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	36
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	78
17	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	48
18	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	---	---	<2.5
19	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0

Checked by:

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
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West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-6950240060040360F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

A/Ps: - Joda, Dist. - Keonjhar, Odisha - 758004 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. &amp; Date :

Discipline:

MSKPL/FD/2023-24/G115F7

15/03/2024

MSKNB/FD/2023-24/03/HW4D35

07/03/2024

07/03/2024 - 15/03/2024

Permanent Facility

3000156017/008, Date - 16/09/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Ground Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	08/03/2024
5. Place of sampling	Bhadrakundi Borewell No-3 Micro activity Centre (JWMM)
6. Environmental conditions during sampling & Transport	(2 -5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 13509 (P-11) 2018
8. Identification of the personnel performing sampling by MSK	PRANAB SETHI, DAMBARUCHAR DAS

Report No. : MSKPL/FD/2023-24/G115F7

Sample No. : MSKNB/FD/2023-24/03/HW4D35

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
3	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
4	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
5	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
6	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
7	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
8	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
9	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
10	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.78
12	Selenium as Se	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
13	Silica as SiO2	mg/l	IS 3025 (Part 35)	0.12
14	Silver as Ag	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
15	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
16	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By

Signature

Name

Designation

Authorized Signature

Signature

Name

Designation

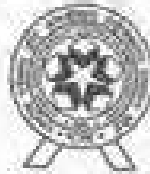
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Tel : 91 33 4014000 / 2060000 Fax : 91 33 2060000  
Email : info@mitrask.com Website : www.mitrask.com



**Address of Laboratory :**

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West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd (MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 756034 India

Report No. :

MSKPL/FD/2023-24/G115F7

Date :

16/03/2024

Sample No. :

MSKNB/FD/2023-24/03/HW4D35

Date of receipt of sample:

07/03/2024

Date(s) of performance:

07/03/2024 - 08/03/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/055, Date - 16/06/2023

Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Ground Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	06/03/2024
5. Place of sampling	Bichakundi Borewell No-3 Micro activity Centre (JMMU)
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17514 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	PRANAB SETHI, DAMBARUDHAR DAS

Report No. : MSKPL/FD/2023-24/G115F7

Sample No. : MSKNB/FD/2023-24/03/HW4D35

## RESULT

**Micro Biology**

Sl No.	Parameter	UOM	Method	Result
1	E. coli	/100ml	IS: 15925	Not Detected
2	Total coliform	/100ml	IS: 15925	Not Detected

Opinion : NA

Statement of Conformity NA

— END —

Reviewed by

Signature

Name : Ms. Matreeta Chakraborty

Designation : Executive Microbiologist

Authorized Signatory

Signature

Name : Ms. Matreeta Chakraborty

Designation : Executive Microbiologist

Test results relate only to the sample(s) tested.

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days.

on the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per ISO 17025 guideline &amp; (and) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Baked Water, Baked food) shall be retained for 10 days from the date of issue of the Test Report.

Head Office: Service Centre (9th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
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# Mitra S. K. Private Limited

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W : www.mitrask.com



Report No. MSKGL/ED/2023-24/005494

Date: 25.03.2024

## ANALYSIS REPORT OF GROUND WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	06.03.2024
Location	Bichakundi Borewell No -3 Near Micro Activity Centre (JWIMM)

## CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

SL No.	Test Parameters	Units	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH <sub>3</sub> -F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	22
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 -Cl B	250	1000	18
4	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	---	191
5	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	0.186
6	Odour	None	IS 3025 (Part-5)-1983; Rfina:2012	Agreeable	Agreeable	Agreeable
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	2.9
8	pH value at 23 deg C	None	APHA 24 <sup>th</sup> Edition, 2023, 4500, H+ B	6.5-8.5	No Relaxation	6.4
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	---	---	2.1
10	Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
11	Salinity	PSU	APHA (24th Edition), 2520B	---	---	0.098
12	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	---	---	9.2
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition) 4500 SO <sub>4</sub> -E	200	400	6
14	Taste	None	IS 3025 (Part-8)-1983; Rfina:2012, (0)	Agreeable	Agreeable	Agreeable
15	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2320B	200	600	60
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	116
17	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	200	600	68
18	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	---	---	<2.5
19	Turbidity	M.T.U	APHA (24th Edition), 2130B	1	5	<1.0

Checked by:

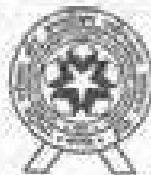
For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

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Email: udayanlab@mitrask.com



TC-6950



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URL: TC-695024000004357F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM), Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/FD/2023-24/Q117FH

Date :

15/03/2024

Sample No. :

MSKNB/FD/2023-24/Q3/SSPACM

Date of receipt of sample:

07/03/2024

Date(s) of performance:

07/03/2024 - 15/03/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000158017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Ground Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	06/03/2024
5. Place of sampling	Bichkund Borewell No-1 (Near Community Toilet) (JNMM)
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 13998 (P-11) 2018
8. Identification of the personnel performing sampling by MSK	PRANAB SETHI, DAMBARUDHAR DAS

Report No. : MSKPL/FD/2023-24/Q117FH

Sample No. : MSKNB/FD/2023-24/Q3/SSPACM

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 3)	BDL (DL: 0.05)
2	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL (DL: 0.01)
3	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL (DL: 0.01)
4	Iron as Fe	mg/l	IS 3025 (Part 2)	BDL (DL: 0.05)
5	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL (DL: 0.05)
6	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL (DL: 0.05)
7	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL (DL: 0.0002)
8	Selenium as Se	mg/l	IS 3025 (Part 2)	BDL (DL: 0.005)
9	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL (DL: 0.02)

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name

Designation : Executive Chemist

Authorized Signature:

Signature

Name

Designation

Dr. Debajit Banerjee  
Technical in-charge

The results relate only to the sample tested.  
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This (Material part of sample) for chemical analysis (from - pre-treated sample) (from - sealed sample) shall be retained for 15 days from the date of issue of the Test Report. For further sample(s) shall be retained 2 days from the date of issue of the Test Report.  
The (Material part of sample) for chemical analysis (Soil, Solid & Liquid Wastes) shall be retained for 15 days from the date of issue of the Test Report.  
The (Material part of sample) for Microbiological analysis (from - pre-treated sample) (from - sealed sample) shall be retained for 15 days from the date of issue of the Test Report. For further sample(s) shall be retained 2 days from the date of issue of the Test Report.



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagledanga Road, Kolkata 700015  
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Tel : +91 7044038120  
Email: udayanlab@mitrask.com



TC-6950



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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM) Joda West

A/Po - Joda, Dist - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/FD/2023-24/F117F2

Date :

15/03/2024

Sample No. :

MSKNB/FD/2023-24/03/CACA00

Date of receipt of sample:

07/03/2024

Date(s) of performance:

07/03/2024 - 15/03/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Ground Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	08/03/2024
5. Place of sampling	Bichakundi Borewell No-3 Micro activity Centre (JMM)
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 13005 (P-11) 2018
8. Identification of the personnel performing sampling by MSK	PRANAB SETHI, DAMBARLOKHAR DAS

Report No. : MSKPL/FD/2023-24/F117F2

Sample No. : MSKNB/FD/2023-24/03/CACA00

## RESULT

## Chemical

Sl No.	Parameter	UCM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
3	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 5) Sec2	BDL(DL:0.01)
4	Iron as Fe	mg/l	IS 3025 (Part 2)	BDL(DL:0.05)
5	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
6	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
7	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
8	Selenium as Se	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
9	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name

Designation

Mr. P. S. Sanyal

Executive Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Debashis Banerjee

Technical in charge

The results apply only to the sample(s) tested.

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The retained part of sample(s) for chemical analysis (from - portable sample(s) Point, Water) shall be retained for 15 days from the date of issue of the Test Report. Portable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Dist. Water &amp; Liquid Wastewater) shall be retained for 15 days or per CPCB guideline &amp; (Part 5) apply, both the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (from - portable sample(s) Point, Borewell Water, Borewell Water) shall be retained for 15 days from the date of issue of the Test Report. Portable sample(s) shall be retained 2 days from the date of issue of the Test Report.

Head Office:

Strickon Centre (2nd Floor), T48, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel : 91 33 40140000 / 22500007 Fax : 91 33 22500008  
Email : info@mitrask.com Website : www.mitrask.com



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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000005273F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

AisPo. - Joda, Dist. - Keonjhar, Odisha - 758004 India

## Report No. :

MSKPL/FD/2023-24/M1243X

## Date :

27/03/2024

## Sample No. :

MSKNB/FD/2023-24/03/QY1202

## Date of receipt of sample:

13/03/2024

## Date(s) of performance:

13/03/2024 - 27/03/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/066, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	13/03/2024
5. Place of sampling	Gangajipada Seepage Water (JMM)
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-23) 2021
8. Identification of the personnel performing sampling by MSK	Akash Kr. Setty

Report No. : MSKPL/FD/2023-24/M1243X

Sample No. : MSKNB/FD/2023-24/03/QY1202

## RESULT

## Chemical

SJ No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:6.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 Part 60	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+3)	mg/l	IS 3025 (Part 62) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.78
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

END

Reviewed By:

Signature

Name : Mr. Ananya Saha, Mr. Prati Ganguly

Designation : Sr. Exe. Chemist, Executive Chemist

Authorized Signatory

Signature

Name

Designation

Lab in charge

Head Office:

Sonachi Centre (5th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
Tel. : 91 33 40143001 / 22652000 Fax : 91 33 22651006  
Email : info@mitrask.com Website : www.mitrask.com







Report No. MSKGL/ED/2023-24/0000055


Date: 02.04.2024

## ANALYSIS REPORT OF MINE WATER


Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	ODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	12.03.2024
Location	Gangulguda Seepage Water (JWIMM)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	14
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -ClB	---	14
5	DO	mg/l	APHA 24th Edition, 2023-4500-G-C/G	---	5.2
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	126
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 FeB	3	0.37
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 MgB	---	3.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.066
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -B	---	0.9
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	48
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	76
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	52
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	1.2
18	pH value at 23.7 deg C	None	APHA 24th Edition, 2023-4500-J-B	5.5-9.0	6.2

Checked by: 

For Mitra S. K. Private Limited

  
Authorized Signatory



## Address of Laboratory :

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Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000005272F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM), Joda West

AsPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/FD/2023-24/512439

Date :

27/03/2024

Sample No. :

MSKNB/FD/2023-24/03/K011EK

Date of receipt of sample:

13/03/2024

Date(s) of performance:

13/03/2024 - 27/03/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000155017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	12/03/2024
5. Place of sampling	D-Quarry Seepage Water (J/M/M)
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17814( P-23) 2021
8. Identification of the personnel performing sampling by MSK	Akash K. Selly

Report No. : MSKPL/FD/2023-24/512439

Sample No. : MSKNB/FD/2023-24/03/K011EK

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 50)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.002)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.62
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

Name: Mr. Anirban Datta, Mr. Paul Ganguly

Designation: Sr. Exec. Chemist, Executive Chemist

Authorized Signatory:

Signature:

Name:

Designation:

Dr. Soumyadeep Mukhopadhyay  
Lab In charge



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700018  
West Bengal  
Tel : +91 7044038120  
Email: udayanlab@mitrask.com



TC-6950

Doc No.: MSK/GEN/1567



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

As/Pos. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/FD/2023-24/512439

Date :

27/03/2024

Sample No. :

MSKNB/FD/2023-24/03/K011EK

Date of receipt of sample:

13/03/2024

Date(s) of performance:

13/03/2024 - 18/03/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000158017/098, Date - 18/03/2023

Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	13/03/2024
5. Place of sampling	D-Quarry Seepage Water (JWBM)
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Akash K. Setty

Report No. : MSKPL/FD/2023-24/512439

Sample No. : MSKNB/FD/2023-24/03/K011EK

## RESULT

### Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & wastewater, 24th edn, 92:1B	11

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name : Ms. Maheswari Chakraborty

Designation : Executive Microbiologist

Authorized Signatory:

Signature

Name : Ms. Maheswari Chakraborty

Designation : Executive Microbiologist

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 10 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.  
The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 10 days as per ISO 9001 guideline & (Any 1 exception the date of issue of the Test Report).  
The reserved part of sample(s) for microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Bhawanji Centre (8th Floor), 74B, A.L.C. Bore Road, Kolkata - 700016, West Bengal, India.  
Tel : 91 33 45143000 / 33650007 Fax : 91 33 23850088  
Email : info@mitrask.com Website : www.mitrask.com



Report No. MSKGL/ED/2023-24/0000054


Date: 02.04.2024

## ANALYSIS REPORT OF MINE WATER


Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	12.03.2024
Location	D-Quarry Seepage Water (JWIMM)

## CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	8
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl <sup>-</sup> 3	---	12
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	7.1
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	82
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe 3	3	0.43
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 MgB	---	1.0
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.044
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> 2 E	---	0.7
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	20
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	50
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	20
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	1.2
18	pH value at 23.7 deg C	Note	APHA 24th Edition, 2023 4500-H-B	5.5-9.0	6.77

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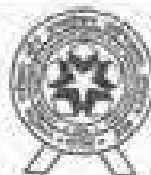
For Mitra S. K. Private Limited

  
Authorized Signatory



## Address of Laboratory :

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West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM) Joda West

Add/Po. : Joda, Dist. : Keonjhar, Odisha - 755034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. &amp; Date :

Discipline:

MSKPL/FD/2023-24/41243U

27/03/2024

MSKHS/FD/2023-24/03/C811FB

13/03/2024

13/03/2024 - 27/03/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	12/03/2024
5. Place of sampling	H-Quarry Seepage Water (JWMM)
6. Environmental conditions during sampling & transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17514( P-23) 2021
8. Identification of the personnel performing sampling by MSK	Akash Kr. Setty

Report No. : MSKPL/FD/2023-24/41243U

Sample No. : MSKHS/FD/2023-24/03/C811FB

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025(Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 46)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24h EDITION) 4500-NO3- B	0.66
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity : NA

END

Reviewed By:

Signature : *Abayee Sam P Ganguly*

Name : Mr. Abayee Sam P Ganguly

Designation : Sr. Encl. Chemical Executive (General)

Authorized Signature:

Signature:

Name:

Designation:

Dr. Subrata Mukherjee

Lab in charge

Head Office:

Street Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700015, West Bengal, India  
Tel. : 91 33 4014500 / 12550007 Fax : 91 33 2550038  
Email : info@mitrask.com Website : www.mitrask.co.in



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Email: udayanlab@mitrask.com



TC-6050



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ULR: TC-605024000005271F

## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd (MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/41243U

**Date :**

27/03/2024

**Sample No. :**

MSKNB/FD/2023-24/03/C811FB

**Date of receipt of sample:**

13/03/2024

**Date(s) of performance:**

13/03/2024 - 16/03/2024

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/068, Date - 16/09/2023

**Discipline:**

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	12/03/2024
5. Place of sampling	H-Quarry Seepage Water (JW/MH)
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17514( P-35) 2022
8. Identification of the personnel performing sampling by MSK	Akash Kr. Sengupta

**Report No. :** MSKPL/FD/2023-24/41243U**Sample No. :** MSKNB/FD/2023-24/03/C811FB

## RESULT

**Micro Biology**

Sr No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods or the examination of water & waste water, 24th edn, 9221B	6.8

**Opinion :** NA**Statement of Conformity :** NA

— END —

Reviewed By

Signature

Name

Mr. Mahendra Chatterjee

Designation

Executive Microbiologist

Authorized Signatory

Signature

Name

Mr. Mahendra Chatterjee

Designation

Executive Microbiologist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Wastes) shall be retained for 15 days as per CPCRI guidelines &amp; (Up to 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

**Head Office:** Bhishik Centre (2nd Floor), 7th, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel. : 91 33 4014000/125900007 Fax : 91 33 22962008  
Email : info@mitrask.com Website : www.mitrask.com



Report No. MSKGL/ED/2023-24/0000053


Date: 02.04.2024

## ANALYSIS REPORT OF MINE WATER


Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	12.03.2024
Location	F-Quarry Seepage Water (JWIMM)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 2190

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210F	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	32
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220E	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	10
5	DO	mg/l	APHA 24th Edition, 2023 4500-C-C/G	---	5.0
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510E	---	171
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	7.19
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	1.9
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.088
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	5.3
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	76
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	106
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	88
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	62.6
18	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H-B	5.5-9.0	6.71

Checked by: 

For Mitra S. K. Private Limited

  
Authorized Signatory



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-8950

Doc: MSKGEN1007



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URL: TC-895024000005012F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/C158AW

Date :

22/03/2024

Sample No. :

MSKNB/ED/2023-24/03/7G1BA0

Date of receipt of sample:

13/03/2024

Date(s) of performance:

13/03/2024 - 22/03/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000155017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Pollution & Environment
2. Description of sample	Effluent Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	13/03/2024
5. Place of sampling	BS Mining Garage Oil Separation - (WMM)
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	APHA 24th edition, 2023
8. Identification of the personnel performing sampling by MSK	Pragy Kr. Saha
9. Field Equipments Used	NA

Report No. : MSKPL/ED/2023-24/C158AW

Sample No. : MSKNB/ED/2023-24/03/7G1BA0

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as (As)	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.005)
2	Boron (as B)	mg/l	APHA (24th Edition), 4500 - B C	BDL(DL:0.5)
3	Cadmium as Cd	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.05)
4	Colour	Hazen	APHA (24th Edition), 2120B	BDL(DL:5.0)
5	Copper (as Cu)	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.05)
6	Cyanide ( as CN)	mg/l	APHA (24th Edition), 4500 CN - F	BDL(DL:0.02)
7	Fluoride ( as F )	mg/l	APHA (24th Edition), 4500 F- C/D	0.78
8	Hexavalent Chromium (as Cr+6)	mg/l	APHA (24th Edition), 3500 Cr B	BDL(DL:0.05)
9	Lead (as Pb)	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.05)
10	Manganese (as Mn)	mg/l	APHA (24th Edition), 3120 B	5.64
11	Mercury (as Hg)	mg/l	APHA (24th Edition), 3112 B	BDL(DL:0.001)
12	Nitrate (as NO3)	mg/l	APHA (24th Edition), 4500 NO3-E	BDL(DL:0.5)
13	Zinc (as Zn)	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.05)

Opinion : NA

Statement of Conformity : NA

— END —

Retained By:

Signature

Name : Mr. Sumanth Barchan, Ms. Piali Ganguly

Designation : Technical in charge, Exe. Chemist

Authorized Signatory:

Signature

Name

Designation

Dr. Sumanth Barchan

Lab in charge

The results relate only to the item(s) tested.  
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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.  
The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per ISO 17025 guideline 6 (or) 1 month from the date of issue of the Test Report.  
The retained part of sample(s) for microbiological analysis (Non - perishable sample(s) Food, Sealed water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shreeji Centre (5th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
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Email : info@mitrask.com Website : www.mitrask.com



# Mitra S. K. Private Limited

## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015,  
West Bengal  
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Email: udayanlab@mitrask.com



TC-6950

Doc No: MSKGEN/1501



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ULR: TC-695024000005012F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 - India

Report No. :

MSKPL/ED/2023-24/C158AW

Date :

22/03/2024

Sample No. :

MSKNB/ED/2023-24/03/7G1BA0

Date of receipt of sample:

13/03/2024

Date(s) of performance:

13/03/2024 - 16/03/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056, Date - 16/09/2023

Discipline:

Biological

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Pollution & Environment
2. Description of sample	Effluent Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	12/03/2024
5. Place of sampling	BS Mining Garage Oil Separation (JMM)
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained.
7. Sampling Plan & Method used	APHA 24th edition 2023
8. Identification of the personnel performing sampling by MSK	Pranav Kr. Sengupta
9. Field Equipments Used	NA

Report No. : MSKPL/ED/2023-24/C158AW

Sample No. : MSKNB/ED/2023-24/03/7G1BA0

## RESULT

### Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn, 9221B	220

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By

Signature

Name : Ms. Malvika Chakraborty

(Designation) Executive Microbiologist

Authorized Signatory

Signature

Name : Ms. Malvika Chakraborty

(Designation) Executive Microbiologist

The results relate only to the sample tested.  
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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.  
The retained part of sample(s) for chemical analysis (Sol, Solid & Liquid Phase) shall be retained for 15 days as per CPCB guideline & (Aug 1) which have the date of issue of the Test Report.  
The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shree Centre (5th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
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Email : info@mitrask.com Website : www.mitrask.com



Report No. MSKGL/ED/2023-24/C000052


Date: 02.04.2024

## ANALYSIS REPORT OF WASTE/EFFLUENT WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	12.03.2024
Location	BS Mining Garage Oil Separation Water Near Joda West (JWIMM)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	34
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	20
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	2
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	280
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe-B	3	1.52
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg-B	---	5.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PPT	APHA (24th Edition), 2520B	---	0.143
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	32.4
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	80
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	166
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	108
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	176.4
18	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.98

Checked by: 

For Mitra S. K. Private Limited

  
Authorized Signatory



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pegledanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044035120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000003840F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West

As/To. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/DF/2023-24/511323

Date :

09/03/2024

Sample No. :

MSKNB/DF/2023-24/03/45NHA3

Date of receipt of sample:

02/03/2024

Date(s) of performance:

02/03/2024 - 07/03/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/03/2024
5. Place of sampling	Kath-hutting after H-quarry (Sona River),
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17814( P-25) 2022
8. Identification of the personnel performing sampling by MSK	LALIN NAIK

Report No. : MSKPL/DF/2023-24/511323

Sample No. : MSKNB/DF/2023-24/03/45NHA3

## RESULT

Micro Biology				
Sr No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn, 922 B	6.8

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature:

Name: Ms. Malvika Chakrabarti

Designation: Executive Microbiologist

Reviewed Signature:

Signature:

Name: Ms. Malvika Chakrabarti

Designation: Executive Microbiologist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Service Centre (5th Floor), T&amp;E, A-1 C, Bose Road, Kolkata - 700016, West Bengal, India.

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**Address of Laboratory :**

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 3, Pegludanga Road, Kolkata 700015  
 West Bengal  
 Tel. : +91 7044030120  
 Email: udayanlab@mitraak.com



TC-6950



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ULR: TC-695024000003129F

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd (MGM), Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :****Date :****Sample No. :****Date of receipt of sample:****Date(s) of performance:****Location of performance of****Reference No. & Date :****Discipline:**

MSKPL/FD/2023-24/QJFF6C

29/02/2024

MSKMB/FD/2023-24/02/N5198T

17/02/2024

17/02/2024 - 29/02/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	15/02/2024
5. Place of sampling	D-Quarry Pit Water
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17514( P-23) 2021
8. Identification of the personnel performing sampling by MSK	LALIN NAIK

**Report No. :** MSKPL/FD/2023-24/QJFF6C**Sample No. :** MSKMB/FD/2023-24/02/N5198T**RESULT****Chemical**

Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.1)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.52
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

**Opinion :** NA**Statement of Conformity** NA

— END —

Reviewed By:

Signature

Name : Mr. Anayak Saha, Mr. Poo Garguly

Designation : Sr. Exec. Chemist, Executive Chemist

Authorized Signatory:

Signature

Name

Designation : Lab in charge



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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URL: TC-695024000003123F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM), Joda West

At/Po. - Joda, Dist. - Keonjhar, Orissa - 758034 India

## Report No. :

MSKPL/FD/2023-24/QJFF6C

## Date :

29/02/2024

## Sample No. :

MSKNB/FD/2023-24/02/N5198T

## Date of receipt of sample:

17/02/2024

## Date(s) of performance:

17/02/2024 - 22/02/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	15/02/2024
5. Place of sampling	D-Quarry Pit Water
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17814( P-25) 2022
8. Identification of the personnel performing sampling by MSK	LALIN NAIK

Report No. : MSKPL/FD/2023-24/QJFF6C

Sample No. : MSKNB/FD/2023-24/02/N5198T

## RESULT

## Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn. 9221B	140

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name: Ms. Malayee Chatterjee

Designation: Executive Microbiologist

Authorized Signatory:

Signature

Name: Ms. Malayee Chatterjee

Designation: Executive Microbiologist

The results valid only to the limits stated.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 10 days from the date of issue of this Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Solid, Solid &amp; Liquid Mixes) shall be retained for 15 days as per CPCB guideline &amp; (N/A) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Seawater, Sewage) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Service Centre (5th Floor), 749, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.

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Email : info@mitrask.com Website : www.mitrask.com



At/P.O. BARBIL Ward No-6  
 Dist : Keonjhar, Odisha - 758035  
 CIN: U51909WB1956PTC023037

T : +91 94370 09815, 94370 09820, 94370 75209  
 E : barbil@mitrask.co.in  
 W : www.mitrask.com

Report No. MSKGL/ED/2023-24/D05056


Date: 27.02.2024

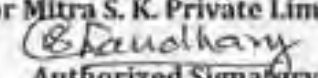
**ANALYSIS REPORT OF SURFACE WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	15.02.2024
Location	D- Quarry Mine Water (JWIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	11
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	10
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	—	6.6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510H	—	85
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	<0.05
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	1.9
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.045
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	—	1.2
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	32
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	50
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	36
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	<2.5
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.16

Checked by: 

For Mitra S. K. Private Limited  
  
 Authorized Signatory



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pegladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitraask.com



TC-8950



Scan for Portal

URL: TC-895024000002269F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd. (MOM), Joda West

At/Po : Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

## Date :

## Sample No. :

## Date of receipt of sample:

## Date(s) of performance:

## Location of performance of

## Reference No. &amp; Date :

## Discipline:

MSKPL/ID/2023-24/PAFADA

12/02/2024

MSKNB/ID/2023-24/02/76A10H

03/02/2024

03/02/2024 - 12/02/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/02/2024
5. Place of sampling	Vegetable garden Pond, Bichakundi
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Mukesh Halburu

Report No. : MSKPL/ID/2023-24/PAFADA

Sample No. : MSKNB/ID/2023-24/02/76A10H

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL-0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL-0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL-0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL-1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL-0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sect1	BDL(DL-0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	0.40
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sect2	BDL(DL-0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL-0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL-0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL-0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.72
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL-0.02)

Opinion : NA

Statement of Conformity : NA

END

Reviewed by:

Signature

Name

Designation

*Mr. P. Ganguly*  
Mr. P. Ganguly, Mr. P. Ganguly

Sr. Chemist, Executive Chemist

Authorized Signatory:

Signature

Name

Designation

*Dr. S. S. S. S.*  
Dr. S. S. S. S.

Lab In-charge



## Scan for Portal

URL: TC-605024000002260F

## Biology Unit

Page 1 of 1



A/P.O : BARBIL, Ward No-6  
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 CIN : U51900WB1956PTC023037

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 W : www.mitrask.com

Report No. MSKGL/ED/2023-24/005019

Date: 16.02.2024

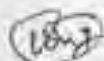
**ANALYSIS REPORT OF SURFACE WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	01.02.2024
Location	Bichakundi Vegetable Garden Pond (JWIMM)

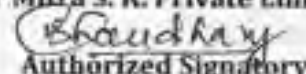
**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	20
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	4
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	—	6.9
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	126
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.2
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	3.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.065
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	—	1.8
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	56
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	74
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	36
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	39
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.43

Checked by:-



For Mitra S. K. Private Limited

  
 Authorized Signatory



# Mitra S. K. Private Limited

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Report No. MSKGI/ED/2023-24/005020

Date: 16.02.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	01.02.2024
Location	Sona River Near Mahanadi Guest House (JWIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1.	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2.	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	32
3.	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4.	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	8
5.	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	—	6.7
6.	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	152
7.	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.1
8.	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	3.8
9.	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10.	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11.	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12.	Salinity	PSU	APHA (24th Edition), 2520B	—	0.078
13.	Sulphate (as SO <sub>4</sub> <sup>-2</sup> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> 2-E	—	8.5
14.	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	60
15.	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	92
16.	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	48
17.	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	13
18.	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.42

Checked by:-

*(Signature)*

For Mitra S. K. Private Limited

*(Signature)*  
Authorized Signatory



## Address of Laboratory :

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Email: udayanlab@mitraak.com



TC-6950

Dir. No.: MSK/01/2023



Scan for Portal

ULR: TC-695024000002270F

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM) Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. &amp; Date :

Discipline:

MSKPL/FD/2023-24/5MFA5M

12/02/2024

MSKNB/FD/2023-24/02/S5211Y

03/02/2024

03/02/2024 - 12/02/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/02/2024
5. Place of sampling	Sona River Near Mahanadi Guest house
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Mukesh Halburu

Report No. : MSKPL/FD/2023-24/5MFA5M

Sample No. : MSKNB/FD/2023-24/02/S5211Y

## RESULT

Sj No	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL-0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL-0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL-0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL-1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL-0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL-0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	0.32
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL-0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL-0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL-0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL-0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.65
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL-0.02)

Opinion : NA

Statement of Conformity : NA

END

Reviewed By

Signature

Name

Designation

Authorized Signature:

Signature

Name

Designation

Head Office:

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Email: udayanlab@mitrask.com



TC-6850



Scan for Portal

ULR: TC-695024000002312F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM), Joda West

At/Po : Joda, Dist. : Karanjhar, Odisha - 756034 Joda

## Report No. :

MSKPL/FD/2023-24/KKFA58

## Date :

13/02/2024

## Sample No. :

MSKNB/FD/2023-24/02/GC521H

## Date of receipt of sample :

05/02/2024

## Date(s) of performance :

05/02/2024 - 13/02/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline :

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	03/02/2024
5. Place of sampling	Pichlaghal Pump House Up Stream
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	MAKESH HAIBURU

Report No. : MSKPL/FD/2023-24/KKFA58

Sample No. : MSKNB/FD/2023-24/02/GC521H

## RESULT

## Chemical

Sl No	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3-B	0.58
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

Name:

Designation:

*Mr. Ananya Saha P. Ganguly*  
Mr. Ananya Saha, Mr. Poo Ganguly  
Sr. Env. Chemist, Executive Director

Authorized Signatory:

Signature:

Name:

Designation:

*Dr. Soumitra Chandra Mukherjee*  
Lab. in charge

Head Office:

Office Centre (3rd Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel : 91 31 40143200 / 22550007 Fax : 91 31 22550008  
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## Address of Laboratory :

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Email: udayanlab@mitrask.com



TC-6950

Doc No : MSK/CIW/1507



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URL: TC-695024000002312F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

AMPo. - Joda, Dist. - Keonjhar, Odisha - 756034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2023-24/KKFA58

13/02/2024

MSKNE/FD/2023-24/02/GC521H

05/02/2024

05/02/2024 - 10/02/2024

Permanent Facility

3000156017/056, Date - 15/09/2023

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface water
3. Unique identification of sample(if any)	NA
4. Date of sampling	03/02/2024
5. Place of sampling	Pichlaghat Pump House Up Stream
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (F-25) 2022
8. Identification of the personnel performing sampling by MSK	MUKESH HAIBURU

Report No. : MSKPL/FD/2023-24/KKFA58

Sample No. : MSKNE/FD/2023-24/02/GC521H

## RESULT

### Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn, 9221B	17

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By

Signature

Name : Mr. Mahesh Chatterjee

Designation : Executive Microbiologist

Authorized Signatory

Signature

Name : Mr. Mahesh Chatterjee

Designation : Executive Microbiologist

Results valid only in the form(s) tested

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Surface Water, Sewage) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for microbiological analysis (Non - perishable sample(s) Food, Surface Water, Sewage) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

Head Office: 3rd/4th Floor (3rd Floor), T-49, A.J.C. Bose Road, Kolkata - 700015, West Bengal, India  
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Report No. MSKGL/ED/2023-24/005036


Date: 17.02.2024

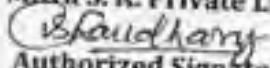
## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	03.02.2024
Location	Pichlaghat Pump House Up Stream (JWIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	3.3
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	9.6
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	12.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	8
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	—	6.8
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	86
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.36
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	4.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.046
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	—	4.8
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	44
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	52
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	32
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	4.2
18	pH value at 20.5 deg C	None	APHA 24th Edition, 2023 4500-H+H	5.5-9.0	7.32

Checked by: 

For Mitra S. K. Private Limited  
  
Authorized Signatory



## Address of Laboratory :

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TC-6950



Scan for Portal

ULR: TC-695024000002313F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

AMPZ - Joda, Dist - Keonjhar, Odisha - 758004 India

Report No. :

MSKPL/FD/2023-24/65FA5J

Date :

13/02/2024

Sample No. :

MSKNB/FD/2023-24/02/JC3222

Date of receipt of sample:

05/02/2024

Date(s) of performance:

05/02/2024 - 13/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Data :

3000158017/058, Date - 15/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	03/02/2024
5. Place of sampling	Pichlaghat Pump House Down Stream
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	MIKESH HAIBURU

Report No. : MSKPL/FD/2023-24/65FA5J

Sample No. : MSKNB/FD/2023-24/02/JC3222

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL 0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL 0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL 0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL 1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL 0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL 0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL 0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL 0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL 0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL 0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL 0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3-B	0.86
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL 0.02)

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature:

Name:

Designation:

Authorized Signatory:

Signature:

Name:

Designation:

Head Office:

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West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950

Gr-M: MSK021801



Scan for Portal

ULR: TC-695024000002313F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM) Joda West  
A/Po - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2023-24/B5FA5J

13/02/2024

MSKNB/FD/2023-24/02/JC322Z

05/02/2024

05/02/2024 - 10/02/2024

Permanent Facility

3000156017/056, Date - 15/09/2023

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	03/02/2024
5. Place of sampling	Pichlaghat Pump House Down Stream
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17914 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	MUKESH HARBURI

Report No. : MSKPL/FD/2023-24/B5FA5J

Sample No. : MSKNB/FD/2023-24/02/JC322Z

## RESULT

### Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn, 9221B	27

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By

Signature

Name : Mr. Manoj Chatterjee

Designation : Executive Microbiologist

Authorized Signatory

Signature

Name

Mr. Manoj Chatterjee

Designation

Executive Microbiologist

Results valid only to the sample tested

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For chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report.

For chemical analysis (Perishable sample(s) Food, Baked (non), Baked (perishable) Food, Baked (perishable) Food, Baked (perishable) Food) shall be retained for 15 days from the date of issue of the Test Report.

For microbiological analysis (Soil, Sludge & Liquid Waste) shall be retained for 15 days as per CPCB guideline & for 1 month from the date of issue of the Test Report.

For microbiological analysis (Non - perishable sample(s) Food, Baked (non), Baked (perishable) Food, Baked (perishable) Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

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Report No. MSKGL/ED/2023-24/005037


Date: 17.02.2024

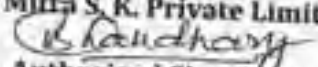
## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	03.02.2024
Location	Pichlaghat Khorbandg Down Stream (JWIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	9.6
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	6
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	6
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	—	6.6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	125
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	1.4
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	9.6
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.065
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -B	—	4.3
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	56
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	76
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	64
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	28
18	pH value at 19.8 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.48

Checked by:- 

For Mitra S. K. Private Limited  
  
Authorized Signatory



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TC-6950

Lab No. / MSK0223/01017



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URL: TC-69502400002542F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

At/Po : Joda, Dist. : Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2023-24/22FA5J

17/02/2024

MSKNB/FD/2023-24/02/W78612

07/02/2024

07/02/2024 - 17/02/2024

Permanent Facility

3000156017/058, Date - 16/09/2023

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	06/02/2024
5. Place of sampling	Keth-Hutting after H- Quarry Down Stream JWMM
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17514 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Kshilish K. Mohanty

Report No. : MSKPL/FD/2023-24/22FA5J

Sample No. : MSKNB/FD/2023-24/02/W78612

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	0.33
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	1.14
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name

Designation

Authorized Signatory:

Signature

Name

Designation

Lab In-charge

Head Office:

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Email: udayanlab@mitrask.com



TC-6950

Dr. No. MSK/GEN/1007



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ULR: TC-695024000002542F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

At/Po - Joda, Dist - Keonjhar, Odisha - 756034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2023-24/22FA5J

17/02/2024

MSKNB/FD/2023-24/02/W78512

07/02/2024

07/02/2024 - 12/02/2024

Permanent Facility

3000159017/058, Date - 15/09/2023

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	08/02/2024
5. Place of sampling	Kath-Hutting after H- Quarry Down Stream JWMM
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17914 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Kahfiah Kr Mohanly

Report No. : MSKPL/FD/2023-24/22FA5J

Sample No. : MSKNB/FD/2023-24/02/W78512

## RESULT

### Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn, 9221B	14

Opinion : NA

Statement of Conformity : NA

— END —

Received by

Signature

Name : Ms. Malleswari Chatterjee

Designation : Executive Microbiologist

Authorized Signatory

Signature

Name

Ms. Malleswari Chatterjee

Designation

Executive Microbiologist

Results valid only to the item(s) tested

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A retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days

in the date of issue of the Test Report

A retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CHCS guideline & (Air) 1 month from the date of issue of the Test Report.

A retained part of sample(s) for microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report.

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E : barbil@mitrask.co.in  
W : www.mitrask.com



Report No. MSKGL/ED/2023-24/005053

Date: 20.02.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	06.02.2024
Location	Keth-Hutting after H- Quarry Down Stream (JWIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	10
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 -Cl B	—	8
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	—	7.1
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	99
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	<0.05
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg D	—	3.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.052
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO42-E	—	1.3
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	36
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	60
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	40
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	<2.5
18	pH value at 26.3 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.54

Checked by:-

For Mitra S. K. Private Limited  
  
Authorized Signatory



## Address of Laboratory :

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Email: udayanlab@nitbbs.com



TC-8950

Doc Ref: MSK/2024/0001



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ULR: TC-895024000002541F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGML) Joda West  
AI/PO - Joda, Dist. - Keonjhar, Odisha - 755034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2023-24/CJFA5N

17/02/2024

MSKNB/FD/2023-24/02/VAS4F8

07/02/2024

07/02/2024 - 17/02/2024

Permanent Facility

3000156017/056, Date - 16/08/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	06/02/2024
5. Place of sampling	Keth - Huttling before H-Quarry Up Stream JWMM
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Kshatish Kr Mohanty

Report No. : MSKPL/FD/2023-24/CJFA5N

Sample No. : MSKNB/FD/2023-24/02/VAS4F8

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	0.28
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	1.08
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

Name:

Designation:

*Arunima Saha, P. Ganguly*

Ms. Arunima Saha, Ms. Pooja Ganguly

Dr. Esh Chandra, Executive Chemist

Authorized Signatory:

Signature:

Name:

Designation:

*J. Chandra*  
In. Jyoti Chandra Mukherjee  
Lab in charge

Head Office:

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TC-0950

Doc No : MSKGEN/1907



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ULR: TC-095024000002541F

## Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

At/Po : Joda, Dist : Keonjhar, Odisha - 758034 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKFL/2023-24/CJFA5N

17/02/2024

MSKNB/2023-24/02/VAS4F8

07/02/2024

07/02/2024 - 12/02/2024

Permanent Facility

3000158017/066, Date - 16/09/2023

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results.

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	08/02/2024
5. Place of sampling	Keonjhar - Hudding before H-Quarry Up Stream JWM
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17814 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Kaishik Kr Mohanty

Report No. : MSKPL/2023-24/CJFA5N

Sample No. : MSKNB/2023-24/02/VAS4F8

## RESULT

### Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn, 9221B	7.8

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By

Signature

Name : Mr. Madhava Choudhary

Designation : Executive Microbiologist

Authorized Signatory

Signature

Name

Designation

Mr. Madhava Choudhary

Executive Microbiologist

Results valid only for the item(s) tested.

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A reserved part of sample(s) for chemical analysis (Non - perishable sample(s)) Food, Water shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

A reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s)) Food, Sewage Water, Swallow (food) shall be retained for 15 days from the date of issue of the Test Report.

A reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s)) Food, Sewage Water, Swallow (food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

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Email : info@mitrask.com Website : www.mitrask.com



Report No. MSKGL/ED/2023-24/005051


Date: 20.02.2024

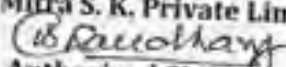
## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	06.02.2024
Location	Keth -Hutting before H-Quarry Up Stream (JWIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	10
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sub>2</sub> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	4
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	—	7.2
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	97
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.13
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	4.3
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.051
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	—	<1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	44
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	58
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	44
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	<2.5
18	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.10

Checked by: 

For Mitra S. K. Private Limited  
  
Authorized Signatory



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrasak.com



TC-6950



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ULR: TC-69502400000258F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2023-24/REFA5X

17/02/2024

MSKNB/FD/2023-24/02/1054EA

07/02/2024

07/02/2024 - 17/02/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	06/02/2024
5. Place of sampling	Pond water Near ST High School Bhuva Rode JWMM
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Kashish K. Mohanty

Report No. : MSKPL/FD/2023-24/REFA5X

Sample No. : MSKNB/FD/2023-24/02/1054EA

## RESULT

Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL 0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL 0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL 0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL 1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL 0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL 0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	0.35
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL 0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL 0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL 0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL 0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	2.65
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL 0.02)

Opinion : NA

Statement of Conformity : NA

— END —

Form used No.

Signature

Name

Designation

Authorized Signature

Signature

Name

Designation

Lab In charge

Head Office:

Shree Chandra (Sri) Park, 14B, A.J.C. Road, Kolkata - 700015, West Bengal, India  
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Email : info@mitrasak.com Website : www.mitrask.com



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Email: udayanlab@mitrask.com



TC-8860

Doc No.: MSK/2024/1047



Scan for Portal

ULR: TC-898024000002538F

## Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2023-24/REFA5X

17/02/2024

MSK/NB/FD/2023-24/02/1054EA

07/02/2024

07/02/2024 - 12/02/2024

Permanent Facility

3000156017/056, Date - 15/08/2023

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Surface Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	05/02/2024
5. Place of sampling	Pond water Near ST High School Bhuya Roide JWM
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17814 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Kshilish K. Mohanty

Report No. : MSKPL/FD/2023-24/REFA5X

Sample No. : MSK/NB/FD/2023-24/02/1054EA

## RESULT

### Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24h edn, 9221B	5.6

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By

Signature

Name

Designation

Ms. Malleswari Choudhary

Executive Microbiologist

Authorized Signatory

Signature

Name

Designation

Ms. Malleswari Choudhary

Executive Microbiologist

The results are valid only for the period stated.

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Report No. MSKGL/ED/2023-24/005052


Date: 20.02.2024

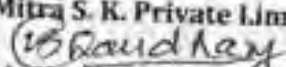
## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	06.02.2024
Location	Pond Water Near 5T High School Bhuiya Roida (JWIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	12.8
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	20
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	—	5.2
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	199
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe-B	3	0.1
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg-B	—	3.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.078
13	Sulphate (as SO <sub>4</sub> <sup>-2</sup> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> 2-E	—	8.5
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	60
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	122
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	48
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	13
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H-B	5.5-9.0	6.67

Checked by: 

For Mitra S. K. Private Limited  
  
Authorized Signatory



## Address of Laboratory :

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3, Pagladanga Road, Kolkata 700015,  
West Bengal  
Tel. : +91 7044038120  
Email: udayanlab@mitrask.com



TC-6950



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URL: TC-6950240000024757

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM) Joda West

A/Po: - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/5HFBAH

## Date :

18/02/2024

## Sample No. :

MSKNB/FD/2023-24/02/ZXY4FV

## Date of receipt of sample:

07/02/2024

## Date(s) of performance:

07/02/2024 - 18/02/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000150017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Drinking Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	06/02/2024
5. Place of sampling	Bichkund WTP Outlet
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17814(P-5) 2022
8. Identification of the personnel performing sampling by MSK	Lalit Nalik

Report No. : MSKPL/FD/2023-24/5HFBAH

Sample No. : MSKNB/FD/2023-24/02/ZXY4FV

## RESULT

## Chemical

Sl No.	Parameter	DOM	Method	Acceptable Limit	Permissible Limit	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.005)
2	Zinc as Zn	mg/l	IS 3025 (Part 2)	5	15	BDL(DL:0.02)
3	Colour	Hazen	IS 3025 (Part 4)	5	15	BDL(DL:1.0)
4	Copper as Cu	mg/l	IS 3025 (Part 2)	0.05	1.5	BDL(DL:0.02)
5	Cyanide as CN	mg/l	IS 3025 (Part 27) Sect	0.05	No Relaxation	BDL(DL:0.02)
6	Fluoride as F	mg/l	IS 3025 (Part 60)	1.0	1.5	BDL(DL:0.2)
7	Lead as Pb	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.005)
8	Manganese as Mn	mg/l	IS 3025 (Part 2)	0.1	0.3	BDL(DL:0.02)
9	Mercury as Hg	mg/l	IS 3025 (Part 48)	0.001	No Relaxation	BDL(DL:0.0002)
10	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No Relaxation	BDL(DL:0.01)
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3-B	45	No Relaxation	BDL(DL:0.4)
12	Selenium as Se	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.005)
13	Silica (as SiO2)	mg/l	IS 3025 (Part 35)	Not Specified	Not Specified	BDL(DL:0.1)
14	Silver as Ag	mg/l	IS 3025 (Part 2)	0.1	No Relaxation	BDL(DL:0.005)
15	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	0.08	No Relaxation	BDL(DL:0.01)
16	Cadmium as Cd	mg/l	IS 3025 (Part 2)	0.003	No Relaxation	BDL(DL:0.001)

Reviewed By:

Signature

Mr. Anupam Saha, Mr. P. Ganguly

Name

Designation

Authorized Signatory

Signature

Name

Designation

Lab in charge

Head Office:

35/50/1 Centre (2nd Floor), NAR, A.C. Bose Road, Kolkata - 700015, West Bengal, India  
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Email : info@mitrask.com Website : www.mitrask.com



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West Bengal  
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Email: udayanlab@mitraak.com



TC-8950



Scan for Portal

ULR: TC-895024000002475F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM), Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/5HFBAB

## Date :

16/02/2024

## Sample No. :

MSKNB/FD/2023-24/02/ZXY4FY

## Date of receipt of sample:

07/02/2024

## Date(s) of performance:

07/02/2024 - 08/02/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000155017/056, Date - 15/09/2023

## Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Drinking Water
3. Unique identification of sample(if any)	NA
4. Date of sampling	06/02/2024
5. Place of sampling	Bichakundi WTP Outlet
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17814( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Lalın Nish

Report No. : MSKPL/FD/2023-24/5HFBAB

Sample No. : MSKNB/FD/2023-24/02/ZXY4FY

## RESULT

## Micro Biology

Sl No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Total Coliform Bacteria	/100ml	IS 15185	Not Detectable	Not Applicable	Not Detected
2	E. Coll	/100ml	IS 15185	Not Detectable	Not Applicable	Not Detected

Opinion : Acceptable limit &amp; Permissible limit are as per IS:10500:2012

Statement of Conformity NA

— END —

Reviewed by:

Signature

Name: Ms. Malleswari Chakraborty

Designation: Executive Microbiologist

Reviewed Signatory:

Signature

Name: Ms. Malleswari Chakraborty

Designation: Executive Microbiologist

For results relate only to the item(s) tested  
The Test Report shall not be reissued except to L&I, without the permission of Mitra S. K. Private Limited  
The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days  
The reserved part of sample(s) for chemical analysis (Food, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.  
The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sewage Water, Skatol broth) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: 3rd Floor, 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
Tel: 91 33 40140000 / 22950007 Fax: 91 33 22680008  
Email: info@mitraak.com Website: www.mitraak.com



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E : barbil@mitrask.co.in  
W : www.mitrask.com



Report No. MSKGL/ED/2023-24/005044

Date: 20.02.2024

## ANALYSIS REPORT OF DRINKING WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	06.02.2024
Location	Bichakundi WTP Out let (JWIMM)

## CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unit	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH <sub>3</sub> -F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	14
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500-Cl B	250	1000	12
4	Odour	Hazen	3025 (Part-5)-1983 Refin:2012	Agreeable	Agreeable	Agreeable
5	Electrical conductivity	us/cm	APHA (24th Edition), 2510D	—	—	98
6	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	<0.05
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	1.9
8	Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	—	—	<1.0
10	Salinity	PSU	APHA (24th Edition), 2520B	—	—	0.052
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	—	—	3.3
12	Sulphate (as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	200	400	<1.0
13	Taste	None	IS 3025 (Part-8)-1983 Refin:2012 (O)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2320B	200	600	28
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	60
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	200	600	44
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	—	—	<2.5
18	Turbidity	N.T.U	APHA (24th Edition), 2130D	1	5	<1.0
19	pH value at 25 deg C	None	APHA 24th Edition, 2023, 4500.H+B	6.5-8.5	No Relaxation	7.89

Checked by:-

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950

Doc No. MSK/SG/24/001



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ULR: TC-69502400003018F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

At/ Po - Joda Dist - Keonjhar, Odisha - 756034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2023-24/7CFCBH

28/02/2024

MSKNB/FD/2023-24/02/P712BY

15/02/2024

15/02/2024 - 15/02/2024

Permanent Facility

3000150017/055, Date - 15/02/2023

Biological

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	Drinking Water
3. Unique Identification of sample (if any)	NA
4. Date of sampling	14/02/2024
5. Place of sampling	Jorajar pit office (BIMM) R.O. water
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17814/ P-25/ 2022
8. Identification of the personnel performing sampling by MSK	PRANAB SETHI

Report No. : MSKPL/FD/2023-24/7CFCBH

Sample No. : MSKNB/FD/2023-24/02/P712BY

## RESULT

### Micro Biology

Sl No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Total Coliform Bacteria	/100ml	IS 15185	Not Detectable	Not Applicable	Not Detected
2	E. coli	/100ml	IS 15185	Not Detectable	Not Applicable	Not Detected

Opinion : Acceptable limit & Permissible limit are as per IS:10500:2012

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name: Ms. Malvika Chatterjee

Designation: Executive Microbiologist

Authorized Signatory:

Signature

Name: Mr. Malvika Chatterjee

Designation: Executive Microbiologist

No results released to the sample tested

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The retained part of sample(s) for (chemical analysis (Non-permissible sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Permissible sample(s) shall be retained (2 days) on the date of issue of the Test Report.

The retained part of sample(s) for (chemical analysis (Food, Solid & Liquid) shall be retained for 15 days as per CPCB guideline 8 (A) 1 month from the date of issue of the Test Report. Permissible sample(s) shall be retained for 15 days from the date of issue of the Test Report.

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Ph: 91 33 4014000 / 22600001 Fax: 91 33 22600006  
Email: info@mitrask.com Website: www.mitrask.com



Report No. MSKGL/ED/2023-24/005031


Date: 25.02.2024

## ANALYSIS REPORT OF DRINKING WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	14.02.2024
Location	Joribar Pit Office R O Water (BIMM)

## CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unit	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH <sub>3</sub> -F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	22
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500-Cl B	250	1000	18
4	Odour	Hazen	3025 (Part-5)-1983; Rfinc-2012	Agreeable	Agreeable	Agreeable
5	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	—	221
6	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	<0.05
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	13
8	Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	—	—	<1.0
10	Salinity	PSU	APHA (24th Edition), 2520B	—	—	0.113
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	—	—	3.4
12	Sulphate (as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	200	400	<1.0
13	Taste	None	IS 3025 (Part 8)-1983 Rfinc-2012 (0)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2320B	200	600	94
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	136
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	200	600	108
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	—	—	<2.5
18	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0
19	pH value at 25 deg C	None	APHA 24th Edition, 2023, 4500, H+ B	6.5-8.5	No Relaxation	7.39

Checked by:- 

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
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Email: udayanlab@mitrask.com



TC-8880

MSK



Scan for Portal

URL: TC-695024000002318F

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM) Joda West

At/To : Joda, Dist. - Keonjhar, Odisha - 758034 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. &amp; Date :

Discipline:

MSKPL/ED/2023-24/B129CY

13/02/2024

MSKNB/ED/2023-24/02/VB883Y

05/02/2024

05/02/2024 - 13/02/2024

Permanent Facility

3000158017/056, Date - 10/09/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Pollution & Environment
2. Description of sample	Waste Water (Effluents)
3. Unique Identification of sample(if any)	NA
4. Date of sampling	13/02/2024
5. Place of sampling	Joda west Oil separation Near BS Mining Garage
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	APHA 24th edition 2023
8. Identification of the personnel performing sampling by MSK	Kshitika Kumar Mohanty
9. Field Equipments Used	N/A

Report No. : MSKPL/ED/2023-24/B129CY

Sample No. : MSKNB/ED/2023-24/02/VB883Y

## RESULT

Sl No.	Parameter	UOM	Method	Result
1	Arsenic as (As)	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.005)
2	Boron (as B)	mg/l	APHA (24th Edition), 4500 - B C	0.8
3	Cadmium as Cd	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.05)
4	Colour	Hazen	APHA (24th Edition), 2120B	BDL(DL:5.0)
5	Copper (as Cu)	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.05)
6	Cyanide ( as CN)	mg/l	APHA (24th Edition), 4500 CN - F	BDL(DL:0.02)
7	Fluoride ( as F )	mg/l	APHA (24th Edition), 4500 F- C/D	0.87
8	Hexavalent Chromium (as Cr+6)	mg/l	APHA (24th Edition), 3500 Cr B	BDL(DL:0.05)
9	Lead (as Pb)	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.05)
10	Manganese (as Mn)	mg/l	APHA (24th Edition), 3112 B	4.84
11	Mercury (as Hg)	mg/l	APHA (24th Edition), 3112 B	BDL(DL:0.001)
12	Nitrate (as NO <sub>3</sub> )	mg/l	APHA (24th Edition), 4500 NO <sub>3</sub> -E	0.73
13	Zinc (as Zn)	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.05)

Opinion : NA

Statement of Conformity NA

— END —

Received By:

Signature:

Name: Mr. Soumen Barman Mr. P. Ganguly

Designation: Technical In charge, Env. Chemist

Authorized Signatory:

Signature:

Name:

Designation: Lab In charge

If results relate only to the sample(s) tested

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s)) Food, Water shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days.

The reserved part of sample(s) for microbiological analysis (Non - perishable sample(s)) Food, Sealed Vessel, Sealed bottle shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

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Report No. MSKGL/ED/2023-24/005038


Date: 17.02.2024

## ANALYSIS REPORT OF WASTE/EFFLUENT WATER

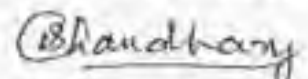
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	03.02.2024
Location	Joda West Oil Separation Water Near BS Mining Garage (JWIMM)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	32
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	6.4
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	18
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	—	6.5
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	299
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.65
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	17
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.153
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	—	22
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	104
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	180
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	152
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	18
18	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.95

Checked by: 

For Mitra S. K. Private Limited

  
Authorized Signatory



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Report No. MSKGL/ED/2023-24/005038


Date: 17.02.2024

**ANALYSIS REPORT OF WASTE/EFFLUENT WATER**

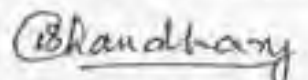
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	03.02.2024
Location	Joda West Oil Separation Water Near BS Mining Garage (JWIMM)

**CHEMICAL ANALYSIS OF WATER AS PER IS: 2490**

SL No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	32
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	6.4
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	18
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	—	6.5
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	299
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.65
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	17
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C [Chloroform Extraction]	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.153
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500-SO <sub>4</sub> -E	—	22
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	104
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	180
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	152
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	18
18	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.95

Checked by: 

For Mitra S. K. Private Limited

  
 Authorized Signatory



## Address of Laboratory :

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3, Pagladanga Road, Kolkata 700015  
West Bengal  
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Email: udayanlab@mitrask.com



TC-6960



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## TEST REPORT

ULR: TC-696024000002068F

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

ApPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPLFD/2023-24/T8F0A7

Date :

08/02/2024

Sample No. :

MSKNBFD/2023-24/01/Q41BA3

Date of receipt of sample:

27/01/2024

Date(s) of performance:

27/01/2024 - 08/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/096, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	DRINKING WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	24/01/2024
5. Place of sampling	BDL-4456 Bichakundi WTP Inlet
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-5) 2022
8. Identification of the personnel performing sampling by MSK	Pranab Kr. Mahanta

Report No. : MSKPLFD/2023-24/T8F0A7

Sample No. : MSKNBFD/2023-24/01/Q41BA3

## RESULT

Sl No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Cadmium as Cd	mg/l	IS 3025 (Part 2)	0.03	No Relaxation	BDL(DL:0.001)
2	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BDL(DL:0.01)
3	Silver as Ag	mg/l	IS 3025 (Part 2)	0.1	No Relaxation	BDL(DL:0.005)
4	Silica as SiO <sub>2</sub>	mg/l	IS 3025 (Part 35)	Not specified	Not specified	BDL(DL:0.1)
5	Selenium as Se	mg/l	IS 3025 (Part 2)	3.01	No relaxation	BDL(DL:0.005)
6	Mercury as Hg	mg/l	IS 3025 (Part 48)	0.001	No relaxation	BDL(DL:0.0002)
7	Zinc as Zn	mg/l	IS 3025 (Part 2)	5	15	BDL(DL:0.02)
8	Colour	Hazen	IS 3025 (Part 4)	5	15	BDL(DL:1.0)
9	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	0.05	No relaxation	BDL(DL:0.02)
10	Fluoride as F	mg/l	IS 3025 (Part 60)	1.0	1.5	BDL(DL:0.2)
11	Nitrate as NO <sub>3</sub>	mg/l	APHA (24th EDITION) 4500-NO <sub>3</sub> -B	45	No Relaxation	0.51
12	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No Relaxation	BDL(DL:0.01)
13	Arsenic as As	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.005)
14	Manganese as Mn	mg/l	IS 3025 (Part 2)	0.1	0.3	BDL(DL:0.02)
15	Lead as Pb	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BDL(DL:0.005)
16	Copper as Cu	mg/l	IS 3025 (Part 2)	0.05	1.5	BDL(DL:0.02)

Optimize : Acceptable limit & Permissible limit are as per IS:10500:2012

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name

Designation

Mr. Arayee Saha, Ms. Palli Ganguly

Mr. Arayee Saha, Ms. Palli Ganguly

Sr. Exe. Chemist, Executive Chemist

Authorized Signatory

Signature

Name

Designation

Lab in charge

The results relate only to the item(s) tested

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s)) Food, Water, shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 7 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Dist. Solid & Liquid Waste) shall be retained for 15 days as per ISO 9001 guideline & (Pur) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s)) Food, Sealed Water, Sealed food shall be retained for 15 days from the date of issue of the Test Report.

Head Office:   
Shree Centre (2nd Floor), 14B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
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Email : info@mitrask.com Website : www.mitrask.com



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Email: udayanlab@mitrask.com



TC-8950



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ULR: TC-8950240000020668

## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd (MGM), Joda West

A/Po, - Joda, Dist. - Keonjhar, Odisha - 758034, India

Report No. :

MSKPL/FD/2023-24/T8F0A7

Date :

08/02/2024

Sample No. :

MSKNS/FD/2023-24/01/Q418A3

Date of receipt of sample:

27/01/2024

Date(s) of performance:

27/01/2024 - 29/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 18/09/2023

Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	DRINKING WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	24/01/2024
5. Place of sampling	BRL-4488 Bichakundi WTP Inlet
6. Environmental conditions during sampling & Transport	(2-8) deg C Cold chain maintained
7. Sampling Plan & Method used	IS-17614(P-25) 2022
8. Identification of the personnel performing sampling by MSK	Pranab Kr. Mahanta

Report No. : MSKPL/FD/2023-24/T8F0A7

Sample No. : MSKNS/FD/2023-24/01/Q418A3

## RESULT

**Micro Biology**

Sl No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Total Coliform Bacteria	100ml	IS 15185	Not Detectable	Not Applicable	Detected
2	E. coli	100ml	IS 15185	Not Detectable	Not Applicable	Detected

Opinion : Acceptable limit & Permissible limit are as per IS:10550:2012

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name

Mr. Subanta Paul

Designation

Technical in charge

Authorized Signatory

Signature

Name

Mr. Subanta Paul

Designation

Technical in charge

This results relate only to the item(s) tested.  
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The retained part of sample(s) for chemical analysis (Non-perishable samples) Food, Water shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 7 days from the date of issue of the Test Report.  
The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Residue) shall be retained for 15 days as per ISO 9001:2015 & (Air) 7 years from the date of issue of the Test Report.  
The retained part of sample(s) for Microbiological analysis (Non-perishable samples) Food, Sealed Water, Sealed food shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Branch Centre (3rd Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel. : 91 33 40143000/1 22650057 Fax : 91 33 22650056  
Email : info@mitrask.com Website : www.mitrask.com



Report No. MSKGL/ED/2023-24/004575


Date: 10.02.2024

## ANALYSIS REPORT OF DRINKING WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	24.01.2024
Location	Bichakundi WTP Inlet (JWIMM)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Units	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH3-F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	13
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 Cl B	250	1000	8
4	Odour	Hazen	3025 (Part-5)-1983 Refn:2012	Agreeable	Agreeable	Agreeable
5	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	---	82
6	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	0.1
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	1.9
8	Phenolic Compound (as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	---	---	<1.0
10	Salinity	PSU	APHA (24th Edition), 2520B	---	---	0.044
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	---	---	3.0
12	Sulphate (as SO4)	mg/l	APHA (24th Edition), 4500 SO42-E	200	400	<1.0
13	Taste	None	IS 3025 (Part 8)-1983 Refn:2012 (0)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	28
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	50
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	40
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	---	---	2.9
18	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	1.5
19	pH value at 25 deg C	None	APHA 24th Edition, 2023, 4500, H+B	6.5-8.5	No Relaxation	7.42

Checked by: 

For Mitra S. K. Private Limited

  
Authorized Signatory



## Address of Laboratory :

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3, Pagladanga Road, Kolkata 700015  
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Email: udayanlab@mitrask.com



TC-6950



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URL: TC-695024000002089F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd. (MGML) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 755034, India

Report No. :

MSKPL/FD/2023-24/HLP04V

Date :

08/02/2024

Sample No. :

MSKNB/FD/2023-24/01/X218C8

Date of receipt of sample:

27/01/2024

Date(s) of performance:

27/01/2024 - 08/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	DRINKING WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	24/01/2024
5. Place of sampling	BBL-4469 Bichakundi WTP Cutlet
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614 (P-5) 2022
8. Identification of the personnel performing sampling by MSK	Pranab Kr. Mahanta

Report No. : MSKPL/FD/2023-24/HLP04V

Sample No. : MSKNB/FD/2023-24/01/X218C8

## RESULT

## Chemical

Sl. No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Cadmium as Cd	mg/l	IS 3025 (Part 2)	0.003	No Relaxation	BDL(DL:0.001)
2	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	3.05	No relaxation	BDL(DL:0.01)
3	Silver as Ag	mg/l	IS 3025 (Part 2)	0.1	No Relaxation	BDL(DL:0.005)
4	Silica as SiO <sub>2</sub>	mg/l	IS 3025 (Part 35)	Not specified	Not specified	X21BDL(DL:0.1)
5	Selenium as Se	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BDL(DL:0.005)
6	Mercury as Hg	mg/l	IS 3025 (Part 48)	0.001	No relaxation	BDL(DL:0.0002)
7	Zinc as Zn	mg/l	IS 3025 (Part 2)	5	15	BDL(DL:0.02)
8	Colour	Hazen	IS 3025 (Part 4)	5	15	BDL(DL:1.0)
9	Cyanide as CN	mg/l	IS 3025 (Part 27) Sect 1	0.05	No relaxation	BDL(DL:0.02)
10	Fluoride as F	mg/l	IS 3025 (Part 60)	1.0	1.5	BDL(DL:0.2)
11	Nitrate as NO <sub>3</sub>	mg/l	APHA (24th EDITION) 4500-NO <sub>3</sub> -B	45	No Relaxation	0.54
12	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No Relaxation	BDL(DL:0.01)
13	Arsenic as As	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.005)
14	Manganese as Mn	mg/l	IS 3025 (Part 2)	0.1	0.3	BDL(DL:0.02)
15	Lead as Pb	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BDL(DL:0.005)
16	Copper as Cu	mg/l	IS 3025 (Part 2)	0.05	1.5	BDL(DL:0.02)

Opinion :

Acceptable limit &amp; Permissible limit are as per IS:10800:2012

Statement of Conformity

NA

— END —

Reviewed by:

Signature

Name

Designation

*P. Ganguly*  
Mr. Arunima Saha, Mr. Pall Ganguly  
Sr. Exe. Chemist, Executive Chemist

Authorized Signatory

Signature

Name

Designation

*[Signature]*  
In charge

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Sol., Solid &amp; Liquid Alloys) shall be retained for 15 days as per GPCD guideline &amp; (Part 1) month from the date of issue of the Test Report.

The reserved part of sample(s) for microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Branch Centre (5th Floor), 748, A, J.C. Bose Road, Kolkata - 700015, West Bengal, India.

Tel : 91 33 47140035 / 23950002 Fax : 91 33 23550009

Email : info@mitrask.com, Website : www.mitrask.com



## Address of Laboratory :

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West Bengal  
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Email: udayanlab@mitrask.com



TC-8950



Scan for Portal

ULR: TC-895024000002006F

## Name & Address of Customer :

Tata Steel Ltd. (MGMD), Joda West

AtPo. - Joda, Dist. - Keonjhar, Odisha - 756034 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2023-24/HLF0AV

08/02/2024

MSKNB/FD/2023-24/01021BC8

27/01/2024

27/01/2024 - 29/01/2024

Permanent Facility

3000156017/056, Date - 18/09/2023

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	DRINKING WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	24/01/2024
5. Place of sampling	BBL-4489 Bichakundi WTP Outlet
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614(P-25) 2022
8. Identification of the personnel performing sampling by MSK	Pranab Kr. Mahanta

Report No. : MSKPL/FD/2023-24/HLF0AV

Sample No. : MSKNB/FD/2023-24/01021BC8

## RESULT

### Micro Biology

Sl No.	Parameter	LOM	Method	Acceptable Limit	Permissible Limit	Result
1	Total Coliform Bacteria	/100ml	IS 15185	Not Detectable	Not Applicable	Detected
2	E. coli	/100ml	IS 15185	Not Detectable	Not Applicable	Not Detected

Opinion : Acceptable limit & Permissible limit are as per IS:10500:2012

Statement of Conformity NA

END

Received By

Signature

Name : Mr. Subanta Paul

Designation : Technical in charge

Authorized Signatory

Signature

Name : Mr. Subanta Paul

Designation : Technical in charge

The results relate only to the sample tested

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The reserved part of sample(s) for chemical analysis (Non-perishable sample(s)) Final (Water) shall be retained for 15 days from the date of issuance of the Test Report.

On the date of issue of the Test Report, the reserved part of sample(s) for chemical analysis (Solid, Semi-Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non-perishable sample(s)) Food, Sealed Water, Sealed food shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Branch Centre (5th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.

Tel : 91 33 40143000 / 22000017 Fax : 91 33 22050008

Email : info@mitrask.com Website : www.mitrask.com



Report No. MSKGL/ED/2023-24/004576

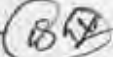
Date: 10.02.2024

## ANALYSIS REPORT OF DRINKING WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	24.01.2024
Location	Bichakundi WTP Out let (JWIMM)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unit	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH <sub>3</sub> -F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	19
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500-Cl B	250	1000	10
4	Odour	Hazen	3025 (Part-5)-1983 Refm:2012	Agreeable	Agreeable	Agreeable
5	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	---	103
6	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	<0.05
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	0.96
8	Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	---	---	<1.0
10	Salinity	PSU	APHA (24th Edition), 2520B	---	---	0.054
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	---	---	3.5
12	Sulphate (as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	200	400	<1.0
13	Taste	None	IS 3025 (Part-8)-1983 Refm:2012, (O)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2320B	200	600	32
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	62
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	200	600	52
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	---	---	<2.5
18	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0
19	pH value at 25 deg C	None	APHA 24th Edition, 2023, 4500.H+B	6.5-8.5	No Relaxation	7.82

Checked by: 

For Mitra S. K. Private Limited

  
Authorized Signatory



## Address of Laboratory :

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3, Papadanga Road, Kolkata 700015  
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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000645F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 756004 India

Report No. :

MSKPL/FD/2023-24/G1ED6E

Date :

15/01/2024

Sample No. :

MSKNB/FD/2023-24/01/M65LA3

Date of receipt of sample:

02/01/2024

Date(s) of performance:

02/01/2024 - 16/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/01/2024
5. Place of sampling	BBL-4355 Keth Hutting after H Quarry down Stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17814 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Mukesh Halder, Lata Kr Nali

Report No. : MSKPL/FD/2023-24/G1ED6E

Sample No. : MSKNB/FD/2023-24/01/M65LA3

## RESULT

Chemical				
Sl No.	Parameter	Unit	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL 0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL 0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL 0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL 1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL 0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL 0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL 0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL 0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL 0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL 0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL 0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3-B	BDL(DL 0.4)
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL 0.02)

Opinion : NA

Statement of Conformity : NA

END

Reviewed By:

Signature

Name : Ms. Ananya Saha, Ms. Priya Ganguly

Designation : Sr. Exe. Chemist, Executive Chemist

Authorized Signatory:

Signature

Name

Designation : Lab In charge

Head Office:

Branch Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
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Email: udayanlab@mitrask.com



TC-6950



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URL: TC-695024000000645F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

AdPo. - Joda, Dist. - Keonjhar, Odisha - 756034, India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2023-24/G1ED0E

16/01/2024

MSKNB/FD/2023-24/01/MS5LA3

02/01/2024

02/01/2024 - 08/01/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/01/2024
5. Place of sampling	BEL-4355 Keth Huttig after H Quarry down Stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17814 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Mukesh Halburu, Lalin K/Naik

Report No. : MSKPL/FD/2023-24/G1ED0E

Sample No. : MSKNB/FD/2023-24/01/MS5LA3

## RESULT

### Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn, (2012)	12

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name

Mr. Sukanta Palui

Designation

Technical in-charge

Authorized Signatory

Signature

Name

Mr. Sukanta Palui

Designation

Technical in-charge

The results relate only to the item(s) tested

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) (Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Solid & Liquid Water) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report. The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shreeya Centre (5th Floor), T48, A-2 C, Bore Road, Kolkata - 700016, West Bengal, India  
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Email : info@mitrask.com Website : www.mitrask.com



Report No. MSKGL/ED/2023-24/004361

Date: 10.02.2024

## ANALYSIS REPORT OF SURFACE WATER


Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	01.01.2024
Location	Keth-Hutting after H- Quarry Down Stream (JWIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	28
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220D	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	7.3
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	73
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.25
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	5.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.04
13	Sulphate (as SO <sub>4</sub> <sup>-2</sup> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> 2-E	---	<1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	26
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	44
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	38
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	<2.5
18	pH value at 26.3 deg C	None	APHA 24th Edition, 2023 4500-H+8	5.5-9.0	7.4

Checked by:-

For Mitra S. K. Private Limited

  
Authorized Signatory



## Address of Laboratory :

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Email: udayanlab@mitrask.com



TC-6950

Doc No.: MSKCONFORM



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ULR: TC-695024000000645F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West  
AsPo - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2023-24/EZED6D

16/01/2024

MSKNB/FD/2023-24/01/W8YE81

02/01/2024

02/01/2024 - 16/01/2024

Permanent Facility

3000158017/056, Date - 16/09/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/01/2024
5. Place of sampling	BRL 4358 Kesh Huting before H Quarry Up Stream
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Mukesh Halderu Lalin Kr Nask

Report No. : MSKPL/FD/2023-24/EZED6D

Sample No. : MSKNB/FD/2023-24/01/W8YE81

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL (DL 0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL (DL 0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL (DL 0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL (DL 1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL (DL 0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL (DL 0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL (DL 0.2)
8	Hexavalent Chromium (as Cr-6)	mg/l	IS 3025 (Part 52) Sec2	BDL (DL 0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL (DL 0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL (DL 0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL (DL 0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL (DL 0.4)
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL (DL 0.02)

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name

Designation

*Arup Sam P. Gunguly*

Mr. Arup Sam P. Gunguly

Sr. Exec. Chemist, Executive Chemist

Authorized Signatory

Signature

Name

Designation

*Dr. Subhanshu Kumar*

Dr. Subhanshu Kumar

Lab In charge

Head Office:

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West Bengal  
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Email: udayanlab@mitrask.com



TC-8950



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ULR: TC-89502400000646F

## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd (MGM) Joda West

As/Po : Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/EZED60

**Date :**

16/01/2024

**Sample No. :**

MSKNB/FD/2023-24/01/MBYEB1

**Date of receipt of sample:**

02/01/2024

**Date(s) of performance:**

02/01/2024 - 06/01/2024

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/056, Date : 16/09/2023

**Discipline:**

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/01/2024
5. Place of sampling	SBL-4356 Koth Huttig before II Quarry Up Stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17814 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Mukesh Halburu, Latif K. Naik

**Report No. :** MSKPL/FD/2023-24/EZED60**Sample No. :** MSKNB/FD/2023-24/01/MBYEB1

## RESULT

**Micro Biology**

Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn, 9221B	6.6

**Opinion :** NA**Statement of Conformity :** NA

END

**Reviewed By:****Signature****Name :** Mr. Sukanta Palu**Designation :** Technical in charge**Authorized Signatory****Signature****Name :** Mr. Sukanta Palu**Designation :** Technical in charge

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Sew, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Part) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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Email : info@mitrask.com Website : www.mitrask.com



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E : barbil@mitrask.co.in  
W : www.mitrask.com

Report No. MSKGL/ED/2023-24/004378

Date: 10.02.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	01.01.2024
Location	Keth -Hutting before H-Quarry Up Stream (JWIMM)

### CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	20
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4540 -Cl B	---	2
5	DO	mg/l	APHA 24th Edition, 2025 4500-O-C/G	---	6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	68
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3570 Fe B	3	0.26
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	5.4
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5530B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.039
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	<1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	26
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	40
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	36
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	<2.5
18	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.94

Checked by:-

For Mitra S. K. Private Limited

  
Authorized Signatory



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044006120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000643F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM), Joda West

As/To : Joda, Dist. : Keonjhar, Odisha - 756034, India

Report No. :

MSKPL/FD/2023-24/HTED6U

Date :

16/01/2024

Sample No. :

MSKNB/FD/2023-24/01/0J28C3

Date of receipt of sample:

02/01/2024

Date(s) of performance:

02/01/2024 - 16/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/068, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/01/2024
5. Place of sampling	BBL -4353 Pichlaghat Pump House down Stream
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17814 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Mukesh Halburu, Lalin Kr Nask

Report No. : MSKPL/FD/2023-24/HTED6U

Sample No. : MSKNB/FD/2023-24/01/0J28C3

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name

Designation

*Arunava Saha P. Gayen*  
 Mr. Arunava Saha, Mr. P. Gayen  
 Sr. Ex. Chemist, Executive Chemist

Authorized Signatory

Signature

Name

Designation

*Dr. Soumyadeep Chakrabarty*  
 Dr. Soumyadeep Chakrabarty  
 Lab In charge



## Address of Laboratory :

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West Bengal  
Tel : +91 7044000120  
Email: udayanlab@mitrask.com



TC-8950



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URL: TC-895024000000643F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGN), Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 755034 India

## Report No. :

MSKPL/FD/2023-24/HTED6U

## Date :

16/01/2024

## Sample No. :

MSKNB/FD/2023-24/01/0J2BC3

## Date of receipt of sample:

02/01/2024

## Date(s) of performance:

02/01/2024 - 06/01/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/066, Date - 16/09/2023

## Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/01/2024
5. Place of sampling	BBR -4353 Pichlaghat Pump House down Stream
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17014 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Mukesh Halbura, Lalin Kr Nay

Report No. : MSKPL/FD/2023-24/HTED6U

Sample No. : MSKNB/FD/2023-24/01/0J2BC3

## RESULT

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn, 1221B	11

Opinion : NA

Statement of Conformity : NA

— END —

Received By :

Signature :

Name :

Designation :

Mr. Sukanta Palui

Technical In charge

Authorized Signatory :

Signature :

Name :

Designation :

Mr. Sukanta Palui

Technical In charge

The results relate only to the sample(s) tested.

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, water) shall be retained for 14 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Sol, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guidelines &amp; (NA) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Service Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India

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Email : info@mitrask.com Website : www.mitrask.com



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T : +91 94370 09815, 94370 09620, 94370 75269  
E : barbil@mitrask.co.in  
W : www.mitrask.com

Report No. MSKGL/ED/2023-24\_004360

Date: 10.02.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	01.01.2024
Location	Pichlaghat Khorbandg Down Stream (JWIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 521#B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 234# C	---	24
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 522CB	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	5.4
5	DO	mg/l	APHA 24th Edition, 2023 #500-O-C/G	---	6.0
6	Electrical conductivity	us/cm	APHA (24th Edition), 251#B	---	72
7	Iron (as Fe)	mg/l	APHA (24th Edition), 350# Fe B	3	0.37
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 350# Mg B	---	4.8
9	Odour	mg/l	APHA (24th Edition), 215#B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C6-H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 252#B	---	0.04
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO42-E	---	<1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	20
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	44
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 234# C	---	40
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	2.8
18	pH value at 19.8 deg C	None	APHA 24th Edition, 2023 #500-H+B	5.5-9.0	7.31

Checked by:-

For Mitra S. K. Private Limited

  
Authorized Signatory



**Address of Laboratory :**

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 3, Pagladanga Road, Kolkata 700015  
 West Bengal  
 Tel : +91 70440036170  
 Email: udayanlab@mitrask.com



TC-8950



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**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd (MOM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/LEED6N

**Date :**

16/01/2024

**Sample No. :**

MSKNB/FD/2023-24/01/LEC89G

**Date of receipt of sample:**

02/01/2024

**Date(s) of performance:**

02/01/2024 - 16/01/2024

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000158017/056, Date - 16/09/2023

**Discipline:**

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/01/2024
5. Place of sampling	BBL-4354 Pichlaghat Pump House Up Stream
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17514 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Mukesh Halburu, Latin Kr Nail

**Report No. :** MSKPL/FD/2023-24/LEED6N**Sample No. :** MSKNB/FD/2023-24/01/LEC89G**RESULT**

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL 0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL 0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL 0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL 1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL 0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL 0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 50)	BDL(DL 0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL 0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL 0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL 0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL 0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL 0.4)
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL 0.02)

**Opinion :** NA**Statement of Conformity :** NA

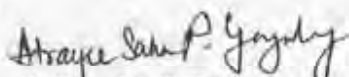
END

Reviewed By:

Signature

Name

Designation : Sr. Exe. Chemist, Executive Chemist



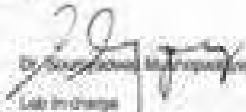
Mr. Abhijit Saha, Mr. Piali Ganguly

Authorized Signatory:

Signature

Name

Designation



Lab in charge



**Address of Laboratory :**

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West Bengal  
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Email: udayanlab@mitrask.com



TC-8950



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## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd.(MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 755034 India

Report No. :

MSKPL/FD/2023-24/LEED6N

Date :

15/01/2024

Sample No. :

MSKNB/FD/2023-24/01/LEC89G

Date of receipt of sample:

02/01/2024

Date(s) of performance:

02/01/2024 - 08/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000158017/056, Date - 16/09/2023

Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/01/2024
5. Place of sampling	BBL-4354 Pichleghat Pump House Up Stream
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17514 (P-35) 2022
8. Identification of the personnel performing sampling by MSK	Mukesh Halburu, Lalin Kr Naik

Report No. : MSKPL/FD/2023-24/LEED6N

Sample No. : MSKNB/FD/2023-24/01/LEC89G

## RESULT

**Micro Biology**

Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & wastewater, 24th edn, 92:1B	0.3

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name : Mr. Sukanta Paul

Designation : Technical in charge

Authorized Signature:

Signature

Name : Mr. Sukanta Paul

Designation : Technical in charge

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Solid, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCRI guideline &amp; (Part) I count from the date of issue of the Test Report.

The reserved part of sample(s) for microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Branch Centre (8th Floor), TMS A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.

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Email : info@mitrask.com Website : www.mitrask.com



Report No. MSKGL/ED/2023-24/004413

Date: 10.02.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	01.01.2024
Location	Pichlaghat Pump House Up Stream (JWIMM)

### CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	24
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	---	5.4
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	5.8
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	70
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.21
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	5.2
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> -H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.04
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	<1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210E	---	28
15	Total Dissolved Solids (as TD <sub>3</sub> )	mg/l	APHA (24th Edition), 2540C	---	42
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	36
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	2.7
18	pH value at 20.5 deg C	None	APHA 24th Edition, 2021 4500-H+B	5.5-9.0	

Checked by:-

For Mitra S. K. Private Limited

Authorized Signatory



**Address of Laboratory :**

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 3, Pagladanga Road, Kolkata 700015  
 West Bengal  
 Tel : +91 7044036120  
 Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000001742F

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd.(MGM), Joda West

AtPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :****Date :****Sample No. :****Date of receipt of sample:****Date(s) of performance:****Location of performance of****Reference No. & Date :****Discipline:**

MSKPL/FD/2023-24/MHED&amp;L

05/02/2024

MSKNB/FD/2023-24/01/4N1466

24/01/2024

24/01/2024 - 05/02/2024

Permanent Facility

3000156017/066, Date - 16/09/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	23/01/2024
5. Place of sampling	Sona River Near Mahanadi Suez house
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Dhambudhar Das/Pranab Sathy

Report No. : MSKPL/FD/2023-24/MHED&amp;L

Sample No. : MSKNB/FD/2023-24/01/4N1466

**RESULT**

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name : Ms. Anurupa Saha, Ms. Pooja Ganguly

Designation : Sr. Exec. Chemist, Executive Chemist

Authorized Signatory:

Signature

Name

Designation

Lab In charge



## Address of Laboratory :

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3, Pagladanga Road, Kolkata 700015  
West Bengal  
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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000001742F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MSM), Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034, India

Report No. :

MSKPL/FD/2023-24/WHE06L

Date :

05/02/2024

Sample No. :

MSKNB/FD/2023-24/014N1455

Date of receipt of sample:

24/01/2024

Date(s) of performance:

24/01/2024 - 29/01/2024

Location of performance of

Pemaneri Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	22/01/2024
5. Place of sampling	Sona River Near Mahanadi Guest house
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS-17614 (P-25) 2023
8. Identification of the personnel performing sampling by MSK	Dhambrother Das, Pranab Sethy

Report No. : MSKPL/FD/2023-24/WHE06L

Sample No. : MSKNB/FD/2023-24/014N1455

## RESULT

## Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn, 9221B	220

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By

Signature

Name

Mr. Subanta Paul

Designation

Technical in charge

Authorized Signatory

Signature

Name

Mr. Subanta Paul

Designation

Technical in charge

The results relate only to the item(s) tested

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s)) Food, Water shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Sol, Solid &amp; Liquid Waste) shall be retained for 15 days as per ISO/IEC guidelines 9 (A2) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s)) Food, Sealed Water, Sealed food shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shree Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India

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Email : info@mitrask.com Website : www.mitrask.com



Report No. MSKGL/ED/2023-24/004639

Date: 10.02.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	22.01.2024
Location	Sona River Near Mahanadi Guest House (JWIMM)

### CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	8.2
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	18
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	28
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4540 -Cl B	---	8
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	135
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3570 Fe B	3	1.2
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg II	---	6.7
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	psu	APHA (24th Edition), 2530B	---	0.070
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	<1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	64
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	82
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	72
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	31
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+H	5.5-9.0	7.49

Checked by:-

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000001743F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM), Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 - India

Report No. :

MSKPL/FD/2023-24/D7ED6N

Date :

05/02/2024

Sample No. :

MSKNB/FD/2023-24/01/9G1449

Date of receipt of sample:

24/01/2024

Date(s) of performance:

24/01/2024 - 05/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 15/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	23/01/2024
5. Place of sampling	Sena River before confluence with Baitarani River
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17814 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Dhambudhar Das,Pranab Sany

Report No. : MSKPL/FD/2023-24/D7ED6N

Sample No. : MSKNB/FD/2023-24/01/9G1449

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.62
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By

Signature

Name : Ms. Atreyee Saha, Ms. Pooi Ganguly

Designation : Sr. Exe. Chemist, Executive Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Anindya Kumar Bhattacharya  
Lab. In charge



## Address of Laboratory :

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3, Pagladanga Road, Kolkata 700015  
West Bengal  
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Email: udayanlab@mitrask.com



TC-6950



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URL: TC-695024000001743F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd, (MGN) Joda West  
As/To. - Joda, Dist. - Keonjhar, Odisha - 758034 - India

Report No. :

MSKPL/FD/2023-24/D7ED6N

Date :

05/02/2024

Sample No. :

MSKNB/FD/2023-24/01/9G1449

Date of receipt of sample:

24/01/2024

Date(s) of performance:

24/01/2024 - 29/01/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056, Date - 15/09/2023

Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	22/01/2024
5. Place of sampling	Sona River before confluence with Batarani River
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Chambrudhar Das, Pranab Sanyal

Report No. : MSKPL/FD/2023-24/D7ED6N

Sample No. : MSKNB/FD/2023-24/01/9G1449

## RESULT

### Micro Biology

Sl.No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn, 921B	540

Opinion : NA

Statement of Conformity : NA

— END —

Received By:

Signature

Name

Mr. Subanta Paul

Designation

Technical in charge

Authorized Signatory

Signature

Name

Mr. Subanta Paul

Designation

Technical in charge

The results relate only to the item(s) tested

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 12 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 7 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Material) shall be retained for 12 days as per CPCB guideline & (Part 1) month from the date of issue of the Test Report.

The reserved part of sample(s) for microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Srinagar Centre (5th Floor), T-88, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
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Report No. MSKGL/ED/2023-24/004640

Date: 10.02.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	22.01.2024
Location	Sona River Kandra Village before confluence with Baitarni River (JWIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	5.6
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	16
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	20
4	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 -Cl B	---	10
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	6.1
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	150
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.32
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	5.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.077
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> 2-B	---	<1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	56
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	88
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	64
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	3.2
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.32

Checked by:-

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000001744F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd. (MGM), Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/FD/2023-24/OPED6N

Date :

05/02/2024

Sample No. :

MSKNB/FD/2023-24/01/WE1456

Date of receipt of sample:

24/01/2024

Date(s) of performance:

24/01/2024 - 05/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	22/01/2024
5. Place of sampling	Sona River after confluence with Baitarani River
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Dhambudhar Das Pranab Sany

Report No. : MSKPL/FD/2023-24/OPED6N

Sample No. : MSKNB/FD/2023-24/01/WE1456

## RESULT

Chemical				
Sl No.	Parameter	Unit	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	0.25
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity : NA

END

Reviewed By:

Signature

Aravind Saha P. Ganguly

Name

Ms. Aravind Saha, Ms. Piali Ganguly

Designation

Sr. Exe. Chemist, Executive Chemist

Authorized Signatory

Signature

Name

Dr. Sourajadeep Mukhopadhyay

Designation

Lab In charge

Head Office:

Service Centre (5th Floor), T4B, A.J.C. Sore Road, Kolkata - 700016, West Bengal, India.  
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Email: udayanlab@mitrask.com



TC-6960



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ULR: TC-696024000001744F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

As/To : Joda, Dist. : Keonjhar, Odisha - 758004 India

## Report No. :

MSKPL/FD/2023-24/0PED6N

## Date :

05/02/2024

## Sample No. :

MSKNB/FD/2023-24/01WE1456

## Date of receipt of sample:

24/01/2024

## Date(s) of performance:

24/01/2024 - 29/01/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

300G156017/056, Date - 16/09/2023

## Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	22/01/2024
5. Place of sampling	Sona River after confluence with Baitarani River
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Dhambudhar Das,Pranab Sethy

Report No. : MSKPL/FD/2023-24/0PED6N

Sample No. : MSKNB/FD/2023-24/01WE1456

## RESULT

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	170

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name : Mr. Sukanta Palu

Designation : Technical in charge

Authorized Signatory

Signature

Name : Mr. Sukanta Palu

Designation : Technical in charge

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per (ISIRI guidelines) &amp; (As) 3 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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W : www.mitrask.com

Report No. MSKGL/ED/2023-24\_004641

Date: 10.02.2024

**ANALYSIS REPORT OF SURFACE WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	22.01.2024
Location	Sona River after confluence with Balitani River (JWIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5213B	30	7
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	14
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	24
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500-Cl B	---	14
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	---	6.4
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	112
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.61
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	---	3.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5520C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	---	0.058
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	---	<1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	---	28
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	---	68
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	---	52
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	7.9
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.12

Checked by:-

For Mitra S. K. Private Limited

  
 Authorized Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pipladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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URL: TC-695024000000647F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM), Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758004 India

Report No. :

MSKPL/FD/2023-24/CTEF0L

Date :

16/01/2024

Sample No. :

MSKNB/FD/2023-24/01/YA239S

Date of receipt of sample:

02/01/2024

Date(s) of performance:

02/01/2024 - 16/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	GROUND WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/01/2024
5. Place of sampling	BEL-4357 Bichakundi Borewell No-1
6. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 3990 (P-11) 2014
8. Identification of the personnel performing sampling by MSK	Lalin Kr Nayak

Report No. : MSKPL/FD/2023-24/CTEF0L

Sample No. : MSKNB/FD/2023-24/01/YA239S

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
3	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
4	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
5	Iron as Fe	mg/l	IS 3025 (Part 2)	BDL(DL:0.05)
6	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
7	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
8	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
9	Selenium as Se	mg/l	IS 3025 (Part 2)	BDL(DL:0.006)
10	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity : NA

END

Reviewed By:

Signature

*Dr. Soumyadeep Mukhopadhyay*  
Dr. Soumyadeep Mukhopadhyay, Dr. Aranya Kumar  
QA/QC  
Technical in charge

Name

Designation

Authorized Signatory:

Signature

Name

Designation

*Dr. Soumyadeep Mukhopadhyay*  
Dr. Soumyadeep Mukhopadhyay  
Lab in charge



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E : barbil@mitrask.co.in  
W : www.mitrask.com

Report No. MSKGL/ED/2023-24/004431

Date: 10.02.2024

### ANALYSIS REPORT OF GROUND WATER TRACE METAL

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	01.01.2024
Location	Bichakundi Borewell No -1 Near Community Toilet (JWIMM)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unit	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH <sub>3</sub> -F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	3.2
3	Chloride (as Cl )	mg/l	APHA (24th Edition), 4500 -Cl B	250	1000	10.5
4	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	---	---	50
5	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	<0.05
6	Odour	None	IS 3025 (Part 5)-1983; Refm:2012	Agreeable	Agreeable	Agreeable
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	1.9
8	pH value at 23 deg C	None	APHA 24 <sup>th</sup> Edition, 2023, 4500, H+3	6.5-8.5	No Relaxation	5.56
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	---	---	<0.001
10	Phenolic Compound [as C <sub>6</sub> H <sub>5</sub> OH]	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<1.0
11	Salinity	PSU	APHA (24th Edition), 2520B	---	---	0.029
12	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	---	---	3.4
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition) 4500 SO <sub>4</sub> -E	200	400	1.2
14	Taste	None	IS 3025 (Part 8)-1983 Refm:2012, (C)	Agreeable	Agreeable	Agreeable
15	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2320B	200	600	8
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	28
17	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	200	600	16
18	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	---	---	<2.5
19	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0

Checked by:-

For Mitra S. K. Private Limited

  
Authorized Signatory



# Mitra S. K. Private Limited

## Address of Laboratory :

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 3, Pagladanga Road, Kolkata 700015  
 West Bengal  
 Tel : +91 7044036120  
 Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695024000001068F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

### Report No. :

MSKPL/ED/2023-24/510E6C

### Date :

24/01/2024

### Sample No. :

MSKNB/ED/2023-24/12/M053EX

### Date of receipt of sample:

28/12/2023

### Date(s) of performance:

28/12/2023 - 19/01/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156017/056, Date - 16/09/2023

### Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Pollution & Environment
2. Description of sample	Waste Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	27/12/2023
5. Place of sampling	BBL-4349 Bamebari STP Inlet
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained.
7. Sampling Plan & Method used	APHA 23rd edition, 2017
8. Identification of the personnel performing sampling by MSK	Pratik Kr. Mantri & Akash Kr Setty
9. Field Equipments Used	N/A

Report No. : MSKPL/ED/2023-24/510E6C

Sample No. : MSKNB/ED/2023-24/12/M053EX

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as (As)	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.005)
2	Boron (as B)	mg/l	APHA (24th Edition), 4500 - B C	BDL(DL:0.5)
3	Cadmium as Cd	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.05)
4	Colour	Hazen	APHA (24th Edition), 2120B	10
5	Copper (as Cu)	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.05)
6	Cyanide ( as CN)	mg/l	APHA (24th Edition), 4500 CN - F	BDL(DL:0.02)
7	Fluoride ( as F )	mg/l	APHA (24th Edition), 4500 F- C/D	0.19
8	Hexavalent Chromium (as Cr+6)	mg/l	APHA (24th Edition), 3500 Cr B	BDL(DL:0.05)
9	Lead (as Pb )	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.005)
10	Manganese (as Mn)	mg/l	APHA (24th Edition), 3120 B	1.41
11	Mercury (as Hg )	mg/l	APHA (24th Edition) 3112 B	BDL(DL:0.001)
12	Nitrate as NO3	mg/l	APHA (24th Edition), 4500 NO3-E	BDL(DL:0.1)
13	Zinc (as Zn)	mg/l	APHA (24th Edition), 3120 B	0.20

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name: Mr. Somnath Barman, Dr. Devottam Banerjee

Designation: Technical in charge

Authorized Signatory

Signature

Name: Mr. Somnath Barman, Dr. Devottam Banerjee

Designation: Technical in charge

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report. The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shree Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
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# Mitra S. K. Private Limited

**Address of Laboratory :**

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 Tel. : +91 7044036120  
 Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000001068F

## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/510E6C

Date :

24/01/2024

Sample No. :

MSKNB/ED/2023-24/12/M053EX

Date of receipt of sample:

28/12/2023

Date(s) of performance:

28/12/2023 - 02/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Pollution & Environment
2. Description of sample	Waste Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	27/12/2023
5. Place of sampling	BBL-4349 Bamebari STP Inlet
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained.
7. Sampling Plan & Method used	APHA 23rd edition, 2017
8. Identification of the personnel performing sampling by MSK	Pratik Kr Mantri & Akash Kr Setty
9. Field Equipments Used	N/A

Report No. : MSKPL/ED/2023-24/510E6C

Sample No. : MSKNB/ED/2023-24/12/M053EX

## RESULT

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn, 9221B	11000

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By

Signature

Name Ms. Malleswari Chakraborty

Designation Executive Microbiologist

Authorized Signatory

Signature

Name Ms. Malleswari Chakraborty

Designation Executive Microbiologist

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The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Service Centre (5th Floor), 7AB, A.J.C. Bose Road, Kolkata - 700015, West Bengal, India.

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 Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-69502400001067F

## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/J10E6N

Date :

24/01/2024

Sample No. :

MSKNB/ED/2023-24/12/E153FT

Date of receipt of sample:

28/12/2023

Date(s) of performance:

28/12/2023 - 19/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Pollution & Environment
2. Description of sample	Waste Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	27/12/2023
5. Place of sampling	BBL-4349 Bamebari Oil & water Separation Near Garage
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	APHA 23rd edition, 2017
8. Identification of the personnel performing sampling by MSK	Pratik Kr Mantri & Akash Kr Setty
9. Field Equipments Used	N/A

Report No. : MSKPL/ED/2023-24/J10E6N

Sample No. : MSKNB/ED/2023-24/12/E153FT

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as (As)	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.005)
2	Boron (as B)	mg/l	APHA (24th Edition), 4500 - B C	BDL(DL:0.5)
3	Cadmium as Cd	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.05)
4	Colour	Hazen	APHA (24th Edition), 2120B	BDL(DL:5.0)
5	Copper (as Cu)	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.05)
6	Cyanide ( as CN)	mg/l	APHA (24th Edition), 4500 CN - F	BDL(DL:0.02)
7	Fluoride ( as F )	mg/l	APHA (24th Edition), 4500 F- C/D	0.26
8	Hexavalent Chromium (as Cr+6)	mg/l	APHA (24th Edition), 3500 Cr B	BDL(DL:0.05)
9	Lead (as Pb )	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.005)
10	Manganese (as Mn)	mg/l	APHA (24th Edition), 3120 B	0.28
11	Mercury (as Hg )	mg/l	APHA (24th Edition), 3112 B	BDL(DL:0.001)
12	Nitrate as NO3	mg/l	APHA (24th Edition), 4500 NO3-E	3.8
13	Zinc (as Zn)	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.05)

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By

Signature

Name

Designation: Technical in charge

*Mr. Somnath Bardhan, Dr. Devottam Banerjee*  
 Mr. Somnath Bardhan, Dr. Devottam Banerjee

Authorized Signatory

Signature

Name

Designation: Technical in charge

*Mr. Somnath Bardhan, Dr. Devottam Banerjee*  
 Mr. Somnath Bardhan, Dr. Devottam Banerjee

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The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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 Tel. : +91 7044036120  
 Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695024000001067F

## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/J10E6N

Date :

24/01/2024

Sample No. :

MSKNB/ED/2023-24/12/E153FT

Date of receipt of sample:

28/12/2023

Date(s) of performance:

28/12/2023 - 02/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Pollution & Environment
2. Description of sample	Waste Water
3. Unique Identification of sample(if any)	NA
4. Date of sampling	27/12/2023
5. Place of sampling	BBL-4349 Bamebari Ojl & water Separation Near Garage
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained.
7. Sampling Plan & Method used	APHA 23rd edition,2017
8. Identification of the personnel performing sampling by MSK	Pratik Kr.Mantri & Akash Kr Setty
9. Field Equipments Used	N/A

Report No. : MSKPL/ED/2023-24/J10E6N

Sample No. : MSKNB/ED/2023-24/12/E153FT

## RESULT

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	14

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By

Signature

Name Ms. Madhaya Chakraborty

Designation Executive Microbiologist

Authorized Signatory

Signature

Name Ms. Madhaya Chakraborty

Designation Executive Microbiologist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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Report No. MSKGL/ED/2023-24/004293


Date: 12.01.2024

**ANALYSIS REPORT OF DRINKING WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	21.12.2023
Location	WTP IN LET (JWIMM)

**CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012**

Sl. No.	Test Parameters	Unit	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH3-F	0.5	No Relaxation	<1.0
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	9.6
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 -Cl B	250	1000	18
4	Electrical conductivity	us/cm	APHA (24th Edition), 2510H	—	—	91
5	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	0.66
6	Odour	Hazen	3025 (Part-5)-1983; Rfm: 2012	Agreeable	Agreeable	Agreeable
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	1.9
8	pH value at 18.2 deg C	None	APHA 24 <sup>th</sup> Edition, 2023, 4500, H+B	6.5-8.5	No Relaxation	6.7
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	—	—	<1.0
10	Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
11	Salinity	PSU	APHA (24th Edition), 2520B	—	—	0.06
12	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	—	—	5.3
13	Sulphate (as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	200	400	1.4
14	Taste	None	IS 3025 (Part II)-1983 Rfm: 2012, (0)	Agreeable	Agreeable	Agreeable
15	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2320B	200	600	28
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	54
17	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	200	600	32
18	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	—	—	6
19	Turbidity	N.T.U	APHA (24th Edition), 2130H	1	5	1.7

Checked by:- 

For Mitra S. K. Private Limited

Authorized Signatory



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W : www.mitrask.com

Report No. MSKGL/ED/2023-24/ 004294


Date: 12.01.2024

**ANALYSIS REPORT OF DRINKING WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	21.12.2023
Location	WTP OUT LET (JWIMM)

**CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012**

Sl. No.	Test Parameters	Unit	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH <sub>3</sub> -F	0.5	No Relaxation	<1.0
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	8
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 Cl B	250	1000	10
4	Electrical conductivity	µs/cm	APHA (24th Edition), 2510B	—	—	102
5	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	0.33
6	Odour	Hazen	3025 (Part-5)-1983; Rfinc: 2012	Agreeable	Agreeable	Agreeable
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	3.8
8	pH value at 18.4 deg C	None	APHA 24th Edition, 2023, 4500, H+B	6.5-8.5	No Relaxation	7.30
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	—	—	<1.0
10	Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
11	Salinity	PSU	APHA (24th Edition), 2520B	—	—	0.054
12	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	—	—	5.6
13	Sulphate (as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	200	400	2.4
14	Taste	None	IS 3025 (Part B)-1983 Rfinc: 2012, (O)	Agreeable	Agreeable	Agreeable
15	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2320B	200	600	32
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	60
17	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	200	600	36
18	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	—	—	<2.5
19	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	1.4

Checked by:- 

For Mitra S. K. Private Limited


  
Authorized Signatory



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W : www.mitrask.com

Report No. MSKGL/ED/2023-24/004299


Date: 12.01.2024

## ANALYSIS REPORT OF DRINKING WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	21.12.2023
Location	Bamebari WTP Outlet

### CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unit	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH3-F	0.5	No Relaxation	<1.0
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	26
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500-Cl B	250	1000	10
4	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	—	230
5	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	<0.05
6	Odour	Hazen	3025 (Part 5)-1983; Rfmm:2012	Agreeable	Agreeable	Agreeable
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	12
8	pH value at 25 deg C	None	APHA 24 <sup>th</sup> Edition, 2023, 4500, H+B	6.5-8.5	No Relaxation	6.71
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	—	—	<1.0
10	Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
11	Salinity	PSU	APHA (24th Edition), 2520B	—	—	0.117
12	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	—	—	5.4
13	Sulphate (as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO42-E	200	400	4.5
14	Taste	None	IS 3025 (Part 8)-1983 Rfmm:2012 (0)	Agreeable	Agreeable	Agreeable
15	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2320B	200	600	104
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	138
17	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	200	600	112
18	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	—	—	<2.5
19	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0

Checked by:- 



For Mitra S. K. Private Limited

  
Authorized Signatory



A/P.O. BARBIL Ward No-6  
 Dist.: Keonjhar, Odisha - 758035  
 CIN: U51909WB1958PTC023037

T : +91 94370 09815, 94370 09820, 94370 75269  
 E : barbil@mitrask.co.in  
 W : www.mitrask.com

Report No. MSKGL/ED/2023-24/004301

Date: 12.01.2024

**ANALYSIS REPORT OF DRINKING WATER**

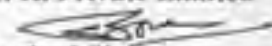
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	21.12.2023
Location	Bamebari WTP Inlet

**CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012**

Sl. No.	Test Parameters	Unit	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH3-F	0.5	No Relaxation	<1.0
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	21
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500-Cl B	250	1000	8
4	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	—	204
5	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	<0.05
6	Odour	Hazen	3025 (Part-5)-1983; RfM: 2012	Agreeable	Agreeable	Not Agreeable
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	11
8	pH value at 25 deg C	None	APHA 24 <sup>th</sup> Edition, 2023.4500.H+B	6.5-8.5	No Relaxation	6.14
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	—	—	<1.0
10	Phenolic Compound (as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
11	Salinity	PSU	APHA (24th Edition), 2520B	—	—	0.104
12	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	—	—	5.5
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	5.3
14	Taste	None	IS 3025 (Part 0)-1983 RfM: 2012 (0)	Agreeable	Agreeable	Not Agreeable
15	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2320B	200	600	100
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	126
17	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	200	600	96
18	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	—	—	<2.5
19	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0

Checked by:- 

For Mitra S. K. Private Limited

  
 Authorized Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950

## TEST REPORT



Scan for Portal

ULR: TC-69502400000803F

## Name &amp; Address of Customer :

Tala Steel Ltd (MGM) Joda West

At/Po. : Joda, Dist. : Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/FD/2023-24/WQE159

Date :

17/01/2024

Sample No. :

MSKNB/FD/2023-24/12/UN15EP

Date of receipt of sample:

28/12/2023

Date(s) of performance:

28/12/2023 - 17/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/055, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results

1. Group	Water & Residue in Water
2. Description of sample	DRINKING WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	27/12/2023
5. Place of sampling	BBL-4345 Bamebari WTP Outlet
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-5) 2022
8. Identification of the personnel performing sampling by MSK	Akash Kr. Setty & Dhambudhar Das

Report No. : MSKPL/FD/2023-24/WQE159

Sample No. : MSKNB/FD/2023-24/12/UN15EP

## RESULT

Chemical						
Sl No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.005)
2	Zinc as Zn	mg/l	IS 3025 (Part 2)	5	15	BDL(DL:0.02)
3	Colour	Hazen	IS 3025 (Part 4)	5	15	BDL(DL:1.0)
4	Copper as Cu	mg/l	IS 3025 (Part 2)	0.05	1.5	BDL(DL:0.02)
5	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	0.05	No Relaxation	BDL(DL:0.02)
6	Fluoride as F	mg/l	IS 3025 (Part 60)	1.0	1.5	BDL(DL:0.2)
7	Lead as Pb	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.005)
8	Manganese as Mn	mg/l	IS 3025 (Part 2)	0.1	0.3	BDL(DL:0.02)
9	Mercury as Hg	mg/l	IS 3025 (Part 48)	0.001	No Relaxation	BDL(DL:0.0002)
10	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No Relaxation	BDL(DL:0.01)
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3-B	45	No Relaxation	8.07
12	Selenium as Se	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.005)
13	Silica (as SiO2)	mg/l	IS 3025 (Part 35)	Not Specified	Not Specified	BDL(DL:0.1)
14	Silver as Ag	mg/l	IS 3025 (Part 2)	0.1	No Relaxation	BDL(DL:0.005)
15	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	0.05	No Relaxation	BDL(DL:0.01)
16	Cadmium as Cd	mg/l	IS 3025 (Part 2)	0.003	No Relaxation	BDL(DL:0.001)

Opinion : Acceptable limit &amp; Permissible limit are as per IS 10500:2012

Statement of Conformity NA

— END —

Reviewed By:

Signature:

Name:

Designation:

Dr. Devottam Banerjee, Ms. Aranya Saha

Technical in charge, Sr. Exe. Chemist

Authorized Signatory:

Signature:

Name:

Designation:

Dr. Devottam Banerjee, Ms. Aranya Saha

Technical in charge, Sr. Exe. Chemist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shreeji Centre (5th Floor), 74B, A. J. C. Bose Road, Kolkata - 700015, West Bengal, India

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Email : info@mitrask.com Website : www.mitrask.com



## Address of Laboratory :

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West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-69502400000803F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 756034 India

## Report No. :

MSKPL/FD/2023-24/WQE159

## Date :

17/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/UN15EP

## Date of receipt of sample:

28/12/2023

## Date(s) of performance:

28/12/2023 - 29/12/2023

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	DRINKING WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	27/12/2023
5. Place of sampling	BBL-4345 Bamebari WTP Outlet
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Akash Kr. Setty & Dhambudhar Das

Report No. : MSKPL/FD/2023-24/WQE159

Sample No. : MSKNB/FD/2023-24/12/UN15EP

## RESULT

Micro Biology						
Sl No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Total Coliform Bacteria	/100ml	IS 15185	Not Detectable	Not Applicable	Not Detected
2	E. Coli	/100ml	IS 15185	Not Detectable	Not Applicable	Not Detected

Opinion : Acceptable limit &amp; Permissible limit are as per IS:10500:2012

Statement of Conformity NA

----- END -----

Reviewed By:

Signature:

Name: Mr. Muzeyen Chakraborty

Designation: Executive Microbiologist

Authorized Signatory:

Signature:

Name: Mr. Muzeyen Chakraborty

Designation: Executive Microbiologist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shradhi Centre (5th Floor), 74B, A J C Bose Road, Kolkata - 700016, West Bengal, India  
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 3, Pagladanga Road, Kolkata 700015  
 West Bengal  
 Tel. : +91 7044036120  
 Email: udayanlab@mitrask.com



TC-6950

**TEST REPORT**

Scan for Portal

ULR: TC-69502400000802F

**Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West.

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/BLE153

**Date :**

17/01/2024

**Sample No. :**

MSKNB/FD/2023-24/12/P715DQ

**Date of receipt of sample:**

28/12/2023

**Date(s) of performance:**

28/12/2023 - 17/01/2024

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/056, Date - 16/09/2023

**Discipline:**

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	DRINKING WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	27/12/2023
5. Place of sampling	BBL-4344 Bamebari WTP Inlet
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-5) 2022
8. Identification of the personnel performing sampling by MSK	Akash Kr. Setty & Dhambudhar Das

**Report No. :** MSKPL/FD/2023-24/BLE153**Sample No. :** MSKNB/FD/2023-24/12/P715DQ**RESULT**

Chemical						
Sl No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.005)
2	Zinc as Zn	mg/l	IS 3025 (Part 2)	5	15	BDL(DL:0.02)
3	Colour	Hazen	IS 3025 (Part 4)	5	15	BDL(DL:1.0)
4	Copper as Cu	mg/l	IS 3025 (Part 2)	0.05	1.5	BDL(DL:0.02)
5	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	0.05	No Relaxation	BDL(DL:0.02)
6	Fluoride as F	mg/l	IS 3025 (Part 60)	1.0	1.5	BDL(DL:0.2)
7	Lead as Pb	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.005)
8	Manganese as Mn	mg/l	IS 3025 (Part 2)	0.1	0.3	BDL(DL:0.02)
9	Mercury as Hg	mg/l	IS 3025 (Part 48)	0.001	No Relaxation	BDL(DL:0.0002)
10	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No Relaxation	BDL(DL:0.01)
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3-B	45	No Relaxation	4.12
12	Selenium as Se	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.005)
13	Silica (as SiO2)	mg/l	IS 3025 (Part 35)	Not Specified	Not Specified	BDL(DL:0.1)
14	Silver as Ag	mg/l	IS 3025 (Part 2)	0.1	No Relaxation	BDL(DL:0.005)
15	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	0.05	No Relaxation	BDL(DL:0.01)
16	Cadmium as Cd	mg/l	IS 3025 (Part 2)	0.003	No Relaxation	BDL(DL:0.001)

**Opinion :** Acceptable limit & Permissible limit are as per IS:10500:2012**Statement of Conformity** NA

— END —

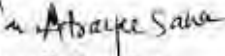
**Reviewed By**

Signature: 

Name: Dr. Devottam Banerjee, Mr. Arayee Saha

Designation: Technical in charge, Sr. Exe. Chemist

**Authorized Signatory**

Signature: 

Name: Dr. Devottam Banerjee, Mr. Arayee Saha

Designation: Technical in charge, Sr. Exe. Chemist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

**Head Office:** Shree Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
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 Email : info@mitrask.com Website : www.mitrask.com



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Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email : udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695024000000802F

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/BLE153

**Date :**

17/01/2024

**Sample No. :**

MSKNB/FD/2023-24/12/P715DQ

**Date of receipt of sample:**

28/12/2023

**Date(s) of performance:**

28/12/2023 - 29/12/2023

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/056, Date - 16/09/2023

**Discipline:**

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	DRINKING WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	27/12/2023
5. Place of sampling	BBL-4344 Bamebari WTP Inlet
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS.17614( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Akash Kr. Setty & Dhambrudhar Das

Report No. : MSKPL/FD/2023-24/BLE153

Sample No. : MSKNB/FD/2023-24/12/P715DQ

**RESULT**

Micro Biology						
Sl No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Total Coliform Bacteria	/100ml	IS 15185	Not Detectable	Not Applicable	Not Detected
2	E. Coli	/100ml	IS 15185	Not Detectable	Not Applicable	Not Detected

Opinion : Acceptable limit &amp; Permissible limit are as per IS:10500:2012

Statement of Conformity NA

— END —

Reviewed By

Signature

Name Ms. Maitreyee Chakraborty

Designation Executive Microbiologist

Authorized Signatory:

Signature

Name Ms. Maitreyee Chakraborty

Designation Executive Microbiologist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

**Head Office:** Shree Centre (5th Floor), 74B, A J C Bose Road, Kolkata - 700015, West Bengal, India  
Tel. : 91 33 40143000 / 22850067 Fax : 91 33 22850008  
Email : info@mitrask.com Website : www.mitrask.com



**Address of Laboratory :**

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 West Bengal  
 Tel. : +91 7044036120  
 Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695024000000345F

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd (MGM)\_Joda West

AT/PO. - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/0FE15B

**Date :**

08/01/2024

**Sample No. :**

MSKNB/FD/2023-24/12/ZZ10C2

**Date of receipt of sample:**

23/12/2023

**Date(s) of performance:**

23/12/2023 - 08/01/2024

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/056, Date - 16/09/2023

**Discipline:**

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	DRINKING WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4330 JWMM WTP Out let
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-5) 2022
8. Identification of the personnel performing sampling by MSK	Lalin Naik & Dhambudhar Das

Report No. : MSKPL/FD/2023-24/0FE15B

Sample No. : MSKNB/FD/2023-24/12/ZZ10C2

**RESULT**

Chemical						
Sl No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.005)
2	Zinc as Zn	mg/l	IS 3025 (Part 2)	5	15	BDL(DL:0.02)
3	Colour	Hazen	IS 3025 (Part 4)	5	15	BDL(DL:1.0)
4	Copper as Cu	mg/l	IS 3025 (Part 2)	0.05	1.5	BDL(DL:0.02)
5	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec 1	0.05	No Relaxation	BDL(DL:0.02)
6	Fluoride as F	mg/l	IS 3025 (Part 60)	1.0	1.5	BDL(DL:0.2)
7	Lead as Pb	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.005)
8	Manganese as Mn	mg/l	IS 3025 (Part 2)	0.1	0.3	BDL(DL:0.02)
9	Mercury as Hg	mg/l	IS 3025 (Part 48)	0.001	No Relaxation	BDL(DL:0.0002)
10	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No Relaxation	BDL(DL:0.01)
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3-B	45	No Relaxation	0.95
12	Selenium as Se	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.005)
13	Silica (as SiO2)	mg/l	IS 3025 (Part 35)	Not Specified	Not Specified	0.18
14	Silver as Ag	mg/l	IS 3025 (Part 2)	0.1	No Relaxation	BDL(DL:0.005)
15	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	0.05	No Relaxation	BDL(DL:0.01)
16	Cadmium as Cd	mg/l	IS 3025 (Part 2)	0.003	No Relaxation	BDL(DL:0.001)

Opinion : Acceptable limit &amp; Permissible limit are as per IS:10500:2012

Statement of Conformity NA

— END —

Reviewed By

Signature

Name

Designation

Dr. Devottam Banerjee, Mr. Arayee Saha

Technical In charge, Sr. Exe. Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Devottam Banerjee, Mr. Arayee Saha

Technical In charge, Sr. Exe. Chemist

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 The reserved part of sample(s) for chemical analysis (Boil, Solid & Liquid Waste) shall be retained for 15 days as per GPCB guideline & (Air) 1 month from the date of issue of the Test Report.  
 The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

**Head Office:** Shree Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
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 Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-69502400000345F

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd (MGM)\_Joda West

At/Po. : Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/0FE15B

**Date :**

08/01/2024

**Sample No. :**

MSKNB/FD/2023-24/12/ZZ10C2

**Date of receipt of sample:**

23/12/2023

**Date(s) of performance:**

23/12/2023 - 26/12/2023

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/056, Date - 16/09/2023

**Discipline:**

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	DRINKING WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4330 JWMM WTP Out let
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Lalit Naik & Dhambrudhar Das

Report No. : MSKPL/FD/2023-24/0FE15B

Sample No. : MSKNB/FD/2023-24/12/ZZ10C2

**RESULT**

Micro Biology						
Sl No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Total Coliform Bacteria	/100ml	IS 15185	Not Detectable	Not Applicable	Detected
2	E. Coli	/100ml	IS 15185	Not Detectable	Not Applicable	Not Detected

Opinion : Acceptable limit &amp; Permissible limit are as per IS 10500:2012

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name

Ms. Maitreyee Chakraborty

Designation

Executive Microbiologist

Authorized Signatory

Signature

Name

Ms. Maitreyee Chakraborty

Designation

Executive Microbiologist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-69502400000344F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

AI/PO. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/FD/2023-24/HKE14J

Date :

08/01/2024

Sample No. :

MSKNB/FD/2023-24/12/4010D0

Date of receipt of sample:

23/12/2023

Date(s) of performance:

23/12/2023 - 08/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 15/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	DRINKING WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4330 JWMM WTP In let
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-5) 2022
8. Identification of the personnel performing sampling by MSK	Lalin Naik & Dharmbrudhar Das

Report No. : MSKPL/FD/2023-24/HKE14J

Sample No. : MSKNB/FD/2023-24/12/4010D0

## RESULT

## Chemical

Sl No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL 0.005)
2	Zinc as Zn	mg/l	IS 3025 (Part 2)	5	15	BDL(DL 0.02)
3	Colour	Hazen	IS 3025 (Part 4)	5	15	BDL(DL 1.0)
4	Copper as Cu	mg/l	IS 3025 (Part 2)	0.05	1.5	BDL(DL 0.02)
5	Cyanide as CN	mg/l	IS 3025 (Part 27) Sect	0.05	No Relaxation	BDL(DL 0.02)
6	Fluoride as F	mg/l	IS 3025 (Part 60)	1.0	1.5	BDL(DL 0.2)
7	Lead as Pb	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL 0.005)
8	Manganese as Mn	mg/l	IS 3025 (Part 2)	0.1	0.3	BDL(DL 0.02)
9	Mercury as Hg	mg/l	IS 3025 (Part 48)	0.001	No Relaxation	BDL(DL 0.0002)
10	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	0.02	No Relaxation	BDL(DL 0.01)
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3-B	45	No Relaxation	1.05
12	Selenium as Se	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL 0.005)
13	Silica (as SiO2)	mg/l	IS 3025 (Part 35)	Not Specified	Not Specified	0.15
14	Silver as Ag	mg/l	IS 3025 (Part 2)	0.1	No Relaxation	BDL(DL 0.005)
15	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	0.05	No Relaxation	BDL(DL 0.01)
16	Cadmium as Cd	mg/l	IS 3025 (Part 2)	0.003	No Relaxation	BDL(DL 0.001)

Opinion : Acceptable limit &amp; Permissible limit are as per IS 10500:2012

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name

Designation

Dr. Devottam Banerjee, Ms. Aranyee Saha

Technical In charge, Sr. Exe. Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Devottam Banerjee, Ms. Aranyee Saha

Technical In charge, Sr. Exe. Chemist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Wastewater) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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TC-6950



Scan for Portal

ULR: TC-69502400000344F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/HKE14J

## Date :

08/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/4010D0

## Date of receipt of sample:

23/12/2023

## Date(s) of performance:

23/12/2023 - 26/12/2023

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	DRINKING WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4330 JWMM WTP In let
6. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS:17614( P-25) 2022
8. Identification of the personnel performing sampling by MSK	Lalin Naik & Dhambrudhar Das

Report No. : MSKPL/FD/2023-24/HKE14J

Sample No. : MSKNB/FD/2023-24/12/4010D0

## RESULT

Micro Biology						
Sl No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Total Coliform Bacteria	/100ml	IS 15185	Not Detectable	Not Applicable	Detected
2	E. Coli	/100ml	IS 15185	Not Detectable	Not Applicable	Not Detected

Opinion : Acceptable limit &amp; Permissible limit are as per IS-10500:2012

Statement of Conformity NA

— END —

Reviewed By

Signature

Name Ms. Mainisya Chakraborty

Designation Executive Microbiologist

Authorized Signatory:

Signature

Name Ms. Mainisya Chakraborty

Designation Executive Microbiologist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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Report No. MSKGL/ED/2023-24/004300


Date: 12.01.2024

**ANALYSIS REPORT OF GROUND WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	27.12.2023
Location	Borewell Near Nana Hotel, Joribar (BIMM)

**CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012**

Sl. No.	Test Parameters	Units	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH <sub>3</sub> -F	0.5	No Relaxation	<1.0
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	11
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500-Cl B	250	1000	12
4	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	—	145
5	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	<0.05
6	Odour	None	IS 3025 (Part-5)-1983 Ref: 2012	Agreeable	Agreeable	Agreeable
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	7.7
8	pH value at 25 deg C	None	APHA 24th Edition, 2023, 4500, H+B	6.5-8.5	No Relaxation	6.45
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	—	—	<0.001
10	Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<1.0
11	Salinity	PSU	APHA (24th Edition), 2520B	—	—	0.075
12	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	—	—	6.4
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition) 4500 SO <sub>4</sub> -E	200	400	2.2
14	Taste	None	IS 3025 (Part-B)-1983 Ref: 2012 (O)	Agreeable	Agreeable	Agreeable
15	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2320B	200	600	48
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	89
17	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	200	600	60
18	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	—	—	<2.5
19	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0

Checked by:- 

For Mitra S. K. Private Limited

Authorized Signatory



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Report No. MSKGL/ED/2023-24/004304


Date: 12.01.2024

## ANALYSIS REPORT OF GROUND WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	27.12.2023
Location	Borewell No-1, Bamebari Near Club House (BIMM)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unit	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH3-F	0.5	No Relaxation	<1.0
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	22
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500 -Cl B	250	1000	10
4	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	—	215
5	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	<0.05
6	Odour	None	IS 3025 (Part-5)-1983; Rfmc:2012	Agreeable	Agreeable	Agreeable
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	13
8	pH value at 25 deg C	None	APHA 24th Edition, 2023, 4500 H+B	6.5-8.5	No Relaxation	6.02
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	—	—	<0.001
10	Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<1.0
11	Salinity	PSU	APHA (24th Edition), 2520B	—	—	0.11
12	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	—	—	4.6
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	1.3
14	Taste	None	IS 3025 (Part-6)-1983 Rfmc:2012 (0)	Agreeable	Agreeable	Agreeable
15	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2320B	200	600	100
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	130
17	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	200	600	112
18	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	—	—	<2.5
19	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0

Checked by:- 



For Mitra S. K. Private Limited

Authorized Signatory



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Report No. MSKGL/ED/2023-24/004302


Date: 12.01.2024

**ANALYSIS REPORT OF GROUND WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	27.12.2023
Location	Borewell No-2, Bamebari Near Jagannath Temple (BIMM)

**CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012**

Sl. No.	Test Parameters	Unit	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH <sub>3</sub> -F	0.5	No Relaxation	<1.0
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	10
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500-Cl B	250	1000	20
4	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	—	168
5	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	<0.05
6	Odour	None	IS 3025 (Part-5)-1983 Refr: 2012	Agreeable	Agreeable	Agreeable
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	7.7
8	pH value at 25 deg C	None	APHA 24th Edition, 2023, 4500, H+B	6.5-8.5	No Relaxation	6.04
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	—	—	<0.001
10	Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	1.3
11	Salinity	PSU	APHA (24th Edition), 2520B	—	—	0.086
12	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	—	—	12.4
13	Sulphate (as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	200	400	1.5
14	Taste	None	IS 3025 (Part-8)-1983 Refr: 2012 (O)	Agreeable	Agreeable	Agreeable
15	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2320B	200	600	52
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	102
17	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	200	600	56
18	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	—	—	<2.5
19	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0

Checked by:- 

For Mitra S. K. Private Limited

Authorized Signatory



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Report No. MSKGL/ED/2023-24/004305


Date: 12.01.2024

## ANALYSIS REPORT OF GROUND WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	27.12.2023
Location	Open dugwell Near Jarouli High School Juridi (BIMM)

### CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

Sl. No.	Test Parameters	Unit	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH <sub>3</sub> -F	0.5	No Relaxation	<1.0
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	14
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500-Cl B	250	1000	26
4	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	—	210
5	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	<0.05
6	Odour	None	IS 3025 (Part-5)-1983, Rfinc 2012	Agreeable	Agreeable	Agreeable
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	4.8
8	pH value at 25 deg C	None	APHA 24th Edition, 2023, 4500, H+B	6.5-8.5	No Relaxation	5.86
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	—	—	<0.001
10	Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	3.6
11	Salinity	PSU	APHA (24th Edition), 2520B	—	—	0.107
12	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	—	—	18
13	Sulphate (as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	200	400	4.6
14	Taste	None	IS 3025 (Part 8)-1983 Rfinc 2012 (O)	Agreeable	Agreeable	Agreeable
15	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2320B	200	600	52
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	122
17	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	200	600	56
18	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	—	—	<2.5
19	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	1.6

Checked by:- 



For Mitra S. K. Private Limited

Authorized Signatory 



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Report No. MSKGL/ED/2023-24/004296


Date: 12.01.2024

**ANALYSIS REPORT OF GROUND WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	26.12.2023
Location	Bichakundi Borewell No -1 Near Community Toilet (JWIMM)

**CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012**

Sl. No.	Test Parameters	Units	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH <sub>3</sub> -F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	4.8
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500-Cl B	250	1000	10.5
4	Electrical conductivity	ms/cm	APHA (24th Edition), 2510B	—	—	54
5	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	<0.05
6	Odour	None	3025 (Part-5)-1983; RfM: 2012	Agreeable	Agreeable	Agreeable
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	1.9
8	pH value at 23 deg C	None	APHA 24th Edition, 2023, 4500, H+B	6.5-8.5	No Relaxation	5.53
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	—	—	<0.001
10	Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<1.0
11	Salinity	PSU	APHA (24th Edition), 2520B	—	—	0.03
12	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	—	—	4.2
13	Sulphate (as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	200	400	1.34
14	Taste	None	IS 3025 (Part 8)-1983 RfM: 2012 (O)	Agreeable	Agreeable	Agreeable
15	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2320B	200	600	28
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	30.3
17	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	200	600	20
18	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	—	—	<2.5
19	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0

Checked by:- 

For Mitra S. K. Private Limited

Authorized Signatory



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 E : barbil@mitrask.co.in  
 W : www.mitrask.com

Report No. MSKGL/ED/2023-24/004295

Date: 12.01.2024

**ANALYSIS REPORT OF GROUND WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	26.12.2023
Location	Bichakundi Borewell No -2 Near WTP (JWIMM)

**CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012**

Sl. No.	Test Parameters	Units	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH3-F	0.5	No Relaxation	<1.0
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	6.4
3	Chloride (as Cl)	mg/l	APHA (24th Edition), 4500-Cl B	250	1000	12.4
4	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	—	124
5	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	<0.05
6	Odour	None	3025 (Part-5)-1983 Rfms:2012	Agreeable	Agreeable	Agreeable
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	6.7
8	pH value at 23 deg C	None	APHA 24th Edition, 2023, 4500.H+B	6.5-8.5	No Relaxation	5.82
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	—	—	<0.001
10	Phenolic Compound (as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<1.0
11	Salinity	PSU	APHA (24th Edition), 2520B	—	—	0.08
12	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	—	—	4.8
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	3.7
14	Taste	None	IS 3025 (Part B)-1983 Rfms:2012 (U)	Agreeable	Agreeable	Agreeable
15	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	32
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	68.4
17	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	44
18	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	—	—	<2.5
19	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0

Checked by:- 

For Mitra S. K. Private Limited

Authorized Signatory



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 E : barbil@mitrask.co.in  
 W : www.mitrask.com

Report No. MSKGL/ED/2023-24/004297


Date: 12.01.2024

**ANALYSIS REPORT OF GROUND WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	26.12.2023
Location	Bichakundi Borewell No -3 Near Micro Activity Centre (JWIMM)

**CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012**

Sl. No.	Test Parameters	Units	Method	Norms as per IS: 10500-2012		Results
				Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24th Edition), 4500-NH3-F	0.5	No Relaxation	<1.0
2	Calcium (as Ca)	mg/l	APHA (24th Edition), 3500 Ca B	75	200	16
3	Chloride (as Cl )	mg/l	APHA (24th Edition), 4500 -Cl B	250	1000	12.3
4	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	—	208
5	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	0.3	No Relaxation	<0.05
6	Odour	None	3025 (Part-5)-1983, Rfmc:2012	Agreeable	Agreeable	Agreeable
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	11
8	pH value at 23 deg C	None	APHA 24th Edition, 2023, 4500, H+B	6.5-8.5	No Relaxation	6.05
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 K B	—	—	<0.001
10	Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<1.0
11	Salinity	PSU	APHA (24th Edition), 2520B	—	—	0.13
12	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	—	—	5.5
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition) 4500 SO <sub>4</sub> -E	200	400	5.38
14	Taste	None	IS 3025 (Part 8)-1983 Rfmc:2012 (G)	Agreeable	Agreeable	Agreeable
15	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2320B	200	600	68
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	114
17	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	200	600	84
18	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	—	—	<2.5
19	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<1.0

Checked by:- 

For Mitra S. K. Private Limited

Authorized Signatory



**Address of Laboratory :**

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West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-69502400000804F

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

AI/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/5ME156

**Date :**

17/01/2024

**Sample No. :**

MSKNB/FD/2023-24/12/NZ16AB

**Date of receipt of sample:**

29/12/2023

**Date(s) of performance:**

29/12/2023 - 17/01/2024

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/056, Date - 16/09/2023

**Discipline:**

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results.

1. Group	Water & Residue in Water
2. Description of sample	GROUND WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	28/12/2023
5. Place of sampling	BBL-4350 Open dugwell Near Jarouli High School Jurudih
6. Environmental conditions during sampling & Transport	(2 -5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 13969 (P-11) 2018
8. Identification of the personnel performing sampling by MSK	Dhamrudhar Das

Report No. : MSKPL/FD/2023-24/5ME156

Sample No. : MSKNB/FD/2023-24/12/NZ16AB

**RESULT**

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
3	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
4	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
5	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
6	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
7	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
8	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
9	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
10	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.80
12	Selenium as Se	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
13	Silica as SiO2	mg/l	IS 3025 (Part 35)	BDL(DL:0.1)
14	Silver as Ag	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
15	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
16	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By

Signature

Name : Dr. Devottam Banerjee, Ms. Arayee Saha

Designation : Technical In charge, Sr. Exe. Chemist

Authorized Signatory

Signature

Name : Dr. Devottam Banerjee, Ms. Arayee Saha

Designation : Technical In charge, Sr. Exe. Chemist



## Address of Laboratory :

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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000804F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/FD/2023-24/5ME156

Date :

17/01/2024

Sample No. :

MSKNB/FD/2023-24/12/NZ16AB

Date of receipt of sample:

29/12/2023

Date(s) of performance:

29/12/2023 - 30/12/2023

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056, Date - 16/09/2023

Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	GROUND WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	28/12/2023
5. Place of sampling	BBL-4350 Open dugwell Near Jarouli High School Jurudin
6. Environmental conditions during sampling & Transport	(2 -5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Dhamrudhar Das

Report No. : MSKPL/FD/2023-24/5ME156

Sample No. : MSKNB/FD/2023-24/12/NZ16AB

## RESULT

### Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	E. coli	/100ml	IS 15185	Detected
2	Total coliform	/100ml	IS 15185	Detected

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By

Signature

Name Ms. Maitreyee Chakraborty

Designation Executive Microbiologist

Authorized Signatory

Signature

Name Ms. Maitreyee Chakraborty

Designation Executive Microbiologist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per GPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000367F

**TEST REPORT**

## Name &amp; Address of Customer :

Tata Steel Ltd. (MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/J1E15D

## Date :

08/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/VH15DK

## Date of receipt of sample:

28/12/2023

## Date(s) of performance:

28/12/2023 - 08/01/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	GROUND WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	27/12/2023
5. Place of sampling	BBL-4348 Borewell No-2, Bamebari Near Jagannath Temple
6. Environmental conditions during sampling & Transport	(2 -5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 13969 (P-11) 2018
8. Identification of the personnel performing sampling by MSK	Akash Kr. Setty & Dhambrudhar Das

Report No. : MSKPL/FD/2023-24/J1E15D

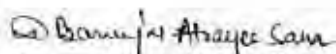
Sample No. : MSKNB/FD/2023-24/12/VH15DK

**RESULT**

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
3	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
4	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
5	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
6	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
7	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
8	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
9	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
10	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	2.90
12	Selenium as Se	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
13	Silica as SiO2	mg/l	IS 3025 (Part 35)	BDL(DL:0.1)
14	Silver as Ag	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
15	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
16	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By:

Signature

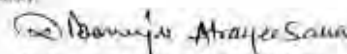


Name: Dr. Devottam Banerjee, Ms. Arayee Saha

Designation: Technical in charge, Sr. Exe. Chemist

Authorized Signatory:

Signature



Name: Dr. Devottam Banerjee, Ms. Arayee Saha

Designation: Technical in charge, Sr. Exe. Chemist



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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000367F

**TEST REPORT**

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM)\_Joda West

AU/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/J1E15D

## Date :

08/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/VH15DK

## Date of receipt of sample:

28/12/2023

## Date(s) of performance:

28/12/2023 - 29/12/2023

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	GROUND WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	27/12/2023
5. Place of sampling	BBL-4348 Borewell No-2, Bamebari Near Jagannath Temple
6. Environmental conditions during sampling & Transport	(2 -5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17814 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Akash Kr. Selti & Dhambrudhar Das

Report No. : MSKPL/FD/2023-24/J1E15D

Sample No. : MSKNB/FD/2023-24/12/VH15DK

**RESULT**

## Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	E. coli	/100ml	IS 15185	Not Detected
2	Total coliform	/100ml	IS 15185	Not Detected

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature:

Name Ms. Maitreyee Chakraborty

Designation: Executive Microbiologist

Authorized Signatory:

Signature:

Name Ms. Maitreyee Chakraborty

Designation: Executive Microbiologist

The results relate only to the item(s) tested

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report

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Email: info@mitrask.com Website: www.mitrask.com

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Email: udayanlab@mitrask.com



TC-6950



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM)\_Joda West

At/Po. : Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/FD/2023-24/BQE159

Date :

08/01/2024

Sample No. :

MSKNB/FD/2023-24/12/RC15CY

Date of receipt of sample:

28/12/2023

Date(s) of performance:

28/12/2023 - 08/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	GROUND WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	27/12/2023
5. Place of sampling	BBL-4347 Borewell No-1, Bamebari Near Club House
6. Environmental conditions during sampling & Transport	(2 -5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 13969 (P-11) 2018
8. Identification of the personnel performing sampling by MSK	Akash Kr. Setty & Dhambrudhar Das

Report No. : MSKPL/FD/2023-24/BQE159

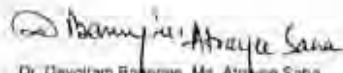
Sample No. : MSKNB/FD/2023-24/12/RC15CY

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
3	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
4	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
5	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
6	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
7	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
8	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
9	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
10	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	3.80
12	Selenium as Se	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
13	Silica as SiO2	mg/l	IS 3025 (Part 35)	BDL(DL:0.1)
14	Silver as Ag	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
15	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
16	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By

Signature



Name

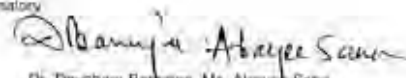
Dr. Devottam Banerjee, Ms. Aranya Saha

Designation

Technical in charge, Sr. Exe. Chemist

Authorized Signatory

Signature



Name

Dr. Devottam Banerjee, Ms. Aranya Saha

Designation

Technical in charge, Sr. Exe. Chemist



**Address of Laboratory :**

Building No. P- 48, Udayan Industrial Estate,  
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West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000366F

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd (MGM)\_Joda West

AI/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/BQE159

**Date :**

08/01/2024

**Sample No. :**

MSKNB/FD/2023-24/12/RC15CY

**Date of receipt of sample:**

28/12/2023

**Date(s) of performance:**

28/12/2023 - 29/12/2023

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/056, Date - 16/09/2023

**Discipline:**

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	GROUND WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	27/12/2023
5. Place of sampling	BBL-4347 Borewell No-1, Bamebari Near Club House
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Akash Kr. Setty & Dhambrudhar Das

**Report No. :** MSKPL/FD/2023-24/BQE159**Sample No. :** MSKNB/FD/2023-24/12/RC15CY**RESULT**

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	E. coli	/100ml	IS 15185	Not Detected
2	Total coliform	/100ml	IS 15185	Not Detected

**Opinion :** NA**Statement of Conformity :** NA

— END —

Reviewed By

Signature

Name: Ms. Matreyee Chakraborty

Designation: Executive Microbiologist

Authorized Signatory

Signature

Name: Ms. Matreyee Chakraborty

Designation: Executive Microbiologist

The results relate only to the item(s) listed.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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 West Bengal  
 Tel. : +91 7044036120  
 Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000365F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM)\_Joda West

AI/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/FD/2023-24/Q7E15L

Date :

08/01/2024

Sample No. :

MSKNB/FD/2023-24/12/1315EQ

Date of receipt of sample:

28/12/2023

Date(s) of performance:

28/12/2023 - 08/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:-

1. Group	Water & Residue in Water
2. Description of sample	GROUND WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	27/12/2023
5. Place of sampling	BBL-4346 Borewell Near Nana Hotel, Joribar
6. Environmental conditions during sampling & Transport	(2 -5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 13969 (P-11) 2018
8. Identification of the personnel performing sampling by MSK	Akash Kr. Setty & Dhambrudhar Das

Report No. : MSKPL/FD/2023-24/Q7E15L

Sample No. : MSKNB/FD/2023-24/12/1315EQ

## RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
3	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
4	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
5	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
6	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
7	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
8	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
9	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
10	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	2.03
12	Selenium as Se	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
13	Silica as SiO2	mg/l	IS 3025 (Part 35)	BDL(DL:0.1)
14	Silver as Ag	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
15	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
16	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By:

Signature

Name : Dr. Devottam Banerjee, Ms. Atreyee Saha

Designation : Technical in charge, Sr. Exe. Chemist

Authorized Signatory:

Signature

Name : Dr. Devottam Banerjee, Ms. Atreyee Saha

Designation : Technical in charge, Sr. Exe. Chemist



## Address of Laboratory :

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TC-6950



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ULR: TC-695024000000365F

**TEST REPORT**

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/Q7E15L

## Date :

08/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/1315EQ

## Date of receipt of sample:

28/12/2023

## Date(s) of performance:

28/12/2023 - 29/12/2023

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	GROUND WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	27/12/2023
5. Place of sampling	BBL-4346 Borewell Near Nana Hotel, Jonbar
6. Environmental conditions during sampling & Transport	(2 -5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Akash Kr. Setty & Dhambrudhar Das

Report No. : MSKPL/FD/2023-24/Q7E15L

Sample No. : MSKNB/FD/2023-24/12/1315EQ

**RESULT**

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	E. coli	/100ml	IS 15185	Not Detected
2	Total coliform	/100ml	IS 15185	Not Detected

Opinion : NA

Statement of Conformity: NA

— END —

Reviewed By:

Signature

Name: Ms. Maitreyee Chakraborty

Designation: Executive Microbiologist

Authorized Signatory:

Signature

Name: Ms. Maitreyee Chakraborty

Designation: Executive Microbiologist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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Email : info@mitrask.com Website : www.mitrask.com



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Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000799F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po - Joda, Dist - Keonjhar, Odisha - 758034 India

### Report No. :

MSKPL/FD/2023-24/2CE15B

### Date :

17/01/2024

### Sample No. :

MSKNB/FD/2023-24/12/DY15CN

### Date of receipt of sample:

27/12/2023

### Date(s) of performance:

27/12/2023 - 17/01/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156017/056, Date - 16/09/2023

### Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	GROUND WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	26/12/2023
5. Place of sampling	BBL-4334 Bichakudi Borewell No-3 Near Micro Activity Center
6. Environmental conditions during sampling & Transport	(2 -5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 13969 (P-11) 2018
8. Identification of the personnel performing sampling by MSK	Dhamrudhar Das & Akash Setty

Report No. : MSKPL/FD/2023-24/2CE15B

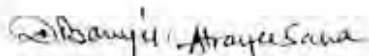
Sample No. : MSKNB/FD/2023-24/12/DY15CN

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
3	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
4	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
5	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
6	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
7	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
8	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
9	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
10	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
12	Selenium as Se	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
13	Silica as SiO2	mg/l	IS 3025 (Part 35)	BDL(DL:0.1)
14	Silver as Ag	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
15	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
16	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By:

Signature



Name Dr. Devottam Banerjee, Ms. Aranyee Saha

Designation Technical in charge, Sr. Exe. Chemist

Authorized Signatory

Signature



Name Dr. Devottam Banerjee, Ms. Aranyee Saha

Designation Technical in charge, Sr. Exe. Chemist

Head Office:

Shreechi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700015, West Bengal, India  
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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000799F

## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

AVPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**
**Date :**
**Sample No. :**
**Date of receipt of sample:**
**Date(s) of performance:**
**Location of performance of**
**Reference No. & Date :**
**Discipline:**

MSKPL/FD/2023-24/2CE15B

17/01/2024

MSKNB/FD/2023-24/12/DY15CN

27/12/2023

27/12/2023 - 28/12/2023

Permanent Facility

3000156017/056, Date - 16/09/2023

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	GROUND WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	26/12/2023
5. Place of sampling	BBL-4334 Bichakudi Borewell No-3 Near Micro Activity Center
6. Environmental conditions during sampling & Transport	(2 -5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Dhamrudhar Das & Akash Setty

Report No. : MSKPL/FD/2023-24/2CE15B

Sample No. : MSKNB/FD/2023-24/12/DY15CN

## RESULT

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	E. coli	/100ml	IS 15185	Not Detected.
2	Total coliform	/100ml	IS 15185	Not Detected.

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name: Ms. Madhurya Chakraborty

Designation: Executive Microbiologist

Authorized Signatory

Signature

Name: Ms. Madhurya Chakraborty

Designation: Executive Microbiologist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Solid, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000798F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM)\_Joda West

AI/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/VCE15P

## Date :

17/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/7H15EN

## Date of receipt of sample:

27/12/2023

## Date(s) of performance:

27/12/2023 - 17/01/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	GROUND WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	26/12/2023
5. Place of sampling	BBL-4333 Bichakudi Borewell No-2 Near WTP
6. Environmental conditions during sampling & Transport	(2 -5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 13969 (P-11) 2018
8. Identification of the personnel performing sampling by MSK	Dhamrudhar Das & Akash Setty

Report No. : MSKPL/FD/2023-24/VCE15P

Sample No. : MSKNB/FD/2023-24/12/7H15EN

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
3	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
4	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
5	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
6	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
7	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
8	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
9	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
10	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
12	Selenium as Se	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
13	Silica as SiO2	mg/l	IS 3025 (Part 35)	BDL(DL:0.1)
14	Silver as Ag	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
15	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
16	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By:

Signature

Name

Designation

*Dr. Divyottam Banerjee, Ms. Artrayee Saha*  
 Dr. Divyottam Banerjee, Ms. Artrayee Saha  
 Technical in charge, Sr. Exe. Chemist

Authorized Signatory:

Signature

Name

Designation

*Dr. Divyottam Banerjee, Ms. Artrayee Saha*  
 Dr. Divyottam Banerjee, Ms. Artrayee Saha  
 Technical in charge, Sr. Exe. Chemist



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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000798F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/VCE15P

## Date :

17/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/7H15EN

## Date of receipt of sample:

27/12/2023

## Date(s) of performance:

27/12/2023 - 28/12/2023

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	GROUND WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	26/12/2023
5. Place of sampling	BBL-4333 Bichakudi Borewell No-2 Near WTP
6. Environmental conditions during sampling & Transport	(2 -5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Dhamrudhar Das & Akash Setty

Report No. : MSKPL/FD/2023-24/VCE15P

Sample No. : MSKNB/FD/2023-24/12/7H15EN

## RESULT

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	E. coli	/100ml	IS 15185	Not Detected.
2	Total coliform	/100ml	IS 15185	Not Detected

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By

Signature

Name : Ms. Matreyee Chakraborty

Designation : Executive Microbiologist

Authorized Signatory

Signature

Name : Ms. Matreyee Chakraborty

Designation : Executive Microbiologist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shree Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.

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Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000797F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

AVPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/FD/2023-24/WDE15V

Date :

17/01/2024

Sample No. :

MSKNB/FD/2023-24/12/7015DL

Date of receipt of sample:

27/12/2023

Date(s) of performance:

27/12/2023 - 17/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	GROUND WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	26/12/2023
5. Place of sampling	BBL-4332 Bichakudi Borewell No-1 Near community Toilet
6. Environmental conditions during sampling & Transport	( 2 -5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 13969 (P-11) 2018
8. Identification of the personnel performing sampling by MSK	Dhamrudhar Das & Akash Setty

Report No. : MSKPL/FD/2023-24/WDE15V

Sample No. : MSKNB/FD/2023-24/12/7015DL

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
3	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
4	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
5	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.01)
6	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
7	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
8	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
9	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
10	Nickel (as Ni)	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
12	Selenium as Se	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
13	Silica as SiO2	mg/l	IS 3025 (Part 35)	BDL(DL:0.1)
14	Silver as Ag	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
15	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	BDL(DL:0.01)
16	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Reviewed By:

Signature:

Name : Dr. Devottam Banerjee, Ms. Aranya Saha

Designation: Technical In charge, Sr. Exe. Chemist

Authorized Signatory

Signature:

Name : Dr. Devottam Banerjee, Ms. Aranya Saha

Designation: Technical In charge, Sr. Exe. Chemist



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Email: udayanlab@mitrask.com



TC-6950



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**TEST REPORT**

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/FD/2023-24/WDE15V

Date :

17/01/2024

Sample No. :

MSKNB/FD/2023-24/12/7015DL

Date of receipt of sample:

27/12/2023

Date(s) of performance:

27/12/2023 - 28/12/2023

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	GROUND WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	26/12/2023
5. Place of sampling	BBL-4332 Bichakudi Borewell No-1 Near community Toilet
6. Environmental conditions during sampling & Transport	( 2 -5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS: 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Dhamrudhar Das & Akash Setty

Report No. : MSKPL/FD/2023-24/WDE15V

Sample No. : MSKNB/FD/2023-24/12/7015DL

**RESULT**

## Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	E. coli	/100ml	IS 15185	Not Detected
2	Total coliform	/100ml	IS 15185	Not Detected

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature:

Name Ms. Maitreyee Chakraborty

Designation Executive Microbiologist

Authorized Signatory:

Signature:

Name Ms. Maitreyee Chakraborty

Designation Executive Microbiologist

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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Report No. MSKGL/ED/2023-24/004315

Date: 12.01.2024

**ANALYSIS REPORT OF SURFACE WATER**


Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	21.12.2023
Location	Keth -Hutting before H-Quarry Up Stream (JWIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	28
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	6
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/C	—	6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	90
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	1	0.7
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	4.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.048
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> 2-E	—	<1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	40
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	56
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	48
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	<2.5
18	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H-B	5.5-9.0	7.56

Checked by:- 

For Mitra S. K. Private Limited

Authorized Signatory 



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Report No. MSKGL/ED/2023-24/004316


Date: 12.01.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	21.12.2023
Location	Keth-Hutting after H- Quarry Down Stream (JWIMM)

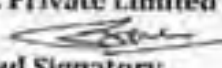
## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	16
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 Cl B	—	6
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	—	6.2
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	99
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.7
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	5.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.052
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	—	1.3
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	36
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	58
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	40
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	<2.5
18	pH value at 26.3 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.89

Checked by: 

For Mitra S. K. Private Limited



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Report No. MSKGL/ED/2023-24/004266


Date: 12.01.2024

**ANALYSIS REPORT OF SURFACE WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	21.12.2023
Location	Pichlaghat Khorbandg Down Stream (JWIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	20
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	4
5	DO	mg/l	APHA 24th Edition, 2023 4500-O C/G	—	6.2
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	94
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.6
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	4.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.05
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	—	<1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	40
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	56
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	40
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	<2.5
18	pH value at 19.8 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.93

Checked by: 

For Mitra S. K. Private Limited



Authorized Signatory



Report No. MSKGL/ED/2023-24/004317

Date: 12.01.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	21.12.2023
Location	Pichlaghat Pump House Up Stream (JWIMM)

### CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	20
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	4
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/C	—	6.2
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	97
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.4
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	5.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.051
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> 2-E	—	1.1
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	44
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	60
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	44
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	<2.5
18	pH value at 20.5 deg C	None	APHA 24th Edition, 2023 4500-H+H	5.5-9.0	6.96

Checked by:- *MD*



For Mitra S. K. Private Limited

Authorized Signatory



Report No. MSKGL/ED/2023-24/004310

Date: 12.01.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	21.12.2023
Location	Gurubeda Baltarani River (JWIMM)

### CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	32
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220H	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl <sup>-</sup> B	—	6
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	—	6.1
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	103
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.6
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	3.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.054
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	—	1
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	40
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	62
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	48
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	<2.5
18	pH value at 19.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.38

Checked by: *MD*



For Mitra S. K. Private Limited

Authorized Signatory



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Report No. MSKGL/ED/2023-24/004311

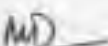
Date: 12.01.2024

**ANALYSIS REPORT OF SURFACE WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	21.12.2023
Location	Tindharia Up Stream Baitarani River (JWIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	20
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220H	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500-Cl B	—	4
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	—	6.2
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	77
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.7
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	3.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.42
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -B	—	<1.0
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210H	—	32
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	48
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	36
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	<2.5
18	pH value at 19.4 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.15

Checked by:- 

For Mitra S. K. Private Limited

Authorized Signatory 



Report No. MSKGL/ED/2023-24/004312


Date: 12.01.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	21.12.2023
Location	Tindharia Down Stream Baitarani River (JWIMM)


### CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	24
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	6
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	—	6.2
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	95
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	1
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	3.8
9	Odour	mg/l	APHA (24th Edition), 3150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.05
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	—	1.3
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	36
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	58
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	40
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	<2.5
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.5

Checked by: 



For Mitra S. K. Private Limited

Authorized Signatory 



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Report No. MSKGL/ED/2023-24/004306


Date: 12.01.2024

**ANALYSIS REPORT OF SURFACE WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	21.12.2023
Location	Palasa Kha Village Pond (JWIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	9.1
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	44
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	36
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	66
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	—	6.1
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	610
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	2.3
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	13
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.316
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	—	1.3
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	36
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	58
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	40
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	34
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H-B	5.5-9.0	7.5

Checked by:- 

For Mitra S. K. Private Limited

Authorized Signatory



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Report No. MSKGL/ED/2023-24/004308


Date: 12.01.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	21.12.2023
Location	Pond water Near ST High School Bhuya Roida (JWIMM)

### CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	3.8
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	24
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	16
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	16
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	—	6.2
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	178
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	1.3
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	3.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.091
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> 2-E	—	5.4
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	60
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	110
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	40
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	16
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.52

Checked by: 



For Mitra S. K. Private Limited

Authorized Signatory 



Report No. MSKGI/ED/2023-24/004309

Date: 12.01.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	21.12.2023
Location	Sona River Kandra Village before confluence with Baitarni River (JWIMM)

## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	32
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	10
5	DO	mg/l	APHA 24th Edition, 2023 4500-O C/G	—	6.7
6	Electrical conductivity	µs/cm	APHA (24th Edition), 2510B	—	163
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	1
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	1.9
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.084
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SM42-E	—	5.3
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	60
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	96
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	40
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	4
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.96

Checked by:

For Mitra S. K. Private Limited  
Authorized Signatory



Report No. MSKGL/ED/2023-24/004318


Date: 12.01.2024

## ANALYSIS REPORT OF SURFACE WATER

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	21.12.2023
Location	Baitarani River Kilandra Village (JWIMM)

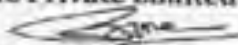
## CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Units	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	32
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	8
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	—	6.6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	131
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	2.1
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	2.9
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	FSU	APHA (24th Edition), 2520B	—	0.68
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	—	1.8
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	52
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	80
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	40
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	<2.5
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+H	5.5-9.0	7.29

Checked by: 



For Mitra S. K. Private Limited

Authorized Signatory 



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Report No. MSKGL/ED/2023-24/004313


Date: 12.01.2024

**ANALYSIS REPORT OF SURFACE WATER**

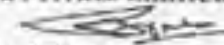
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	21.12.2023
Location	Vegetable garden Pond Bichakundiaitarani River Kilandra Village (JWIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	36
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220H	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	8
5	DO	mg/l	APHA 24th Edition, 2023 4500-O C/G	—	6.5
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	143
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	1
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	2
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.074
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	—	6.5
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210H	—	42
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	86
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	48
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	24
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.43

Checked by:- 

For Mitra S. K. Private Limited

  
 Authorized Signatory



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Report No. MSKGL/ED/2023-24/004314


Date: 12.01.2024

**ANALYSIS REPORT OF SURFACE WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	21.12.2023
Location	Sona River Near Mahanadi Guest House (JWIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	24
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	6
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	—	6.8
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	132
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.5
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	3.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.074
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> 2-E	—	2.5
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	48
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	80
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	40
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	<2.5
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.29

Checked by:- 

For Mitra S. K. Private Limited

  
 Authorized Signatory



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Report No. MSKGL/ED/2023-24/004307

Date: 12.01.2024

**ANALYSIS REPORT OF SURFACE WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	JODA WEST IRON & MANGANESE MINES (JWIMM)
Date of sampling	21.12.2023
Location	Jalhari Nala Jurudi (JWIMM)

**CHEMICAL ANALYSIS OF WATER**

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	<2.0
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	28
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	6
5	DO	mg/l	APHA 24th Edition, 2023 4500-D C/G	—	6.4
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	114
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	1.6
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	5.8
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.25
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	—	2.5
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	44
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	68
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	52
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	15
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.03

Checked by:- 

For Mitra S. K. Private Limited

  
 Authorized Signatory



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TC-6950



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ULR: TC-695024000000343F

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/1QDA06

**Date :**

08/01/2024

**Sample No. :**

MSKNB/FD/2023-24/12/WE1049

**Date of receipt of sample:**

23/12/2023

**Date(s) of performance:**

23/12/2023 - 08/01/2024

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/056, Date : 16/09/2023

**Discipline:**

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4329 Sona River Near Mahanadi Guest House
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Lalin Naik & Mukesh Highburu

Report No. : MSKPL/FD/2023-24/1QDA06

Sample No. : MSKNB/FD/2023-24/12/WE1049

**RESULT**

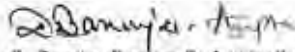
Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.65
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA


Statement of Conformity : NA

— END —

Reviewed By:

Signature:   
 Name: Dr. Devottam Banerjee, Dr. Amartya Kumar Gupta  
 Designation: Technical In charge

Authorized Signatory:

Signature:   
 Name: Dr. Soumyadeep Mukhopadhyay  
 Designation: Lab In charge



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TC-6950



Scan for Portal

ULR: TC-69502400000343F

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd (MGM) Joda West

A/Po. - Joda, Dist - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/1QDA06

**Date :**

08/01/2024

**Sample No. :**

MSKNB/FD/2023-24/12/WE1049

**Date of receipt of sample:**

23/12/2023

**Date(s) of performance:**

23/12/2023 - 28/12/2023

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/056, Date - 16/09/2023

**Discipline:**

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4329 Sona River Near Mahanadi Guest House
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Lalin Naik & Mukesh Highburu

Report No. : MSKPL/FD/2023-24/1QDA06

Sample No. : MSKNB/FD/2023-24/12/WE1049

**RESULT**

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	22

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name: Mr. Sukanta Palui

Designation: Technical In charge

Authorized Signatory:

Signature

Name: Mr. Sukanta Palui

Designation: Technical In charge

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

**Head Office:** Shyachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700015, West Bengal, India.  
 Tel : 91 33 40143000 / 22650007 Fax : 91 33 22650008  
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## Address of Laboratory :

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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000342F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po - Joda, Dist - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/0CDA0H

## Date :

08/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/P0106J

## Date of receipt of sample:

23/12/2023

## Date(s) of performance:

23/12/2023 - 08/01/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4328 Vegetable garden Pond Bichakundaitarani River Kilandra Village
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Lalin Naik & Mukesh Highburi

Report No. : MSKPL/FD/2023-24/0CDA0H

Sample No. : MSKNB/FD/2023-24/12/P0106J

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	1.08
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name: Dr. Divotsam Banerjee, Dr. Amartya Kumar Guha

Designation: Technical in charge

Authorized Signatory

Signature

Name: Dr. Soumyadeep Mukhopadhyay

Designation: In-charge



**Address of Laboratory :**

Building No. P- 48, Udayan Industrial Estate,  
 3, Pagladanga Road, Kolkata 700015  
 West Bengal  
 Tel. : +91 7044036120  
 Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000342F

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd. (MGM)\_Joda West

At/Po. : Joda, Dist - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/0CDA0H

**Date :**

08/01/2024

**Sample No. :**

MSKNB/FD/2023-24/12/P0106J

**Date of receipt of sample:**

23/12/2023

**Date(s) of performance:**

23/12/2023 - 28/12/2023

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/056, Date - 16/09/2023

**Discipline:**

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4328 Vegetable garden Pond Bichakundaitarani River Kilandra Village
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Lalin Naik & Mukesh Highburi

Report No. : MSKPL/FD/2023-24/0CDA0H

Sample No. : MSKNB/FD/2023-24/12/P0106J

**RESULT**

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	6.6

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed by:

Signature:

Name Mr. Sukanta Palui

Designation Technical In charge

Authorized Signatory

Signature:

Name Mr. Sukanta Palui

Designation Technical In charge

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

**Head Office:** Shradhi Centre (5th Floor), 74B, A. J. C. Bose Road, Kolkata - 700016, West Bengal, India.  
 Tel : 91 33 40143000 / 22650007 Fax : 91 33 22650008  
 Email : info@mitrask.com Website : www.mitrask.com



## Address of Laboratory :

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3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000341F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/J5DA00

## Date :

08/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/F3103X

## Date of receipt of sample:

23/12/2023

## Date(s) of performance:

23/12/2023 - 08/01/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4327 Baitarani River Kilandra Village
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Lalin Naik & Mukesh Highburu

Report No. : MSKPL/FD/2023-24/J5DA00

Sample No. : MSKNB/FD/2023-24/12/F3103X

## RESULT

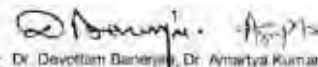
Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.84
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA


Statement of Conformity NA

— END —

Reviewed By:

Signature:   
Name: Dr. Devottam Banerjee, Dr. Anshul Kumar Gupta  
Designation: Technical in charge

Authorized Signatory:

Signature:   
Name: Dr. Sougandheep Mukherjee  
Designation: Lab in charge



**Address of Laboratory :**

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 3, Pagladanga Road, Kolkata 700015  
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 Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-69502400000341F

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/J5DA00

**Date :**

08/01/2024

**Sample No. :**

MSKNB/FD/2023-24/12/F3103X

**Date of receipt of sample:**

23/12/2023

**Date(s) of performance:**

23/12/2023 - 28/12/2023

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/056, Date - 16/09/2023

**Discipline:**

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4327 Baitarani River Kilandra Village
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Lalin Naik & Mukesh Hightburu

Report No. : MSKPL/FD/2023-24/J5DA00

Sample No. : MSKNB/FD/2023-24/12/F3103X

**RESULT**

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	14

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name: Mr. Sukanta Palui

Designation: Technical in charge

Authorized Signatory

Signature

Name: Mr. Sukanta Palui

Designation: Technical in charge

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The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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 West Bengal  
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 Email: udayanlab@mitrask.com



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ULR: TC-695024000000796F

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/X9DA0H

**Date :**

17/01/2024

**Sample No. :**

MSKNB/FD/2023-24/12/5S107G

**Date of receipt of sample:**

23/12/2023

**Date(s) of performance:**

23/12/2023 - 17/01/2024

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/056, Date - 16/09/2023

**Discipline:**

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(If any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4326 Sona River Kandra Village before confluence with Baitami River
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Lalin Naik & Mukesh Highburi

Report No. : MSKPL/FD/2023-24/X9DA0H

Sample No. : MSKNB/FD/2023-24/12/5S107G

**RESULT**

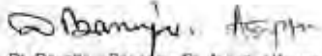
Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO <sub>3</sub>	mg/l	APHA (24th EDITION) 4500-NO <sub>3</sub> - B	0.7
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

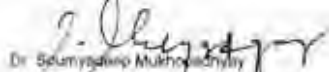
Statement of Conformity NA

— END —

Reviewed By:

Signature:   
 Name: Dr. Devottam Banerjee, Dr. Ananya Kumar  
 Designation: Technical in charge

Authorized Signatory:

Signature:   
 Name: Dr. Sumyashree Mukherjee  
 Designation: Lab in charge



**Address of Laboratory :**

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email : udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000796F

## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd (MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/X9DA0H

**Date :**

17/01/2024

**Sample No. :**

MSKNB/FD/2023-24/12/5S107G

**Date of receipt of sample:**

23/12/2023

**Date(s) of performance:**

23/12/2023 - 28/12/2023

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/056, Date - 16/09/2023

**Discipline:**

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4326 Sona River Kandra Village before confluence with Baitarni River
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Lalin Naik & Mukesh Highburu

**Report No. :** MSKPL/FD/2023-24/X9DA0H**Sample No. :** MSKNB/FD/2023-24/12/5S107G

## RESULT

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	9.3

**Opinion :** NA**Statement of Conformity** NA

— END —

Reviewed By:

Signature:

Name: Mr. Sukanta Palui

Designation: Technical In charge

Authorized Signatory:

Signature:

Name: Mr. Sukanta Palui

Designation: Technical In charge

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per GPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

**Head Office:** Shreeji Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.

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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000340F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/FD/2023-24/5MDA0V

Date :

08/01/2024

Sample No. :

MSKNB/FD/2023-24/12/2F105H

Date of receipt of sample:

23/12/2023

Date(s) of performance:

23/12/2023 - 08/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results.

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4325 Pond water Near ST High School Bhuya Roida
6. Environmental conditions during sampling & Transport	( 2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Lalin Naik & Mukesh Highbura

Report No. : MSKPL/FD/2023-24/5MDA0V

Sample No. : MSKNB/FD/2023-24/12/2F105H

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.7
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By

Signature

Name : Dr. Devottam Banerjee, Dr. Anuradha Kumar Gupta

Designation : Technical In charge

Authorized Signatory

Signature

Name

Designation

Dr. Soumyadeep Mukhopadhyay  
Lab In charge



**Address of Laboratory :**

Building No. P- 48, Udayan Industrial Estate,  
 3, Pagladanga Road, Kolkata 700015  
 West Bengal  
 Tel. : +91 7044036120  
 Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-69502400000340F

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/5MDA0V

**Date :**

08/01/2024

**Sample No. :**

MSKNB/FD/2023-24/12/2F105H

**Date of receipt of sample:**

23/12/2023

**Date(s) of performance:**

23/12/2023 - 28/12/2023

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/056, Date - 16/09/2023

**Discipline:**

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water.
2. Description of sample	SURFACE WATER
3. Unique identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4325 Pond water Near ST High School Bhuya Roida
6. Environmental conditions during sampling & Transport	( 2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Lalin Naik & Mukesh Highburu

Report No. : MSKPL/FD/2023-24/5MDA0V

Sample No. : MSKNB/FD/2023-24/12/2F105H

**RESULT**

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	17

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By

Signature

Name : Mr. Sukanta Palui

Designation : Technical In charge

Authorized Signatory

Signature

Name : Mr. Sukanta Palui

Designation : Technical In charge

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The reserved part of sample(s) for chemical analysis (Sol, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

**Head Office:** Bhadrachal Centre (8th Floor), 74B, A J C Bose Road, Kolkata - 700016, West Bengal, India  
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Building No. P- 48, Udayan Industrial Estate,  
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West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000795F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/NDDA0V

## Date :

17/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/YUMF61

## Date of receipt of sample:

23/12/2023

## Date(s) of performance:

23/12/2023 - 17/01/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4324 Jalhari Nala Jurudi
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Lalin Naik, Dhambrudhar Das

Report No. : MSKPL/FD/2023-24/NDDA0V

Sample No. : MSKNB/FD/2023-24/12/YUMF61

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.98
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name: Dr. Devottam Banerjee, Dr. Amartya Kumar

Designation: Technical In charge

Authorized Signatory:

Signature

Name

Designation

Lab In charge



**Address of Laboratory :**

Building No. P- 48, Udayan Industrial Estate,  
 3, Pagladanga Road, Kolkata 700015  
 West Bengal  
 Tel. : +91 7044036120  
 Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000795F

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/NDDA0V

**Date :**

17/01/2024

**Sample No. :**

MSKNB/FD/2023-24/12/YUMF61

**Date of receipt of sample:**

23/12/2023

**Date(s) of performance:**

23/12/2023 - 28/12/2023

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/056, Date - 16/09/2023

**Discipline:**

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4324.Jalhari Nala Jurudi
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Lalin Naik, Dhambrudhar Das

Report No. : MSKPL/FD/2023-24/NDDA0V

Sample No. : MSKNB/FD/2023-24/12/YUMF61

**RESULT**

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	26

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name: Mr. Sukanta Palui

Designation: Technical In charge

Authorized Signatory:

Signature

Name: Mr. Sukanta Palui

Designation: Technical In charge

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (A/r) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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## Address of Laboratory :

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West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000794F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/HNDA0Z

## Date :

17/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/V1YFAR

## Date of receipt of sample:

23/12/2023

## Date(s) of performance:

23/12/2023 - 17/01/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4323 Palasa Kha Village Pond
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Lalin Naik, Dhambrudhar Das

Report No. : MSKPL/FD/2023-24/HNDA0Z

Sample No. : MSKNB/FD/2023-24/12/V1YFAR

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	0.56
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.95
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By

Signature

Name : Dr. Devottam Banerjee, Dr. Amariya Kumar

Designation : Technical In charge

Authorized Signatory

Signature

Name

Designation

Dr. Soumyadeep Mukhopadhyay

Lab. In charge



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000794F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/HNDA0Z

## Date :

17/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/V1YFAR

## Date of receipt of sample:

23/12/2023

## Date(s) of performance:

23/12/2023 - 28/12/2023

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4323 Palasa Kha Village Pond
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Lalin Naik, Dhambrudhar Das.

Report No. : MSKPL/FD/2023-24/HNDA0Z

Sample No. : MSKNB/FD/2023-24/12/V1YFAR

## RESULT

## Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	22

Opinion : NA

Statement of Conformity : NA

END

Reviewed By

Signature

Name : Mr. Sukanta Palui

Designation : Technical In charge

Authorized Signatory

Signature

Name : Mr. Sukanta Palui

Designation : Technical In charge

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.  
The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.  
The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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Email : info@mitrask.com Website : www.mitrask.com



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West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/HZDA0Q

## Date :

17/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/UZXFBB

## Date of receipt of sample:

23/12/2023

## Date(s) of performance:

23/12/2023 - 17/01/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4322 Tindhana Down Stream Baitarani River
6. Environmental conditions during sampling & Transport	(2 + 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Lalin Naik, Dhambrudhar Das

Report No. : MSKPL/FD/2023-24/HZDA0Q

Sample No. : MSKNB/FD/2023-24/12/UZXFBB

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	1.01
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature:

Name: Dr. Devottam Banerjee, Dr. Anartya Kumar Gupta

Designation: Technical In charge

Authorized Signatory:

Signature:

Name: Dr. Soumyadeep Mukherjee

Designation: Lab in charge



**Address of Laboratory :**

Building No. P- 48, Udayan Industrial Estate,  
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TC-6950



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ULR: TC-695024000000793F

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd (MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/HZDA0Q

**Date :**

17/01/2024

**Sample No. :**

MSKNB/FD/2023-24/12/UZXFBB

**Date of receipt of sample:**

23/12/2023

**Date(s) of performance:**

23/12/2023 - 28/12/2023

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/056, Date - 16/09/2023

**Discipline:**

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4322 Tindharia Down Stream Baitarani River
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Lalin Naik, Dhambrudhar Das

Report No. : MSKPL/FD/2023-24/HZDA0Q

Sample No. : MSKNB/FD/2023-24/12/UZXFBB

**RESULT**

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn, 9221B	7.8

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name: Mr. Sukanta Palui

Designation: Technical In charge

Authorized Signatory:

Signature

Name: Mr. Sukanta Palui

Designation: Technical In charge

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per GPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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Email : info@mitrask.com Website : www.mitrask.com



## Address of Laboratory :

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West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000792F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd. (MGM)\_Joda West.

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/FD/2023-24/TYDA08

Date :

17/01/2024

Sample No. :

MSKNB/FD/2023-24/12/P1DF9C

Date of receipt of sample:

23/12/2023

Date(s) of performance:

23/12/2023 - 17/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results.

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4321 Tindhana Up Stream Baitarani River
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Lalin Naik, Dhambrudhar Das

Report No. : MSKPL/FD/2023-24/TYDA08

Sample No. : MSKNB/FD/2023-24/12/P1DF9C

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL 0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL 0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL 0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL 1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL 0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL 0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL 0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL 0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL 0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL 0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL 0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.77
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL 0.02)

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name : Dr. Devottam Banerjee, Dr. Amartya Kumar

Designation : Technical In charge

Authorized Signatory:

Signature

Name

Designation

Dr. Souryadeep Mukhopadhyay

Lab in charge



## Address of Laboratory :

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ULR: TC-695024000000792F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/TYDA08

## Date :

17/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/P1DF9C

## Date of receipt of sample:

23/12/2023

## Date(s) of performance:

23/12/2023 - 28/12/2023

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4321 Tindharia Up Stream Baitarani River
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Lalin Naik, Dhambrudhar Das

Report No. : MSKPL/FD/2023-24/TYDA08

Sample No. : MSKNB/FD/2023-24/12/P1DF9C

## RESULT

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edn, 9221B	11

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name : Mr. Sukanta Palui

Designation : Technical in charge

Authorized Signatory

Signature

Name : Mr. Sukanta Palui

Designation : Technical in charge

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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Email : info@mitrask.com Website : www.mitrask.com



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West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-69502400000791F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/S4DA0Y

## Date :

08/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/N2DF5B

## Date of receipt of sample:

23/12/2023

## Date(s) of performance:

23/12/2023 - 08/01/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4320 Gurubeda Baitarani River
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Lalin Naik, Dhambrudhar Das

Report No. : MSKPL/FD/2023-24/S4DA0Y

Sample No. : MSKNB/FD/2023-24/12/N2DF5B

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.62
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

----- END -----

Reviewed By

Signature

Name : Dr. Divyottam Banerjee, Dr. Amartya Kumar Gupta

Designation : Technical In charge

Authorized Signatory:

Signature

Name

Designation

Dr. Subhankar Mahapatra

Lab In charge



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000791F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 756034 India

## Report No. :

MSKPL/FD/2023-24/S4DA0Y

## Date :

17/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/N2DF5B

## Date of receipt of sample:

23/12/2023

## Date(s) of performance:

23/12/2023 - 28/12/2023

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4320 Gurubeda Baltarani River
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Lalin Naik, Dhambrudhar Das

Report No. : MSKPL/FD/2023-24/S4DA0Y

Sample No. : MSKNB/FD/2023-24/12/N2DF5B

## RESULT

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	11

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By

Signature

Name Mr. Sukanta Palui

Designation Technical In charge

Authorized Signatory

Signature

Name Mr. Sukanta Palui

Designation Technical In charge

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.  
The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.  
The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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# Mitra S. K. Private Limited

## Address of Laboratory :

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 Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000790F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

### Report No. :

MSKPL/FD/2023-24/53DA0P

### Date :

08/01/2024

### Sample No. :

MSKNB/FD/2023-24/12/LD0F8J

### Date of receipt of sample:

23/12/2023

### Date(s) of performance:

23/12/2023 - 08/01/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156017/056, Date - 15/09/2023

### Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4319 Pichlaghat Khorbandg Down Stream
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Lalin Naik, Dhambudhar Das

Report No. : MSKPL/FD/2023-24/53DA0P

Sample No. : MSKNB/FD/2023-24/12/LD0F8J

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.85
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By

Signature:   
 Name: Dr. Devottam Banerjee, Dr. Anurag Kumar Gupta  
 Designation: Technical In charge

Authorized Signatory

Signature:   
 Name: Dr. Soumyadip Mukherjee  
 Designation: Lab In charge



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000790F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/53DA0P

## Date :

17/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/LD0F8J

## Date of receipt of sample:

23/12/2023

## Date(s) of performance:

23/12/2023 - 28/12/2023

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4319 Pichlaghat Khorbandg Down Stream
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Lalin Naik, Dhambudhar Das

Report No. : MSKPL/FD/2023-24/53DA0P

Sample No. : MSKNB/FD/2023-24/12/LD0F8J

## RESULT

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	17

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By

Signature

Name: Mr. Sukanta Palui

Designation: Technical In charge

Authorized Signatory

Signature

Name: Mr. Sukanta Palui

Designation: Technical In charge

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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 Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000789F

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda West

At/Pl. - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/FD/2023-24/BZDA09

**Date :**

08/01/2024

**Sample No. :**

MSKNB/FD/2023-24/12/1PDF73

**Date of receipt of sample:**

23/12/2023

**Date(s) of performance:**

23/12/2023 - 08/01/2024

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/056, Date - 16/09/2023

**Discipline:**

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4318 Pichlaghat Pump House Up Stream
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Lalin Naik, Dhambrudhar Das

Report No. : MSKPL/FD/2023-24/BZDA09

Sample No. : MSKNB/FD/2023-24/12/1PDF73

**RESULT**

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name - Dr. Devottam Banerjee, Dr. Anvitya Kumar

Designation - Gupta  
Technical in charge

Authorized Signatory:

Signature

Name - Dr. Souradyeep Mukhopadhyay

Designation - Lab in charge



# Mitra S. K. Private Limited

## Address of Laboratory :

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TC-6950



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ULR: TC-695024000000789F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM)\_Joda West

At/Po - Joda, Dist - Keonjhar, Odisha - 758034 India

### Report No. :

MSKPL/FD/2023-24/BZDA09

### Date :

17/01/2024

### Sample No. :

MSKNB/FD/2023-24/12/1PDF73

### Date of receipt of sample:

23/12/2023

### Date(s) of performance:

23/12/2023 - 28/12/2023

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156017/056, Date - 16/09/2023

### Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4318 Pichlaghat Pump House Up Stream
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Lalin Naik, Dhambrudhar Das

Report No. : MSKPL/FD/2023-24/BZDA09

Sample No. : MSKNB/FD/2023-24/12/1PDF73

## RESULT

### Micro Biology

Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	14

Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name: Mr. Sukanta Pal

Designation: Technical in charge

Authorized Signatory

Signature

Name: Mr. Sukanta Pal

Designation: Technical in charge

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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## Address of Laboratory :

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West Bengal  
Tel : +91 7044036120  
Email : udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000788F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/70DA0F

## Date :

08/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/083F41

## Date of receipt of sample:

23/12/2023

## Date(s) of performance:

23/12/2023 - 08/01/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4317 Keth-Hutting after H- Quarry Down Stream
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Lalin Naik, Dhambudhar Das

Report No. : MSKPL/FD/2023-24/70DA0F

Sample No. : MSKNB/FD/2023-24/12/083F41

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion : NA

Statement of Conformity NA

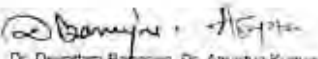
— END —

Reviewed By

Signature

Name

Designation

  
Dr. Devottam Banerjee, Dr. Anurag Kumar  
Quality  
Technical in charge

Authorized Signatory

Signature

Name

Designation

  
Dr. Soahyadrip Mukhopadhyay  
Lab in charge



## Address of Laboratory :

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3, Pagladanga Road, Kolkata 700015  
West Bengal  
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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000788F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/70DA0F

## Date :

17/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/063F41

## Date of receipt of sample:

23/12/2023

## Date(s) of performance:

23/12/2023 - 28/12/2023

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4317 Keth-Hutting after H- Quarry Down Stream
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Lalin Naik, Dhambudhar Das

Report No. : MSKPL/FD/2023-24/70DA0F

Sample No. : MSKNB/FD/2023-24/12/063F41

## RESULT

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	14

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By :  
Signature :  
Name : Mr. Sukanta Poku  
Designation : Technical in charge

Authorized Signatory :  
Signature :  
Name : Mr. Sukanta Poku  
Designation : Technical in charge

The results relate only to the item(s) tested

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report

The reserved part of sample(s) for microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report

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Email : info@mitrask.com Website : www.mitrask.com



## Address of Laboratory :

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Email : udayanlab@mitrask.com



TC-6950



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ULR: TC-69502400000787F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/BQDA0N

## Date :

08/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/TACF45

## Date of receipt of sample:

23/12/2023

## Date(s) of performance:

23/12/2023 - 08/01/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-Keth -Hutting before H-Quarry Up Stream
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-23) 2021
8. Identification of the personnel performing sampling by MSK	Dhambudhar Das & Leela Naik

Report No. : MSKPL/FD/2023-24/BQDA0N

Sample No. : MSKNB/FD/2023-24/12/TACF45

## RESULT

Chemical				
Sl No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL 0.005)
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL 0.25)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL 0.001)
4	Colour	Hazen	IS 3025 (Part 4)	BDL(DL 1.0)
5	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL 0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL 0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL 0.2)
8	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL 0.01)
9	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL 0.005)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL 0.02)
11	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL 0.0002)
12	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.48
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL 0.02)

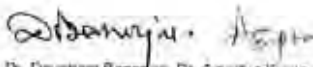
Opinion : NA

Statement of Conformity NA

— END —

Reviewed By:

Signature



Name

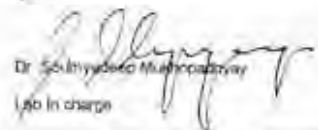
Dr. Devobani Banerjee, Dr. Anantya Kumar

Designation

Technical in charge

Authorized Signatory:

Signature



Name

Dr. Soumyadeep Mukhopadhyay

Designation

Lab In charge

Head Office:

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TC-6950



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ULR: TC-69502400000787F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/FD/2023-24/BQDA0N

## Date :

17/01/2024

## Sample No. :

MSKNB/FD/2023-24/12/TACF45

## Date of receipt of sample:

23/12/2023

## Date(s) of performance:

23/12/2023 - 28/12/2023

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Biological

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Water & Residue in Water
2. Description of sample	SURFACE WATER
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-Keth -Hutting before H-Quarry Up Stream
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained
7. Sampling Plan & Method used	IS 17614 (P-25) 2022
8. Identification of the personnel performing sampling by MSK	Dhambrudar Das & Lelin Naik

Report No. : MSKPL/FD/2023-24/BQDA0N

Sample No. : MSKNB/FD/2023-24/12/TACF45

## RESULT

Micro Biology				
Sl No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	9.2

Opinion : NA

Statement of Conformity : NA

— END —

Reviewed By

Signature

Name : Mr. Sukanta Palui

Designation : Technical In charge

Authorized Signatory

Signature

Name : Mr. Sukanta Palui

Designation : Technical In charge

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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Report No. MSKGL/ED/2023-24/004319

Date: 12.01.2024

**ANALYSIS REPORT OF WASTE/EFFLUENT WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	26.12.2023
Location	Bamebari Oil Separation Water Near Garage (BIMM)

**CHEMICAL ANALYSIS OF WATER AS PER IS: 2490**

SL. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	4.8
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	35
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	22
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	18.2
5	DO	mg/l	APHA 24th Edition, 2023 4500-D-1/G	—	4.6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	337
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.61
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	13
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.172
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	—	14.2
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	140
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	144
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	144
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	69.8
18	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.96

Checked by:- 

For Mitra S. K. Private Limited

Authorized Signatory 



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 E : barbil@mitrask.co.in  
 W : www.mitrask.com

Report No. MSKGL/ED/2023-24/004320


Date: 12.01.2024

**ANALYSIS REPORT OF WASTE/EFFLUENT WATER**

Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)
Date of sampling	26.12.2023
Location	Bamebari STP Inlet (BIMM)

**CHEMICAL ANALYSIS OF WATER AS PER IS: 2490**

Sl. No.	Test Parameters	Unit	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	16
2	Calcium (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	40
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	84
4	Chloride (as Cl <sup>-</sup> )	mg/l	APHA (24th Edition), 4500 -Cl B	—	38.2
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	—	3.8
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	—	495
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	17
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	—	12
9	Odour	mg/l	APHA (24th Edition), 2150B	Agreeable	Disagreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds ( as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	—	0.255
13	Sulphate ( as SO <sub>4</sub> )	mg/l	APHA (24th Edition), 4500 SO <sub>4</sub> -E	—	18
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	—	188
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	—	152
16	Total Hardness (as CaCO <sub>3</sub> )	mg/l	APHA (24th Edition), 2340 C	—	152
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition), 2540D	50/100	420.9
18	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+H	5.5-9.0	7.09

Checked by:- 

For Mitra S. K. Private Limited



Authorized Signatory





# Anacon Laboratories

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🌐 <https://www.anaconlaboratories.com>

## Test Report

Test Report No. : ALPL/30112023/1-20A

dated 30/11/2023

Page 1 of 3

Issued To : M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		Sample Inward No.	ALPL/22112023/ENV-283-1	Analysis Start	23/11/2023
		Inward Date	22/11/2023	Analysis End	29/11/2023
		Reference	W.O.- 4700098928/962	Report Issue Date	30/11/2023
		Reference Date	22.03.2022	Sample Category	Water
Sample Name Drinking Water	Sample Source Inlet Water	Sample Particulars Sample Code-DW-1	Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Collected By Anacon Representative		Sampling Date 16/11/2023	Sampling Time 11:45am to 2:50 pm	Sampling Location JWIMM WTP Inlet (bichakundi)	

## TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Biological Testing I. Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	Chemical Testing I. Water					
2	Alkalinity (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 23) : 1986	200	600	72.81
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K) : 2005	0.2	1.0	BDL (DL – 0.01)
4	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL – 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	32.58
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	24.93
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL – 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	BDL (DL – 0.1)
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	7.64
11	Nitrate (as NO <sub>3</sub> )	mg/l	APHA method 23rd edition: 2017	45	No relaxation	BDL (DL-2)
12	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.13 at 25°C
14	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 2022	0.001	0.002	BDL (DL – 0.001)
15	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	200	400	9.26
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	294
18	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
19	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) : 2009	200	600	93.69

Please refer last Page for Note and Remarks.

Verified By

*Snehal Raut*

Snehal Raut  
Deputy Technical Manager

Authorized Signatories

*Pooja Kadhane*

Pooja Kadhane  
Technical Manager

*Dr. (Mrs.) S.D. Garway*

Dr. (Mrs.) S.D. Garway  
Quality Manager



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Test Report

Test Report No. : ALPL/30112023/1-20A

dated 30/11/2023

Page 2 of 3

<b>Issued To :</b> M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		<b>Sample Inward No.</b> ALPL/22112023/ENV-283-1	<b>Analysis Start</b> 23/11/2023
		<b>Inward Date</b> 22/11/2023	<b>Analysis End</b> 29/11/2023
		<b>Reference</b> W.O.- 4700098928/962	<b>Report Issue Date</b> 30/11/2023
		<b>Reference Date</b> 22.03.2022	<b>Sample Category</b> Water
<b>Sample Name</b> Drinking Water	<b>Sample Source</b> Inlet Water	<b>Sample Particulars</b> Sample Code-DW-1	<b>Sample Condition</b> Sealed & Ice Preserved
<b>Sample Collected By</b> Anacon Representative		<b>Sampling Date</b> 16/11/2023	<b>Sampling Time</b> 11:45am to 2:50 pm
		<b>Quantity Received</b> 5.0 Ltr & 250 ml	
		<b>Sampling Location</b> JWIMM WTP Inlet (bichakundi)	

**TEST RESULTS**

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
<b>II</b>	<b>Chemical Testing</b>					
	<b>2. Residues In Water</b>					
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL (DL - 0.01)
22	Barium (as Ba)	mg/l	IS 3025 (Part 2) : 2019	0.7	No relaxation	BDL (DL - 0.01)
23	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
24	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
25	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
26	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.07
27	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
28	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
29	Mercury (as Hg)	mg/l	IS 3025 (Part 48) : 1994	0.001	No relaxation	BDL (DL - 0.0005)
30	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL - 0.001)
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
32	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
33	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL (DL - 0.03)
34	Mineral Oil	mg/l	ANtr/7.2/RES/06: 2018	1	No relaxation	BDL (DL - 0.001)

Please refer last Page for Note and Remarks.

Verified By:

Nidhi Dubey  
Deputy Technical Manager

Swati Gondhalekar  
Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Garway  
Quality Manager







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### Test Report

Test Report No.: ALPL/30112023/1-20A

dated 30/11/2023

Page 3 of 3

<b>Issued To :</b> M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		<b>Sample Inward No.</b> ALPL/22112023/ENV-283-1	<b>Analysis Start</b> 23/11/2023
		<b>Inward Date</b> 22/11/2023	<b>Analysis End</b> 29/11/2023
		<b>Reference</b> W.O. - 4700098928/962	<b>Report Issue Date</b> 30/11/2023
		<b>Reference Date</b> 22.03.2022	<b>Sample Category</b> Water
<b>Sample Name</b> Drinking Water	<b>Sample Source</b> Inlet Water	<b>Sample Particulars</b> Sample Code-DW-1	<b>Sample Condition</b> Sealed & Ice Preserved
<b>Sample Collected By</b> Anacon Representative		<b>Sampling Date</b> 16/11/2023	<b>Sampling Time</b> 11:45am to 2:50 pm
		<b>Quantity Received</b> 5.0 Ltr & 250 ml	
		<b>Sampling Location</b> JWIMM WTP Inlet (bichakundi)	

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
35	Pesticide Residues Organochlorine					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
viii	Burachlor	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'- DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Paraathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Phosalone methyl	µg/l	ANtr/7.2/RES/01: 2018	—	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	—	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	30	No relaxation	BDL (DL - 0.03)

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**REMARKS:** As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted Only.

Verified By

*Swati*

Swati Gondhalekar  
Deputy Technical Manager

Authorized Signatory

*Dr. (Mrs.) S.D. Garway*

Dr. (Mrs.) S.D. Garway  
Quality Manager

-----End of Report-----



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## Test Report

Test Report No.: ALPL/2011/2023/1-2-A

dated 30/11/2023

Page 1 of 3

<b>Issued To :</b> M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		<b>Sample Inward No.</b> ALPL/2211/2023/ENV-283-2	<b>Analysis Start</b> 23/11/2023
		<b>Inward Date</b> 22/11/2023	<b>Analysis End</b> 29/11/2023
		<b>Reference</b> W.O.- 4700098928/962	<b>Report Issue Date</b> 30/11/2023
		<b>Reference Date</b> 22-03-2022	<b>Sample Category</b> Water
<b>Sample Name</b> Drinking Water	<b>Sample Source</b> Outlet Water	<b>Sample Particulars</b> Sample Code-DW-2	<b>Sample Condition</b> Sealed & Ice Preserved
<b>Sample Collected By</b> Anacon Representative		<b>Sampling Date</b> 16/11/2023	<b>Sampling Time</b> 11:45am to 2.50 pm
		<b>Quantity Received</b> 5.0 Ltr & 250 ml	
		<b>Sampling Location</b> JWIMM Outlet (bichakundi)	

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Biological Testing I. Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	Chemical Testing I. Water					
2	Alkalinity (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 23) : 1986	200	600	28.46
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL – 0.01)
4	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL – 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	18.32
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	21.94
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL – 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	BDL (DL – 0.1)
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	5.37
11	Nitrate (as NO <sub>3</sub> )	mg/l	APHA method 23rd edition: 2017	45	No relaxation	BDL (DL-2)
12	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.13 at 25°C
14	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 2022	0.001	0.002	BDL (DL – 0.001)
15	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	200	400	3.84
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	291
18	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.1
19	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) : 2009	200	600	76.89

Please refer last Page for Note and Remarks.

Verified By

*Snehal Raut*

Snehal Raut  
Deputy Technical Manager

Authorized Signatories

*Pooja Kathode*

Pooja Kathode  
Technical Manager

*Dr. (Mrs.) S.D. Garway*

Dr. (Mrs.) S.D. Garway  
Quality Manager



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## Test Report

Test Report No. : ALPL/30112023/1-21A

dated 30/11/2023

Page 2 of 3

Issued To : M/s. Joda West Iron & Mangano- Mine (M/s TATA Steel Limited)		Sample Inward No., Inward Date Reference Reference Date	ALPL/22112023/ENV-283-2 22/11/2023 W.O.- 4700098928/962 22.03.2022	Analysis Start Analysis End Report Issue Date Sample Category	23/11/2023 29/11/2023 30/11/2023 Water
Sample Name Drinking Water	Sample Source Outlet Water	Sample Particulars Sample Code-DW-2	Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Collected By Anacon Representative		Sampling Date 16/11/2023	Sampling Time 11.45am to 2.50 pm	Sampling Location JWIMM Outlet (bichakundi)	

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
11	Chemical Testing 2. Residues In Water					
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL (DL - 0.01)
22	Barium (as Ba)	mg/l	IS 3025 (Part 2) : 2019	0.7	No relaxation	BDL (DL - 0.01)
23	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
24	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
25	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
26	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.06
27	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
28	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
29	Mercury (as Hg)	mg/l	IS 3025 (Part 48) : 1994	0.001	No relaxation	BDL (DL - 0.0005)
30	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL - 0.001)
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
32	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
33	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL (DL - 0.03)
34	Mineral Oil	mg/l	ANtr/7.2/RES/06: 2018	1	No relaxation	BDL (DL - 0.001)

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey  
Deputy Technical Manager

Swati Gondhalekar  
Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Garway  
Quality Manager







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## Test Report

Test Report No. : ALPL/30112023/1-21A

dated 30/11/2023

Page 3 of 3

Issued To : M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		Sample Inward No.	ALPL/22112023/ENV-283-2	Analysis Start	23/11/2023
		Inward Date	22/11/2023	Analysis End	29/11/2023
		Reference	W.O.- 4700098928/962	Report Issue Date	30/11/2023
		Reference Date	22.03.2022	Sample Category	Water
Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received	
Drinking Water	Outlet Water	Sample Code-DW-Z	Sealed & Ice Preserved	5.0 Ltr & 250 ml	
Sample Collected By Anacon Representative		Sampling Date	16/11/2023	Sampling Time	11.45am to 2.50 pm
				Sampling Location IWIMM Outlet (bichakundi)	

## TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
35	Pesticide Residues Organochlorine					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Permethrin methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	30	No relaxation	BDL (DL - 0.03)

**NOTE:** • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs. • Liability of Anacon Labs is limited to invoiced amount only. • Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. • #Permissible limit in absence of an alternate source for drinking water. • 'mg/l' is equivalent to 'ppm'. • 'µg/l' is equivalent to 'ppb'. • BDL- Below detection limit. • DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'. • Result for test no. 11 is not relevant. • ANtr/7.2/RES-01, is Inhouse validated method. • NT indicates not Tested as sample failed to establish safety concerns.

**REMARKS:** As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted Only.

Verified By

*Swati*

Swati Gundhalekar  
Deputy Technical Manager

Authorized Signatory

*Stamp*

Dr. (Mrs.) S.D. Garway  
Quality Manager

---End of Report---



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## Test Report

Test Report No. : ALPL/301/2023/1-26A

dated 30/11/2023

Page 1 of 3

Issued To : M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		Sample Inward No. ALPL/22112023/ENV-283-GW-1	Analysis Start 23/11/2023
		Inward Date 22/11/2023	Analysis End 29/11/2023
		Reference W/C :- 47000988928/962	Report Issue Date 30/11/2023
		Reference Date 22.03.2022	Sample Category Water
Sample Name Ground Water	Sample Source Borewell	Sample Particulars Sample Code-GW-1	Sample Condition Sealed & Ice Preserved
Sample Collected By Anacon Representative		Sampling Date 18/11/2023	Sampling Time 11.30 am to 4.10 pm
			Quantity Received 5.0 Ltr & 250 ml
			Sampling Location Bichakundi Borewell No-1 (Near Community Toilet)

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Biological Testing 1. Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	Chemical Testing 1. Water					
2	Alkalinity (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 23) : 1986	200	600	192.81
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K) : 2005	0.2	1.0	BDL (DL – 0.01)
4	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL – 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	32.64
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	51.47
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL – 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.18
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	12.76
11	Nitrate (as NO <sub>3</sub> )	mg/l	APHA method 23rd edition: 2017	45	No relaxation	9.51
12	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.82 at 25°C
14	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 2022	0.001	0.002	BDL (DL – 0.001)
15	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	200	400	32.58
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 2023	500	2000	462
18	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
19	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) : 2009	200	600	181.08

Please refer last Page for Note and Remarks.

Verified By

*Snehal Raut*

Snehal Raut  
Deputy Technical Manager

Authorized Signatories

*Pooja Kathare*

Pooja Kathare  
Technical Manager

*Dr. (Mrs.) S.D. Garway*

Dr. (Mrs.) S.D. Garway  
Quality Manager



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### Test Report

Test Report No. : ALPL/30/11/2023/1-32A

dated 30/11/2023

Page 2 of 3

<b>Issued To :</b> M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		<b>Sample Inward No.</b> ALPL/22/11/2023/ENV-283-GW-1	<b>Analysis Start</b> 23/11/2023
		<b>Inward Date</b> 22/11/2023	<b>Analysis End</b> 29/11/2023
		<b>Reference</b> W.O.- 4700098928/962	<b>Report Issue Date</b> 30/11/2023
		<b>Reference Date</b> 22.03.2022	<b>Sample Category</b> Water
<b>Sample Name</b> Ground Water	<b>Sample Source</b> Borewell	<b>Sample Particulars</b> Sample Code-GW-1	<b>Sample Condition</b> Sealed & Ice Preserved
<b>Sample Collected By</b> Anacon Representative		<b>Sampling Date</b> 18/11/2023	<b>Sampling Time</b> 11.30 am to 4.10 pm
		<b>Quantity Received</b> 5.0 Ltr & 250 ml	
		<b>Sampling Location</b> Bichakundi Borewell No-1 (Near Community Toilet)	

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Chemical Testing 2. Residues In Water					
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL (DL - 0.01)
22	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
23	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
24	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
25	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.24
26	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
27	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
28	Mercury (as Hg)	mg/l	IS 3025 (Part 48) : 1994	0.001	No relaxation	BDL (DL - 0.0005)
29	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL - 0.001)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
32	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	No relaxation	BDL (DL - 0.1)

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey  
Deputy Technical Manager

Swati Gondhalekar  
Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Garway  
Quality Manager

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## Test Report

Test Report No.: ALPL/20112023/1-206A

dated: 30/11/2023

Page 3 of 3

<b>Issued To :</b> M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		<b>Sample Inward No.</b> ALPL/22112023/ENV-283-GW-1 <b>Inward Date</b> 22/11/2023 <b>Reference</b> W.O. - 4700098928/962 <b>Reference Date</b> 22.03.2022		<b>Analysis Start</b> 23/11/2023 <b>Analysis End</b> 29/11/2023 <b>Report Issue Date</b> 30/11/2023 <b>Sample Category</b> Water
<b>Sample Name</b> Ground Water	<b>Sample Source</b> Borewell	<b>Sample Particulars</b> Sample Code-GW-1	<b>Sample Condition</b> Sealed & Ice Preserved	<b>Quantity Received</b> 5.0 Ltr & 250 ml
<b>Sample Collected By</b> Anacon Representative		<b>Sampling Date</b> 18/11/2023	<b>Sampling Time</b> 11.30 am to 4.10 pm	<b>Sampling Location</b> Bichakundi Borewell No-1 (Near Community Toilet)

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
34	Pesticide Residues Organochlorine					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'-DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'-DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.2	No relaxation	BDL (DL - 0.03)
xviii	Permethrin methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	30	No relaxation	BDL (DL - 0.03)

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**REMARKS:** As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted Only.

Verified By

*[Signature]*

Swati Gondhalekar  
Deputy Technical Manager

Authorized Signatory

*[Signature]*

Dr. (Mrs.) S.D. Garway  
Quality Manager

—End of Report—



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## Test Report

Test Report No. : ALPL/30112023/1-27A

dated 30/11/2023

Page 1 of 3

Issued To : M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		Sample Inward No.	ALPL/22112023/ENV-283-GW-2	Analysis Start	23/11/2023
		Inward Date	22/11/2023	Analysis End	29/11/2023
		Reference	W.O.-4700098928/962	Report Issue Date	30/11/2023
		Reference Date	22.03.2022	Sample Category	Water
Sample Name	Sample Source	Sample Particulars	Sample Condition	Quantity Received	
Ground Water	Borewell	Sample Code-GW-2	Scaled & Ice Preserved	5.0 Ltr & 250 ml <sup>®</sup>	
Sample Collected By Anacon Representative		Sampling Date	Sampling Time	Sampling Location	
		18/11/2023	11.30 am to 4.10 pm	Bichakundi Borewell No-2 (Near WTP)	

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Biological Testing I. Water					
1	<i>Escherichia coli</i>	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	Chemical Testing I. Water					
2	Alkalinity (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 23) : 1986	200	600	197.36
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K) : 2005	0.2	1.0	BDL (DL – 0.01)
4	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL – 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	26.43
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	53.17
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL – 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.26
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	12.81
11	Nitrate (as NO <sub>3</sub> )	mg/l	APIHA method 23rd edition: 2017	45	No relaxation	6.94
12	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.16 at 25°C
14	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 2022	0.001	0.002	BDL (DL – 0.001)
15	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	200	400	32.58
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 2023	500	2000	463
18	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
19	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) : 2009	200	600	185.53

Please refer last Page for Note and Remarks.

Verified By

*Snehal Raut*

Snehal Raut  
Deputy Technical Manager

Authorized Signatories

*Pooja Kathane*

Pooja Kathane  
Technical Manager

*Dr. (Mrs.) S.D. Garway*

Dr. (Mrs.) S.D. Garway  
Quality Manager



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## Test Report

Test Report No.: ALPL/22112023/1-27A

dated 30/11/2023

Page 2 of 3

<b>Issued To :</b> M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		<b>Sample Inward No.</b> ALPL/22112023/ENV-283-GW-2	<b>Analysis Start</b> 23/11/2023
		<b>Inward Date</b> 22/11/2023	<b>Analysis End</b> 29/11/2023
		<b>Reference</b> W.O.: 4700098928/962	<b>Report Issue Date</b> 30/11/2023
		<b>Reference Date</b> 22.03.2022	<b>Sample Category</b> Water
<b>Sample Name</b> Ground Water	<b>Sample Source</b> Borewell	<b>Sample Particulars</b> Sample Code-GW-2	<b>Sample Condition</b> Sealed & Ice Preserved
		<b>Quantity Received</b> 5.0 Ltr & 250 ml	
<b>Sample Collected By</b> Anacon Representative		<b>Sampling Date</b> 18/11/2023	<b>Sampling Time</b> 11.30 am to 4.10 pm
		<b>Sampling Location</b> Bichakundi Borewell No-2 (Near WTP)	

## TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Chemical Testing 2. Residues In Water					
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL (DL - 0.01)
22	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
23	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
24	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
25	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.17
26	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
27	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
28	Mercury (as Hg)	mg/l	IS 3025 (Part 48) : 1994	0.001	No relaxation	BDL (DL - 0.0005)
29	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL - 0.001)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
32	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL(DL-0.03)
33	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	No relaxation	BDL (DL - 0.1)

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey  
Deputy Technical Manager

Swati Gondhalekar  
Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Garway  
Quality Manager

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## Test Report

Test Report No. : ALPL/301 (2023)/1-27A

dated 30/11/2023

Page 3 of 3

Issued To : M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		Sample Inward No. ALPL/22112023/ENV-283-GW-2	Analysis Start 23/11/2023
		Inward Date 22/11/2023	Analysis End 29/11/2023
		Reference W.O. - 4700098928/962	Report Issue Date 30/11/2023
		Reference Date 22.03.2022	Sample Category Water
Sample Name Ground Water	Sample Source Borewell	Sample Particulars Sample Code-GW-2	Sample Condition Sealed & Ice Preserved
Sample Collected By Anacon Representative		Sampling Date 18/11/2023	Sampling Time 11.30 am to 4.10 pm
		Quantity Received 5.0 Ltr & 250 ml	
		Sampling Location Bichakundi Borewell No-2 (Near WTP)	

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
34	Pesticide Residues Organochlorine					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'-DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'-DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraaxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	30	No relaxation	BDL (DL - 0.03)

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**REMARKS:** As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted Only.

Verified By

*Swati*

Swati Gondhalekar  
Deputy Technical Manager

Authorized Signatory

*Stamp*

Dr. (Mrs.) S.D. Garway  
Quality Manager

—End of Report—



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## Test Report

Test Report No. : ALPL/30112023/1-28A

dated 30/11/2023

Page 1 of 3

<b>Issued To :</b> M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		<b>Sample Inward No.</b> ALPL/22112023/ENV-283-GW-3 <b>Inward Date</b> 22/11/2023 <b>Reference</b> W.O. - 4700098928/962 <b>Reference Date</b> 22.03.2022		<b>Analysis Start</b> 23/11/2023 <b>Analysis End</b> 29/11/2023 <b>Report Issue Date</b> 30/11/2023 <b>Sample Category</b> Water	
<b>Sample Name</b> Ground Water	<b>Sample Source</b> Borewell	<b>Sample Particulars</b> Sample Code-GW-3	<b>Sample Condition</b> Sealed & Ice Preserved		<b>Quantity Received</b> 5.0 Ltr & 250 ml
<b>Sample Collected By</b> Anacon Representative		<b>Sampling Date</b> 18/11/2023	<b>Sampling Time</b> 11.30 am to 4.10 pm		<b>Sampling Location</b> Bichakundi Borewell No-3 (Near Micro Activity Centre)

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Biological Testing I. Water					
1	<i>Escherichia coli</i>	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	Chemical Testing I. Water					
2	Alkalinity (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 23) : 1986	200	600	163.82
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K) : 2005	0.2	1.0	BDL (DL – 0.01)
4	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL – 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	23.84
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	53.91
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL – 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	0.26
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	11.92
11	Nitrate (as NO <sub>3</sub> )	mg/l	APHA method 23rd edition: 2017	45	No relaxation	9.53
12	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.72 at 25°C
14	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 2022	0.001	0.002	BDL (DL – 0.001)
15	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	200	400	26.81
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 2023	500	2000	451
18	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
19	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) : 2009	200	600	183.73

Please refer last Page for Note and Remarks.

Verified By

*Sreehal Raut*  
Sreehal Raut  
Deputy Technical Manager

Authorized Signatories

*Pooja Kathane*  
Pooja Kathane  
Technical Manager

*Dr. (Mrs.) S.D. Garway*  
Dr. (Mrs.) S.D. Garway  
Quality Manager



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## Test Report

Test Report No. : ALPL/30112023/1-28A

dated 30/11/2023

Page 2 of 3

Issued To : M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		Sample Inward No.	ALPL/22112023/ENV-283-GW-3	Analysis Start	23/11/2023
		Inward Date	22/11/2023	Analysis End	29/11/2023
		Reference	W.O. - 4700098928/962	Report Issue Date	30/11/2023
		Reference Date	22.03.2022	Sample Category	Water
Sample Name Ground Water	Sample Source Borewell	Sample Particulars Sample Code-GW-3	Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Collected By Anacon Representative		Sampling Date 18/11/2023	Sampling Time 11.30 am to 4.10 pm	Sampling Location Bichakundi Borewell No-3 (Near Micro Activity Centre)	

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Chemical Testing 2. Residues In Water					
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL (DL - 0.01)
22	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
23	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
24	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
25	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.26
26	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
27	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
28	Mercury (as Hg)	mg/l	IS 3025 (Part 48) : 1994	0.001	No relaxation	BDL (DL - 0.0005)
29	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL - 0.001)
30	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
31	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
32	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL (DL - 0.03)
33	Mineral Oil	mg/l	ANtr/7.2/RES/06	1	No relaxation	BDL (DL - 0.1)

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey  
Deputy Technical Manager

Swati Gondhalekar  
Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Gurway  
Quality Manager

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## Test Report

Test Report No. : ALPL/30112023/1-28A

dated 30/11/2023

Page 3 of 3

<b>Issued To :</b> M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		<b>Sample Inward No.</b> ALPL/22112023/ENV-283-GW-3	<b>Analysis Start</b> 23/11/2023
		<b>Inward Date</b> 22/11/2023	<b>Analysis End</b> 29/11/2023
		<b>Reference</b> W.O. - 4700098928/962	<b>Report Issue Date</b> 30/11/2023
		<b>Reference Date</b> 22.03.2022	<b>Sample Category</b> Water
<b>Sample Name</b> Ground Water	<b>Sample Source</b> Borewell	<b>Sample Particulars</b> Sample Code-GW-3	<b>Quantity Received</b> 3.0 Ltr & 250 ml
<b>Sample Collected By</b> Anacon Representative		<b>Sampling Date</b> 18/11/2023	<b>Sampling Location</b> Bichakundi Borewell No-3 (Near Micro Activity Centre)
		<b>Sampling Time</b> 11.30 am to 4.10 pm	

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
34	Pesticide Residues Organochlorine					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCTI	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'-DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'-DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraaxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoson	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	30	No relaxation	BDL (DL - 0.03)

**NOTE:** ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● Permissible limit in absence of an alternate source for drinking water. ● "mg/l" is equivalent to "ppm". ● "µg/l" is equivalent to "ppb". ● BDL - Below detection limit. ● DL - DL Indicates detection limit of instrument /method and shall be considered as 'absent'. ● Result for test no. 8 is not relevant. ● ANtr/7.2/RES -01,06; Inhouse validated method. ● NT indicates not Tested as sample failed to establish safety concerns.

**REMARKS:** As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted only.

Verified By

*Swati*

Swati Gondhalekar  
Deputy Technical Manager

Authorized Signatory

*Dr. (Mrs.) S.D. Garway*

Dr. (Mrs.) S.D. Garway  
Quality Manager

—End of Report—



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# Anacon Laboratories

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## Test Report

Test Report No. : ALPL/30112023/1-33

dated 30/11/2023

Page 1 of 1

Issued To : M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		Sample Inward No. ALPL/22112023/ENV-283-SW-1 & 2	Analysis Start 23/11/2023
		Inward Date 22/11/2023	Analysis End 29/11/2023
		Reference W/O - 470009/8928/962	Report Issue Date 30/11/2023
		Reference Date 22.01.2022	Sample Category Water
Sample Name Surface Water	Sample Source Sona River	Sample Particulars Sample Code-SW-1 & 2	Sample Condition Sealed & Ice Preserved
		Quantity Received 2.0 Ltr & 250 ml each	
Sample Collected By Anacon Representative		Sampling Date 17/11/2023	Sampling Time 11.55 am to 4.25 pm
		Sampling Location 1. Keth-hutting before H-quarry (Sona River)-SW-1 2. Keth-hutting after H-quarry (Sona River)-SW-2	

## TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-1	SW-2
1	Biological Testing 1.Water					
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
11	Chemical Testing 1.Water					
2	pH value	—	IS 3025 (Part 11) : 2022	6.0 to 9.0	7.68 at 25°C	7.82 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 2021	300	16	12
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) : 1989	4.0	6.7	6.4
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) : 2022	—	34	28
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) : 1993	3.0	2.63	2.51
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	—	6.94	5.82
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1500	1453	1137
9	Copper (as Cu)	mg/l	IS 3025 (Part 21) : 2019	1.5	0.06	0.04
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	600	62.94	58.36
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	400	72.81	64.27
12	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34) : 1988	50	19.32	18.51
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.46	0.42
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005)
15	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 1001	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Antonie Detergent	mg/l	IS 11428 : 2005 Annex A	1.0	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing 2. Residues In Water					
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.3	0.37	0.41
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.1)	BDL(DL-0.1)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.05	BDL(DL-0.1)	BDL(DL-0.1)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.2	BDL(DL-0.05)	BDL(DL-0.05)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)	BDL(DL-0.1)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	15	BDL(DL-0.1)	BDL(DL-0.1)
23	Hexa Chromium (as Cr <sup>VI</sup> )	mg/l	IS 3025 (Part 2) : 2019	0.05	BDL(DL-0.1)	BDL(DL-0.1)
24	Mercury (as Hg)	mg/l	IS 3025 (Part 48) : 1994	—	BDL(DL-0.01)	BDL(DL-0.01)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	—	BDL(DL-0.1)	BDL(DL-0.1)

**NOTES:** • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs. • Liability of Anacon Labs is limited to invoiced amount only. • Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively, from the date of issue of Test Report, unless specified otherwise. • 'mg/l' is equivalent to 'ppm'. • BDL- Below detection limit. • DL- Indicates detection limit of instrument/method and shall be considered as 'below'.

**REMARKS:** As requested by the client, sample was tested for above parameters only.

Verified By

Nidhi Dubey  
Deputy Technical Manager

Snehal Raut  
Deputy Technical Manager

Authorized Signatories

Pooja Khatane  
Technical Manager

Dr. (Mrs.) S.D. Garway  
Quality Manager

—End of Report—

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## Test Report

Test Report No. : ALPL/30112023/1-34

dated 30/11/2023

Page 1 of 1

Issued To : M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	ALPL/22112023/ENV-283-SW-3 & 4 22/11/2023 W.O. - 4700098928/962 22.03.2022	Analysis Start Analysis End Report Issue Date Sample Category	23/11/2023 29/11/2023 30/11/2023 Water
Sample Name Surface Water	Sample Source 1. Upstream 2. Downstream	Sample Particulars Sample Code-SW-3 & 4	Sample Condition Sealed & Ice Preserved	Quantity Received 2.0 Ltr & 250 ml each	
Sample Collected By Anacon Representative		Sampling Date 17/11/2023	Sampling Time 11.55 am to 4.25 pm	Sampling Location 1. Pichlaghat upstream-SW-3 2. Pichlaghat downstream- SW-4	

## TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-3	SW-4
I	Biological Testing 1.Water					
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
II	Chemical Testing 1.Water					
2	pH value	-	IS 3025 (Part 11) : 2022	6.0 to 9.0	7.82 at 25°C	8.16 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 2021	300	16	14
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) : 1989	4.0	6.3	5.8
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) : 2022	-	32	27
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) : 1993	3.0	2.64	2.58
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	-	7.19	6.82
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1500	1394	1287
9	Copper (as Cu)	mg/l	IS 3025 (Part 21) : 2019	1.5	0.06	0.04
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	600	61.56	59.24
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	400	42.81	37.94
12	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34) : 1988	50	18.37	16.21
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.48	0.43
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005)
15	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 1001	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing 2. Residues In Water					
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.42	0.38
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.1)	BDL(DL-0.1)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.05	BDL(DL-0.1)	BDL(DL-0.1)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.2	BDL(DL-0.05)	BDL(DL-0.05)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)	BDL(DL-0.1)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 21) : 2019	15	BDL(DL-0.1)	BDL(DL-0.1)
23	Hexa Chromium (as Cr <sup>VI</sup> )	mg/l	IS 3025 (Part 21) : 2019	0.05	BDL(DL-0.1)	BDL(DL-0.1)
24	Mercury (as Hg)	mg/l	IS 3025 (Part 48) : 1994	-	BDL(DL-0.01)	BDL(DL-0.01)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 21) : 2019	-	BDL(DL-0.1)	BDL(DL-0.1)

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**REMARKS:** As requested by the client, sample was tested for above parameters only.

Verified By

Authorized Signatories

Nidhi Dubey  
Deputy Technical Manager

Snehal Bhat  
Deputy Technical Manager

Pooja Kathane  
Technical Manager

Dr. (Mrs.) S.D. Garway  
Quality Manager

—End of Report—

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## Test Report

Test Report No : ALPL/30/11/2023/1-38

dated 30/11/2023

Page 1 of 1

<b>Issued To :</b> M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		<b>Sample Inward No.</b> ALPL/22/11/2023/ENV-283-SW-10 & 11	<b>Analysis Start</b> 23/11/2023
		<b>Inward Date</b> 22/11/2023	<b>Analysis End</b> 29/11/2023
		<b>Reference</b> W.O.- 4700098928/962	<b>Report Issue Date</b> 30/11/2023
		<b>Reference Date</b> 22.03.2022	<b>Sample Category</b> Water
<b>Sample Name</b> Surface Water	<b>Sample Source</b> Pond & River	<b>Sample Particulars</b> Sample Code-SW-10 & 11	<b>Sample Condition</b> Sealed & Ice Preserved
		<b>Quantity Received</b> 2.0 Ltr & 250 ml each	
<b>Sample Collected By</b> Anacon Representative		<b>Sampling Date</b> 17/11/2023	<b>Sampling Time</b> 11.55 am to 4.25 pm
<b>Sampling Location</b> 1. Pond near ST highschool, Bhuyan Roida-SW-10 2. SONA RIVER (KANDRA VILLAGE) BEFORE CONFLUENCE WITH BAITARANI RIVER-SW-11			

## TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-10	SW-11
I	Biological Testing : 1. Water					
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
II	Chemical Testing : 1. Water					
2	pH value	-	IS 3025 (Part 11) : 2022	6.0 to 9.0	7.84 at 25°C	8.16 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 2021	300	24	19
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) : 1989	4.0	6.3	5.8
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) : 2022	-	32	26
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) : 1993	3.0	2.61	2.57
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	-	8.14	7.36
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1500	1439	1371
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	1.5	0.06	0.04
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	600	57.31	43.68
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	400	73.94	61.71
12	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34) : 1988	50	14.52	13.86
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.43	0.37
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005)
15	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 1001	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing : 2. Residues In Water					
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.41	0.38
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.1)	BDL(DL-0.1)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.05	BDL(DL-0.1)	BDL(DL-0.1)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.2	BDL(DL-0.05)	BDL(DL-0.05)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)	BDL(DL-0.1)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	1.5	BDL(DL-0.1)	BDL(DL-0.1)
23	Hexa Chromium (as Cr <sup>6+</sup> )	mg/l	IS 3025 (Part 2) : 2019	0.05	BDL(DL-0.1)	BDL(DL-0.1)
24	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	-	BDL(DL-0.01)	BDL(DL-0.01)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	-	BDL(DL-0.1)	BDL(DL-0.1)

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**REMARKS :** As requested by the client, sample was tested for above parameters only.

Verified By

Authorized Signatories

Nidhi Dubey  
Deputy Technical Manager

Snehal Bani  
Deputy Technical Manager

Pooja Kulkarni  
Technical Manager

Dr. (Mrs.) S.D. Garway  
Quality Manager

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### Test Report

Test Report No. : ALPL/301/2023/1-39

dated 30/11/2023

Page 1 of 1

Issued To : M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	ALPL/22112023/ENV-283-SW-12 & 13 22/11/2023 W.O.-4700098928/962 22.03.2022	Analysis Start Analysis End Report Issue Date Sample Category	23/11/2023 29/11/2023 30/11/2023 Water
Sample Name Surface Water	Sample Source Pond & River	Sample Particulars Sample Code-SW-12 & 13	Sample Condition Sealed & Ice Preserved	Quantity Received 2.0 Ltr & 250 ml each	
Sample Collected By Anacon Representative		Sampling Date 17/11/2023	Sampling Time 11.55 am to 4.25 pm	Sampling Location 1. BAITARANI RIVER(KANDARA VILLAGE)-SW-12 2. SONA River Near Mahanadi Guest House -SW-13	

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-12	SW-13
I	Biological Testing - I. Water					
1	Coliform	MPN/100ml	IS 1622 : 1988	5000	BDL(DL-2)	BDL(DL-2)
II	Chemical Testing - I. Water					
2	pH value	-	IS 3025 (Part 11) : 2022	6.0 to 9.0	7.92 at 25°C	8.16 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 2021	300	16	12
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) : 1989	4.0	6.4	6.2
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) : 2022	—	28	24
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) : 1993	3.0	2.71	2.61
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	—	8.16	7.93
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1500	1427	1381
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	1.3	0.06	0.03
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	600	57.19	46.21
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	400	101.82	97.36
12	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34) : 1988	50	17.32	16.84
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.38	0.27
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005)
15	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 1001	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex E	1.0	BDL(DL-0.01)	BDL(DL-0.01)
Chemical Testing - 2. Residues In Water						
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.37	0.41
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.1)	BDL(DL-0.1)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.05	BDL(DL-0.1)	BDL(DL-0.1)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.2	BDL(DL-0.05)	BDL(DL-0.05)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)	BDL(DL-0.1)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	15	BDL(DL-0.1)	BDL(DL-0.1)
23	Hexa Chromium (as Cr <sup>6+</sup> )	mg/l	IS 3025 (Part 2) : 2019	0.05	BDL(DL-0.1)	BDL(DL-0.1)
24	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	—	BDL(DL-0.01)	BDL(DL-0.01)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	—	BDL(DL-0.1)	BDL(DL-0.1)

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**REMARKS :** As requested by the client, sample was tested for above parameters only.

Verified By

Authorized Signatories

Nidhi Dubey  
Deputy Technical Manager

Snehal Raut  
Deputy Technical Manager

Pooja Kathare  
Technical Manager

Dr. (Mrs.) S.D. Garway  
Quality Manager

—End of Report—







# Anacon Laboratories

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## Test Report

Test Report No. : ALPL/30112023/1-40

dated 30/11/2023

Page 1 of 1

<b>Issued To :</b> M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		<b>Sample Inward No.</b> ALPL/22112023/ENV-283-SW-14	<b>Analysis Start</b> 23/11/2023
		<b>Inward Date</b> 22/11/2023	<b>Analysis End</b> 29/11/2023
		<b>Reference</b> W.O.- 4700098928/962	<b>Report Issue Date</b> 30/11/2023
		<b>Reference Date</b> 22.03.2022	<b>Sample Category</b> Water
<b>Sample Name</b> Surface Water	<b>Sample Source</b> River	<b>Sample Particulars</b> Sample Code-SW-14	<b>Sample Condition</b> Sealed & Ice Preserved
		<b>Quantity Received</b> 2.0 Ltr & 250 ml each	
<b>Sample Collected By</b> Anacon Representative		<b>Sampling Date</b> 17/11/2023	<b>Sampling Time</b> 11.55 am to 4.25 pm
		<b>Sampling Location</b> 14. BICHAKUNDI VEGETABLE GARDEN POND-SW-14	

## TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result SW-14
I	<b>Biological Testing - 1.Water</b>				
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)
II	<b>Chemical Testing - 1.Water</b>				
2	pH value	-	IS 3025 (Part 11) : 2022	6.0 to 9.0	8.26 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 2021	300	12
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) : 1989	4.0	6.2
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) : 2022	-	32
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) : 1993	3.0	2.64
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	-	8.19
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1500	1421
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	1.5	0.06
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	600	46.39
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	400	57.47
12	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34) : 1988	50	17.32
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.41
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)
15	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 1001	0.005	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)
	<b>Chemical Testing - 2. Residues In Water</b>				
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.3	0.42
18	Calcium (as Ca)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.1)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.05	BDL(DL-0.1)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.2	BDL(DL-0.05)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	15	BDL(DL-0.1)
23	Hexa Chromium (as Cr <sup>VI</sup> )	mg/l	IS 3025 (Part 3) : 2019	0.05	BDL(DL-0.1)
24	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	-	BDL(DL-0.01)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	-	BDL(DL-0.1)

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**REMARKS :** As requested by the client, sample was tested for above parameters only.

Verified By

Authorized Signatories

Nidhi Dubey  
Deputy Technical Manager

Snehal Raut  
Deputy Technical Manager

Pooja Kalthane  
Technical Manager

Dr. (Mrs.) S.D. Garway  
Quality Manager

—End of Report—

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## Test Report

Test Report No. : ALPL/31102023/1-20A

dated 31/10/2023

Page 1 of 3

Issued To : M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		Sample Inward No.	ALPL/23102023/ENV-261-1	Analysis Start	23/10/2023
		Inward Date	23/10/2023	Analysis End	30/10/2023
		Reference	W.O. - 4700098928/962	Report Issue Date	31/10/2023
		Reference Date	22.03.2022	Sample Category	Water
Sample Name Drinking Water	Sample Source Inlet Water	Sample Particulars Sample Code-DW-1	Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Collected By Anacon Representative		Sampling Date 18/10/2023	Sampling Time 10.15am to 3.40 pm	Sampling Location JWIMM WTP Inlet (bichakundi)	

## TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Biological Testing I. Water					
1	<i>Escherichia coli</i>	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	Chemical Testing I. Water					
2	Alkalinity (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 23) : 1986	200	600	72.9
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL – 0.01)
4	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL – 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	23.27
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	31.58
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL – 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	BDL (DL – 0.1)
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	5.92
11	Nitrate (as NO <sub>3</sub> )	mg/l	APHA method 23rd edition: 2017	45	No relaxation	BDL (DL-2)
12	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.73 at 25°C
14	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 2022	0.001	0.002	BDL (DL – 0.001)
15	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	200	400	9.26
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	308
18	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.3
19	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) : 2009	200	600	103.25

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut  
Deputy Technical Manager

Authorized Signatories

Pooja Kulkarni  
Technical Manager

Dr. (Mrs.) S.D. Garway  
Quality Manager







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## Test Report

Test Report No. : ALPL/31102023/1-20A

dated 31/10/2023

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Issued To : M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		Sample Inward No.	ALPL/23102023/ENV-261-1	Analysis Start	23/10/2023
		Inward Date	23/10/2023	Analysis End	30/10/2023
		Reference	W.O. - 4700098928/962	Report Issue Date	31/10/2023
		Reference Date	22.03.2022	Sample Category	Water
Sample Name Drinking Water	Sample Source Inlet Water	Sample Particulars Sample Code-DW-1	Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Collected By Anacon Representative		Sampling Date 18/10/2023	Sampling Time 10.15am to 3.40 pm	Sampling Location JWIMM WTP Inlet (bichakundi)	

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Chemical Testing 2. Residues In Water					
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL (DL - 0.01)
22	Barium (as Ba)	mg/l	IS 3025 (Part 2) : 2019	0.7	No relaxation	BDL (DL - 0.01)
23	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
24	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
25	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
26	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.13
27	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
28	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
29	Mercury (as Hg)	mg/l	IS 3025 (Part 48) : 1994	0.001	No relaxation	BDL (DL - 0.0005)
30	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL - 0.001)
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
32	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
33	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL (DL - 0.03)
34	Mineral Oil	mg/l	ANtr/7.2/RES/06: 2018	1	No relaxation	BDL (DL - 0.001)

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey  
Deputy Technical Manager

Swati Gondhalekar  
Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Garway  
Quality Manager



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## Test Report

Test Report No. : ALPL/31102023/1-20A

dated 31/10/2023

Page 3 of 3

Issued To : M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		Sample Inward No.	ALPL/23102023/ENV-261-1	Analysis Start	23/10/2023
		Inward Date	23/10/2023	Analysis End	30/10/2023
		Reference	W.O. - 4700098928/962	Report Issue Date	31/10/2023
		Reference Date	22.03.2022	Sample Category	Water
Sample Name Drinking Water	Sample Source Inlet Water	Sample Particulars Sample Code-DW-1	Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Collected By Anacon Representative		Sampling Date 18/10/2023	Sampling Time 10.15am to 3.40 pm	Sampling Location JWIMM WTP Inlet (bichakundi)	

## TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
35	Pesticide Residues Organochlorine					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'-DIT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'-DIT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Phoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	30	No relaxation	BDL (DL - 0.03)

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**REMARKS:** As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted only.

Verified By

*Swati*

Swati Gondhalekar  
Deputy Technical Manager

Authorized Signatory

*[Signature]*

Dr. (Mrs.) S.D. Garway  
Quality Manager

—End of Report—

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## Test Report

Test Report No. : ALPL/31102023/1-21A

dated 31/10/2023

Page 1 of 3

Issued To : M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		Sample Inward No.	ALPL/23102023/ENV-261-2	Analysis Start	23/10/2023
		Inward Date	23/10/2023	Analysis End	30/10/2023
		Reference	W.O.- 4700098928/962	Report Issue Date	31/10/2023
		Reference Date	22.03.2022	Sample Category	Water
Sample Name Drinking Water	Sample Source Outlet Water	Sample Particulars Sample Code-DW-2	Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Collected By Anacon Representative		Sampling Date 18/10/2023	Sampling Time 10.15am to 3.40 pm	Sampling Location JWIMM Outlet (bichakundi)	

## TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
I	Biological Testing 1. Water					
1	<i>Escherichia coli</i>	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II	Chemical Testing 1. Water					
2	Alkalinity (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 23) : 1986	200	600	42.19
3	Anionic surface active agents (as MBAS)	mg/l	IS 13428 : (Annex K): 2005	0.2	1.0	BDL (DL - 0.01)
4	Colour	Hazen units	IS 3025 (Part 4) : 2021	5	15	1
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	No relaxation	BDL (DL - 0.005)
6	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	250	1000	15.73
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) : 1991	75	200	21.46
8	Free residual chlorine	mg/l	IS 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL - 0.1)
9	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.0	1.5	BDL (DL - 0.1)
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46) : 1994	30	100	3.97
11	Nitrate (as NO <sub>3</sub> )	mg/l	APHA method 23rd edition: 2017	45	No relaxation	BDL (DL-2)
12	Odour	-	IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	6.87 at 25°C
14	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 2022	0.001	0.002	BDL (DL - 0.001)
15	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	200	400	5.19
16	Taste	-	IS 3025 (Part 8) : 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) : 1984	500	2000	291
18	Turbidity	NTU	IS 3025 (Part 10) : 1984	1	5	0.1
19	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21) : 2009	200	600	69.95

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut  
Deputy Technical Manager

Authorized Signatories

Pooja Kathale  
Technical Manager

Dr. (Mrs.) S.D. Garway  
Quality Manager







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## Test Report

Test Report No. : ALPL/31102023/1-2/A

dated 31/10/2023

Page 2 of 3

Issued To : M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		Sample Inward No. ALPL/23102023/ENV-261-2	Analysis Start 23/10/2023
		Inward Date 23/10/2023	Analysis End 30/10/2023
		Reference W.O.- 4700098928/962	Report Issue Date 31/10/2023
		Reference Date 22.03.2022	Sample Category Water
Sample Name Drinking Water	Sample Source Outlet Water	Sample Particulars Sample Code-DW-2	Sample Condition Sealed & Ice Preserved
Sample Collected By Anacon Representative		Sampling Date 18/10/2023	Sampling Time 10.15am to 3.40 pm
		Quantity Received 5.0 Ltr & 250 ml	
		Sampling Location JWMM Outlet (bichakundi)	

### TEST RESULTS

TEST RESULTS						
S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
II	Chemical Testing 2. Residues In Water					
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.01	No relaxation	BDL (DL - 0.01)
21	Aluminium (as Al)	mg/l	IS 3025 (Part 2) : 2019	0.03	0.2	BDL (DL - 0.01)
22	Barium (as Ba)	mg/l	IS 3025 (Part 2) : 2019	0.7	No relaxation	BDL (DL - 0.01)
23	Boron (as B)	mg/l	IS 3025 (Part 2) : 2019	0.5	2.4	BDL (DL - 0.1)
24	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	0.05	1.5	BDL (DL - 0.03)
25	Cadmium (as Cd)	mg/l	IS 3025 (Part 2) : 2019	0.003	No relaxation	BDL (DL - 0.001)
26	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	1.0	No relaxation	0.06
27	Lead (as Pb)	mg/l	IS 3025 (Part 2) : 2019	0.01	No relaxation	BDL (DL - 0.001)
28	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	0.1	0.3	BDL (DL - 0.05)
29	Mercury (as Hg)	mg/l	IS 3025 (Part 48) : 1994	0.001	No relaxation	BDL (DL - 0.0005)
30	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.01	No relaxation	BDL (DL - 0.001)
31	Total Chromium (as Cr)	mg/l	IS 3025 (Part 2) : 2019	0.05	No relaxation	BDL (DL - 0.03)
32	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	5	15	BDL (DL - 0.1)
33	Polynuclear aromatic hydrocarbon (PAH)	µg/l	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL (DL - 0.03)
34	Mineral Oil	mg/l	ANtr/7.2/RES/06: 2018	1	No relaxation	BDL (DL - 0.001)

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey  
Deputy Technical Manager

Swati Gondhalekar  
Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S.D. Garway  
Quality Manager



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## Test Report

Test Report No. : ALPL/31102023/1-2/A

dated 31/10/2023

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Issued To : M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		Sample Inward No.	ALPL/23102023/ENV-261-2	Analysis Start	23/10/2023
		Inward Date	23/10/2023	Analysis End	30/10/2023
		Reference	W.O. - 4700098928/962	Report Issue Date	31/10/2023
		Reference Date	22.03.2022	Sample Category	Water
Sample Name Drinking Water	Sample Source Outlet Water	Sample Particulars Sample Code-DW-2	Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Collected By Anacon Representative		Sampling Date 18/10/2023	Sampling Time 10.15am to 3.40 pm	Sampling Location JWIMM Outlet (bichakundi)	

## TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		Test Result
				Acceptable Limit	Permissible Limit #	
35	Pesticide Residues Organochlorine					
i	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 2018	0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
iv	Delta- HCH	µg/l	ANtr/7.2/RES/01: 2018	0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 2018	20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 2018	0.03	No relaxation	BDL (DL - 0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01: 2018	125	No relaxation	BDL (DL - 0.03)
ix	p,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
x	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xii	o,p'-DDD	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiii	o,p'-DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xiv	p,p'-DDT	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xv	Monocrotophos	µg/l	ANtr/7.2/RES/01: 2018	1	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 2018	2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 2018	0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 2018	190	No relaxation	BDL (DL - 0.03)
xx	Malaoxon	µg/l	ANtr/7.2/RES/01: 2018	-	-	BDL (DL - 0.03)
xxi	Ethion	µg/l	ANtr/7.2/RES/01: 2018	3	No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 2018	30	No relaxation	BDL (DL - 0.03)

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**REMARKS:** As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted only.

Verified By

*Swati*

Swati Gondhalekar  
Deputy Technical Manager

Authorized Signatory

*Stamp*

Dr. (Mrs.) S.D. Garway  
Quality Manager

—End of Report—



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# Anacon Laboratories

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## Test Report

Test Report No. : ALPL/30092023/1-26

dated 30/09/2023

Page 1 of 1

Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)	Sample Inward No.	ALPL/25092023/ENV-235-SW-1 & 2	Analysis Start	25/09/2023
	Inward Date	25/09/2023	Analysis End	30/09/2023
	Reference	W.O.- 4700098928/962	Report Issue Date	30/09/2023
	Reference Date	22.03.2022	Sample Category	Water
Sample Name Surface Water	Sample Source Sona River	Sample Particulars Sample Code-SW-1 & 2	Sample Condition Sealed & Ice Preserved	Quantity Received 2.0 Ltr & 250 ml each
Sample Collected By Anacon Representative	Sampling Date 21/09/2023	Sampling Time 12.40 pm to 4.35 pm	Sampling Location 1. Keth-hutting before H-quarry (Sona River)-SW-1 2. Keth-hutting after H-quarry (Sona River)- SW-2	

## TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2286:1992 Class C	Test Result	
					SW-1	SW-2
I	Biological Testing 1.Water					
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
II	Chemical Testing 1.Water					
2	pH value	-	IS 3025 (Part 11) : 2022	6.0 to 9.0	7.91 at 25°C	8.16 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 2021	300	32	26
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) : 1989	4.0	6.8	6.3
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) : 2022	—	42	38
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) : 1993	3.0	2.17	1.92
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	—	8.14	7.36
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1500	1461	1294
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	1.5	0.06	0.03
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	600	56.21	48.91
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	400	104.73	94.27
12	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34) : 1988	50	21.43	18.71
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.56	0.48
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005)
15	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 1001	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing 2. Residues in Water					
17	Iron (as Fe)	mg/l	IS 3025 (Part 21) : 2019	0.5	0.34	0.28
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.1)	BDL(DL-0.1)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.05	BDL(DL-0.1)	BDL(DL-0.1)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.2	BDL(DL-0.05)	BDL(DL-0.05)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)	BDL(DL-0.1)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	15	BDL(DL-0.1)	BDL(DL-0.1)
23	Hexa Chromium (as Cr <sup>VI</sup> )	mg/l	IS 3025 (Part 2) : 2019	0.05	BDL(DL-0.1)	BDL(DL-0.1)
24	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	—	BDL(DL-0.01)	BDL(DL-0.01)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	—	BDL(DL-0.1)	BDL(DL-0.1)

**NOTES:** ● Please see watermark "Original Test Report" to confirm the authenticity of this report. ● Results shall be referred to tested sample(s) and applicable to tested parameters only. ● Test report shall not be reproduced except in full without prior written approval of Anacon Labs. ● Liability of Anacon Labs is limited to invoiced amount only. ● Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. ● 'mg/l' is equivalent to 'ppm'. ● BDL: Below detection limit ● DL: Indicates detection limit of instrument/method and shall be considered as 'absent'

**REMARKS :** As requested by the client, sample was tested for above parameters only.

Verified By

Authorized Signatories

Nidhi Dubey  
Deputy Technical Manager

Snehal Raut  
Deputy Technical Manager

Pooja Kulkarni  
Technical Manager

Dr. (Mrs.) S.D. Garway  
Quality Manager

—End of Report—



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### Test Report

Test Report No. : ALPL/30092023/1-27

dated 30/09/2023

Page 1 of 1

<b>Issued To :</b> M/s Joda East Iron Mines (M/s TATA Steel Limited)		<b>Sample Inward No.</b> ALPL/25092023/ENV-235-SW-3 & 4	<b>Analysis Start</b> 25/09/2023
		<b>Inward Date</b> 25/09/2023	<b>Analysis End</b> 30/09/2023
		<b>Reference</b> W.O. - 47000/88928/962	<b>Report Issue Date</b> 30/09/2023
		<b>Reference Date</b> 22.03.2022	<b>Sample Category</b> Water
<b>Sample Name</b> Surface Water	<b>Sample Source</b> 1. Upstream 2. Downstream	<b>Sample Particulars</b> Sample Code-SW-3 & 4	<b>Quantity Received</b> 2.0 Ltr & 250 ml each
<b>Sample Collected By</b> Anacon Representative	<b>Sampling Date</b> 21/09/2023	<b>Sampling Time</b> 12.40 pm to 4.35 pm	<b>Sampling Location</b> 1. Pichlaghat upstream-SW-3 2. Pichlaghat downstream-SW-4

### TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-3	SW-4
<b>I. Biological Testing - 1. Water</b>						
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
<b>II. Chemical Testing - 1. Water</b>						
2	pH value	-	IS 3025 (Part 11) : 2022	6.0 to 9.0	7.92 at 25°C	7.64 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 2021	300	26	21
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) : 1989	4.0	6.4	5.8
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) : 2022	—	24	16
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) : 1993	3.0	2.71	2.64
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	—	7.57	6.91
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1500	1251	1164
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	1.5	0.06	0.03
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	600	62.81	57.26
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	400	116.59	103.82
12	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34) : 1988	50	21.27	18.43
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.56	0.41
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005)
15	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 1001	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	BDL(DL-0.01)
<b>Chemical Testing - 2. Residues in Water</b>						
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.43	0.38
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.1)	BDL(DL-0.1)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.05	BDL(DL-0.1)	BDL(DL-0.1)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.2	BDL(DL-0.05)	BDL(DL-0.05)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)	BDL(DL-0.1)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	15	BDL(DL-0.1)	BDL(DL-0.1)
23	Hexa Chromium (as Cr <sup>VI</sup> )	mg/l	IS 3025 (Part 2) : 2019	0.05	BDL(DL-0.1)	BDL(DL-0.1)
24	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	—	BDL(DL-0.01)	BDL(DL-0.01)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	—	BDL(DL-0.1)	BDL(DL-0.1)

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**REMARKS :** As requested by the client, sample was tested for above parameters only.

Verified By

Nidhi Dubey  
Deputy Technical Manager

Snehal Raut  
Deputy Technical Manager

Authorized Signatories

Pooja Kallane  
Technical Manager

Dr. (Mrs.) S.D. Garway  
Quality Manager

—End of Report—







# Anacon Laboratories

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## Test Report

Test Report No. : ALPL/30092023/1-28

dated 30/09/2023

Page 1 of 1

Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)	Sample Inward No.	ALPL/25092023/ENV-235-SW-5	Analysis Start	25/09/2023
	Inward Date	25/09/2023	Analysis End	30/09/2023
	Reference	W.O.- 4700098928/962	Report Issue Date	30/09/2023
	Reference Date	22.03.2022	Sample Category	Water
Sample Name Surface Water	Sample Source River	Sample Particulars Sample Code-SW-5	Sample Condition Sealed & Ice Preserved	Quantity Received 2.0 Ltr & 250 ml each
Sample Collected By Anacon Representative	Sampling Date 21/09/2023	Sampling Time 12.40 pm to 4.35 pm	Sampling Location 5. Guruboda Baitarani River-SW-5	

## TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result
					SW-5
I	Biological Testing 1.Water				
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)
II	Chemical Testing 1.Water				
2	pH value	-	IS 3025 (Part 11) : 2022	6.0 to 9.0	8.14 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 2021	300	32
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) : 1989	4.0	6.7
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) : 2022	-	42
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) : 1993	3.0	2.68
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	-	7.52
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1500	1281
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	1.5	0.06
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	600	52.81
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	400	132.58
12	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34) : 1988	50	21.54
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.28
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)
15	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 1001	0.005	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)
	Chemical Testing 2. Residues in Water				
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.41
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.1)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.05	BDL(DL-0.1)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.2	BDL(DL-0.05)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	15	BDL(DL-0.1)
23	Hexa Chromium (as Cr <sup>VI</sup> )	mg/l	IS 3025 (Part 2) : 2019	0.05	BDL(DL-0.1)
24	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	-	BDL(DL-0.01)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	-	BDL(DL-0.1)

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**REMARKS:** As requested by the client, sample was tested for above parameters only.

Verified By

Nidhi Dubey  
Deputy Technical Manager

Snehal Kaut  
Deputy Technical Manager

Authorized Signatories

Pooja Kathane  
Technical Manager

Dr. (Mrs.) S.D. Garway  
Quality Manager

—End of Report—

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## Test Report

Test Report No. : ALPL/30092023/1-29

dated 30/09/2023

Page 1 of 1

Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)	Sample Inward No.	ALPL/25092023/ENV-235-SW-6 & 7	Analysis Start	25/09/2023
	Inward Date	25/09/2023	Analysis End	30/09/2023
	Reference	W.O.- 4700098928/962	Report Issue Date	30/09/2023
	Reference Date	22.03.2022	Sample Category	Water
Sample Name Surface Water	Sample Source 1. Upstream 2. Downstream	Sample Particulars Sample Code-SW-6 & 7	Sample Condition Sealed & Ice Preserved	Quantity Received 2.0 Lit & 250 ml each
Sample Collected By Anacon Representative	Sampling Date 21/09/2023	Sampling Time 12.40 pm to 4.35 pm	Sampling Location 1. Tindharia Upstream (Baitarani River)-SW-6 2. Tindharia Downstream (Baitarani River)-SW-7	

## TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-6	SW-7
I	Biological Testing: 1.Water					
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
II	Chemical Testing: 1.Water					
2	pH value	-	IS 3025 (Part 11) : 2022	6.0 to 9.0	7.87 at 25°C	7.91 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 2021	300	16	12
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) : 1989	4.0	6.4	5.7
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) : 2022	—	32	28
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) : 1993	3.0	2.59	2.47
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	—	9.16	7.68
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1500	1452	1156
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	1.5	0.06	0.04
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	600	52.81	48.36
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	400	102.76	97.18
12	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34) : 1988	50	17.24	16.43
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.56	0.51
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005)
15	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 1001	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing: 2. Residues In Water					
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.42	0.38
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.1)	BDL(DL-0.1)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.05	BDL(DL-0.1)	BDL(DL-0.1)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.2	BDL(DL-0.05)	BDL(DL-0.05)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)	BDL(DL-0.1)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	15	BDL(DL-0.1)	BDL(DL-0.1)
23	Hexa Chromium (as Cr <sup>VI</sup> )	mg/l	IS 3025 (Part 2) : 2019	0.05	BDL(DL-0.1)	BDL(DL-0.1)
24	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	—	BDL(DL-0.01)	BDL(DL-0.01)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	—	BDL(DL-0.1)	BDL(DL-0.1)

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**REMARKS :** As requested by the client, sample was tested for above parameters only.

Verified By

Authorized Signatories

Nidhi Dubey  
Deputy Technical Manager

Snehal Raut  
Deputy Technical Manager

Pooja Kuthenc  
Technical Manager

Dr. (Mrs.) S.D. Garway  
Quality Manager

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## Test Report

Test Report No. : ALPL/30092023/1-30

dated 30/09/2023

Page 1 of 1

Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)	Sample Inward No.	ALPL/25092023/ENV-235-SW-8 & 9	Analysis Start	25/09/2023
	Inward Date	25/09/2023	Analysis End	30/09/2023
	Reference	W.O. - 4700098928/962	Report Issue Date	30/09/2023
	Reference Date	22.03.2022	Sample Category	Water
Sample Name Surface Water	Sample Source Pond	Sample Particulars Sample Code-SW-8 & 9	Sample Condition Sealed & Ice Preserved	Quantity Received 2.0 Ltr & 250 ml each
Sample Collected By Anacon Representative	Sampling Date 21/09/2023	Sampling Time 12.40 pm to 4.35 pm	Sampling Location 1. Pond In Palasa(Kha) Village-SW-8 2. Jalshari Nala(JI/RUDI)-SW-9	

## TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-8	SW-9
I	Biological Testing - 1.Water					
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
II	Chemical Testing - 1.Water					
2	pH value	-	IS 3025 (Part 11) : 2022	6.0 to 9.0	7.16 at 25°C	6.81 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 2021	300	12	8
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) : 1989	4.0	6.7	6.4
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) : 2022	—	43	38
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) : 1993	3.0	2.64	2.52
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	—	8.16	7.91
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1500	1471	1389
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	1.5	0.04	0.03
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	600	113.52	109.52
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	400	64.27	56.39
12	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34) : 1988	50	21.54	18.72
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.46	0.38
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005)
15	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 1001	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing - 2. Residues In Water					
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.41	0.38
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.1)	BDL(DL-0.1)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.05	BDL(DL-0.1)	BDL(DL-0.1)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.2	BDL(DL-0.05)	BDL(DL-0.05)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)	BDL(DL-0.1)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	15	BDL(DL-0.1)	BDL(DL-0.1)
23	Hexa Chromium (as Cr <sup>VI</sup> )	mg/l	IS 3025 (Part 2) : 2019	0.05	BDL(DL-0.1)	BDL(DL-0.1)
24	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	—	BDL(DL-0.01)	BDL(DL-0.01)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	—	BDL(DL-0.1)	BDL(DL-0.1)

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Verified By

Authorized Signatories

Nidhi Dubey  
Deputy Technical Manager

Snehal Raut  
Deputy Technical Manager

Pooja Kadam  
Technical Manager

Dr. (Mrs.) S.D. Garway  
Quality Manager

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## Test Report

Test Report No. : ALPL/30092023/1-31

dated 30/09/2023

Page 1 of 1

Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)	Sample Inward No.	ALPL/25092023/ENV-235-SW-10 & 11	Analysis Start	25/09/2023
	Inward Date	25/09/2023	Analysis End	30/09/2023
	Reference	W.O.- 4700098928/962	Report Issue Date	30/09/2023
	Reference Date	22.03.2022	Sample Category	Water
Sample Name Surface Water	Sample Source Pond & River	Sample Particulars Sample Code-SW-10 & 11	Sample Condition Sealed & Ice Preserved	Quantity Received 2.0 Ltr & 250 ml each
Sample Collected By Anacon Representative	Sampling Date 21/09/2023	Sampling Time 12.40 pm to 4.35 pm	Sampling Location 1. Pond near 51 highschool, Bhuyan Roida-SW-10 2. SONA RIVER (KANDRA VILLAGE) BEFORE CONFLUENCE WITH BAITARANI RIVER-SW-11	

## TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result	
					SW-10	SW-11
I	Biological Testing - 1.Water					
1	Coliform	MPN/100ml	IS 1623 : 1988	5000	BDL(DL-2)	BDL(DL-2)
II	Chemical Testing - 1.Water					
2	pH value	-	IS 3025 (Part 11) : 2002	6.8 to 8.0	6.94 at 25°C	6.81 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 2021	300	26	21
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) : 1989	4.0	6.7	6.4
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) : 2022	-	38	26
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) : 1993	3.0	9.17	8.47
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	-	3.21	2.94
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1500	1452	1391
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	1.5	0.06	0.03
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	600	82.76	76.92
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	400	101.52	94.26
12	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34) : 1988	50	21.46	18.43
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.71	0.64
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005)
15	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 1001	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing - 2. Residues In Water					
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.42	0.37
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.1)	BDL(DL-0.1)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.05	BDL(DL-0.1)	BDL(DL-0.1)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.2	BDL(DL-0.05)	BDL(DL-0.05)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)	BDL(DL-0.1)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	15	BDL(DL-0.1)	BDL(DL-0.1)
23	Hexa Chromium (as Cr <sup>6+</sup> )	mg/l	IS 3025 (Part 2) : 2019	0.05	BDL(DL-0.1)	BDL(DL-0.1)
24	Mercury (as Hg)	mg/l	IS 3025 (Part 48) : 1994	-	BDL(DL-0.01)	BDL(DL-0.01)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	-	BDL(DL-0.1)	BDL(DL-0.1)

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## Test Report

Test Report No. : ALPL/30092023/1-32

dated 30/09/2023

Page 1 of 1

Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)	Sample Inward No.	ALPL/25092023/ENV-235-SW-12 & 13	Analysis Start	25/09/2023
	Inward Date	25/09/2023	Analysis End	30/09/2023
	Reference	W.O. - 4700098928/962	Report Issue Date	30/09/2023
	Reference Date	22.03.2022	Sample Category	Water
Sample Name Surface Water	Sample Source Pond & River	Sample Particulars Sample Code-SW-12 & 13	Sample Condition Sealed & Ice Preserved	Quantity Received 2.0 Ltr & 250 ml each
Sample Collected By Anacon Representative	Sampling Date 21/09/2023	Sampling Time 12.40 pm to 4.35 pm	Sampling Location 1. BAITARANI RIVER(KANDARA VILLAGE)-SW-12 2. SONA River Near Mahanadi Guest House -SW-13	

## TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 1296:1992 Class C	Test Result	
					SW-12	SW-13
I	Biological Testing - 1.Water					
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
II	Chemical Testing - 1.Water					
2	pH value	-	IS 3025 (Part 11) : 2022	6.0 to 9.0	7.91 at 25°C	8.12
3	Colour	Hazen units	IS 3025 (Part 4) : 2021	300	16	12
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) : 1989	4.0	6.7	6.4
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) : 2022	-	42	38
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) : 1993	3.0	2.71	2.68
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	-	8.19	6.92
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1500	1481	1387
9	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	1.5	0.06	0.04
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	600	92.81	84.26
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	400	101.73	94.81
12	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34) : 1988	50	17.32	16.44
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.53	0.48
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)	BDL(DL-0.005)
15	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 1001	0.005	BDL(DL-0.001)	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)	BDL(DL-0.01)
	Chemical Testing - 2. Residues In Water					
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.42	0.38
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.1)	BDL(DL-0.1)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.05	BDL(DL-0.1)	BDL(DL-0.1)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.2	BDL(DL-0.05)	BDL(DL-0.05)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)	BDL(DL-0.1)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	15	BDL(DL-0.1)	BDL(DL-0.1)
23	Hexa Chromium (as Cr <sup>VI</sup> )	mg/l	IS 3025 (Part 2) : 2019	0.05	BDL(DL-0.1)	BDL(DL-0.1)
24	Mercury (as Hg)	mg/l	IS : 3025 (Part 48) : 1994	-	BDL(DL-0.01)	BDL(DL-0.01)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	-	BDL(DL-0.1)	BDL(DL-0.1)

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## Test Report

Test Report No. : ALPL/30092023/1-33

dated 30/09/2023

Page 1 of 1

Issued To : M/s Joda East Iron Mines (M/s TATA Steel Limited)	Sample Inward No.	ALPL/25092023/ENV-235-SW-14	Analysis Start	25/09/2023
	Inward Date	25/09/2023	Analysis End	30/09/2023
	Reference	W.O. - 4700098928/962	Report Issue Date	30/09/2023
	Reference Date	22.03.2022	Sample Category	Water
Sample Name Surface Water	Sample Source River	Sample Particulars Sample Code-SW-14	Sample Condition Sealed & Ice Preserved	Quantity Received 2.0 Ltr & 250 ml each
Sample Collected By Anacon Representative	Sampling Date 21/09/2023	Sampling Time 12:40 pm to 4:35 pm	Sampling Location 14, BICHAKUNDI VEGETABLE GARDEN POND-SW-14	

## TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Standards as per IS 2296:1992 Class C	Test Result
					SW-14
I	Biological Testing I.Water				
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)
II	Chemical Testing I.Water				
2	pH value	-	IS 3025 (Part 11) : 2022	6.0 to 9.0	7.93 at 25°C
3	Colour	Hazen units	IS 3025 (Part 4) : 2021	300	26
4	Dissolved Oxygen	mg/l	IS 3025 (Part 38) : 1989	4.0	6.3
5	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) : 2022	-	32
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) : 1993	3.0	2.81
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) : 2006	-	8.16
8	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16) : 1984	1500	1387
9	Copper (as Cu)	mg/l	IS 3025 (Part 21) : 2019	1.5	0.04
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) : 1988	600	51.73
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	400	64.29
12	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34) : 1988	50	12.81
13	Fluoride (as F)	mg/l	IS 3025 (Part 60) : 2008	1.5	0.36
14	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)
15	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43) : 1001	0.005	BDL(DL-0.001)
16	Anionic Detergent	mg/l	IS 13428 : 2005 Annex K	1.0	BDL(DL-0.01)
	Chemical Testing 2. Residues In Water				
17	Iron (as Fe)	mg/l	IS 3025 (Part 2) : 2019	0.5	0.37
18	Cadmium (as Cd)	mg/l	IS 3025 (Part 41) : 1992	0.01	BDL(DL-0.1)
19	Selenium (as Se)	mg/l	IS 3025 (Part 56) : 2003	0.05	BDL(DL-0.1)
20	Arsenic (as As)	mg/l	IS 3025 (Part 37) : 2022	0.2	BDL(DL-0.05)
21	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)
22	Zinc (as Zn)	mg/l	IS 3025 (Part 2) : 2019	15	BDL(DL-0.1)
23	Hexa Chromium (as Cr <sup>VI</sup> )	mg/l	IS 3025 (Part 2) : 2019	0.05	BDL(DL-0.1)
24	Mercury (as Hg)	mg/l	IS 3025 (Part 48) : 1994	-	BDL(DL-0.01)
25	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	-	BDL(DL-0.1)

**NOTES:** • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs. • Liability of Anacon Labs is limited to invoiced amount only. • Non-perishable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. • 'mg/l' is equivalent to 'ppm'. • BDL- Below detection limit • DL- Indicates detection limit of instrument/method and shall be considered as "absent".

**REMARKS:** As requested by the client, sample was tested for above contaminants only.

Verified By

Authorized Signatories

Nidhi Dubey  
Deputy Technical Manager

Snehal Raut  
Deputy Technical Manager

Pooja Kathane  
Technical Manager

Dr. (Mrs.) S.D. Garway  
Quality Manager

-----End of Report-----

Thank you for instilling your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavor towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on [feedback@anacon.in](mailto:feedback@anacon.in).







BY REGD. POST WITH AD

# STATE POLLUTION CONTROL BOARD, ODISHA

[DEPARTMENT OF FOREST, ENVIRONMENT & CLIMATE CHANGE, GOVERNMENT OF ODISHA]  
A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012

Phone-2561909, Fax: 2562822, 2560955 E-mail: [paribesh1@ospcboard.org](mailto:paribesh1@ospcboard.org), Website: [www.ospcboard.org](http://www.ospcboard.org)

## CONSENT ORDER

No. 4234 /

IND-I-CON- 186

Dt. 17.03.2022 /

CONSENT ORDER NO. 67

Sub : Consent for discharge of sewage and trade effluent under section 25/26 of Water (PCP) Act, 1974 and for existing / new operation of the plant under section 21 of Air (PCP) Act, 1981.

Ref: Your online application No.3236687, Dated 02.12.2020 and your letter No.MGM/P&E/305/21 Dated 31-12-2021.

Consent to operate is hereby granted under section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act, 1981 and rules framed thereunder to

Name of the Industry: JODA WEST MANGANESE MINES OF M/S. TATA STEEL LTD.

Name of the Occupier & Designation: SRI AWNISH KUMAR, CHIEF AND AGENT

Address: AT/PO: BICHHAKUNDI, VIA: JODA, DIST: KEONJHAR, PIN:758034

This consent order is valid for the period up to **31/03/2026.**

*This consent order supersedes the earlier consent order issued vide letter No. 5334, dated 27.03.2021.*

### Details of Products Manufactured

Sl. No	Product	Quantity
01.	Manganese Ore	0.18 MTPA

### Details of Mineral Handling Plants /Units

01 Operation of stationery screening plant 1X70 TPH

This consent order is valid for the specified outlets, discharge quantity and quality, specified chimney/stack, emission quantity and quality of emissions as specified below. This consent is granted subject to the general and special conditions stipulated therein.





**A. Discharge permitted through the following outlet subject to the standard**

Out let No.	Description of outlet	Point of discharge	Quantity of discharge KL/hr	Pre-scribed Standard			
				pH	TSS (mg/l)	Oil & Grease (mg/l)	BOD (mg/l)
01	Septic tank (Domestic effluent)	Soak pit	-	5.5-9.0	200	--	100
02	Mine drainage water/ surface runoff/other wastewater	On land / inland surface water body.	19634 (Monsoon period)	5.5-9.0	100 (Rainy day)	10	-
					50(Non-Rainy day)		

**B. Emission permitted through the following stack subject to the prescribed standard**

Chimney Stack No.	Description of Stack	Stack height (m)	Quantity of emission	Prescribed Standard			
				PM (mg/Nm <sup>3</sup> )	SO <sub>2</sub>	NO <sub>x</sub>	
					--	--	

**C. Disposal of solid waste permitted in the following manner**

Sl. No.	Type of Solid waste	Quantity generated (TPD)	Quantity to be reused on site(TPD)	Quantity to be reused off site(TPD)	Quantity disposed off (TPD)	Description of disposal site.
01	Top soil & over burden	As per approved mining plan	--	--	--	As per approved mining plan





**D. GENERAL CONDITIONS FOR ALL UNITS**

1. The consent is given by the Board in consideration of the particulars given in the application. Any change or alternation or deviation made in actual practice from the particulars furnished in the application will also be the ground liable for review/variation/revocation of the consent order under section 27 of the Act of Water (Prevention & Control of Pollution) Act, 1974 and section 21 of Air (Prevention & Control of Pollution) Act, 1981 and to make such variations as deemed fit for the purpose of the Acts.
2. The industry would immediately submit revised application for consent to operate to this Board in the event of any change in the quantity and quality of raw material / and products / manufacturing process or quantity /quality of the effluent rate of emission / air pollution control equipment / system etc.
3. The applicant shall not change or alter either the quality or quantity or the rate of discharge or temperature or the route of discharge without the previous written permission of the Board.
4. The application shall comply with and carry out the directives/orders issued by the Board in this consent order and at all subsequent times without any negligence on his part.. In case of non-compliance of any order/directives issued at any time and/or violation of the terms and conditions of this consent order, the applicant shall be liable for legal action as per the provisions of the Law/Act.
5. The applicant shall make an application for grant of fresh consent at least 90 days before the date of expiry of this consent order.
6. The issuance of this consent does not convey any property right in either real or personal property or any exclusive privileges nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Central, State laws or regulation.
7. This consent does not authorize or approve the construction of any physical structure or facilities or the undertaking of any work in any natural water course.
8. The applicant shall display this consent granted to him in a prominent place for perusal of the public and inspecting officers of this Board.
9. An inspection book shall be opened and made available to Board's Officers during the visit to the factory.
10. The applicant shall furnish to the visiting officer of the Board any information regarding the construction, installation or operation of the plant or of effluent treatment system / air pollution control system / stack monitoring system any other particulars as may be pertinent to preventing and controlling pollution of Water / Air.
11. Meters must be affixed at the entrance of the water supply connection so that such meters are easily accessible for inspection and maintenance and for other purposes of the Act provided that the place where it is affixed shall in no case be at a point before which water has been tapped by the consumer for utilization for any purposes whatsoever.
12. Separate meters with necessary pipe-line for assessing the quantity of water used for each of the purposes mentioned below:
  - a) Industrial cooling, spraying in mine pits or boiler feed,
  - b) Domestic purpose
  - c) Process
13. The applicant shall display suitable caution board at the place where the effluent is entering into any water-body or any other place to be indicated by the Board, indicating therein that the area into which the effluents are being discharged is not fit for the domestic use/bathing.
14. Storm water shall not be allowed to mix with the trade and/or domestic effluent on the upstream of the terminal manholes where the flow measuring devices will be installed.
15. The applicant shall maintain good house-keeping both within the factory and the premises. All pipes, valves, sewers and drains shall be leak-proof. Floor washing shall be admitted into the effluent collection system only and shall not be allowed to find their way in storm drains or open areas.
16. The applicant shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems install or used by him to achieve with the term(s) and conditions of the consent.
17. Care should be taken to keep the anaerobic lagoons, if any, biologically active and not utilized as mere stagnation ponds. The anaerobic lagoons should be fed with the required nutrients for effective digestion. Lagoons should be constructed with sides and bottom made impervious.
18. The utilization of treated effluent on factory's own land, if any, should be completed and there should be no possibility of the effluent gaining access into any drainage channel or other water courses either directly or by overflow.
19. The effluent disposal on land, if any, should be done without creating any nuisance to the surroundings or inundation of the lands at any time.
20. If at any time the disposal of treated effluent on land becomes incomplete or unsatisfactory or create any problem or becomes a matter of dispute, the industry must adopt alternate satisfactory treatment and disposal measures.
21. The sludge from treatment units shall be dried in sludge drying beds and the drained liquid shall be taken to equalization tank.
22. The effluent treatment units and disposal measures shall become operative at the time of commencement of production.
23. The applicant shall provide port holes for sampling the emissions and access platform for carrying out stack sampling and provide electrical outlet points and other arrangements for chimneys/stacks and other sources of emissions so as to collect samples of emission by the Board or the applicant at any time in accordance with the provision of the Act or Rules made therein.
24. The applicant shall provide all facilities and render required assistance to the Board staff for collection of samples / stack monitoring / inspection.





## CONSENT ORDER

JODA WEST MANGANESE MINES OF M/S. TATA STEEL LIMITED

25. The applicant shall not change or alter either the quality or quantity or rate of emission or install, replace or alter the air pollution control equipment or change the raw material or manufacturing process resulting in any change in quality and/or quantity of emissions, without the previous written permission of the Board.
26. No control equipments or chimney shall be altered or replaced or as the case may be erected or re-erected except with the previous approval of the Board.
27. The liquid effluent arising out of the operation of the air pollution control equipment shall be treated in the manner and to ion of standards prescribed by the Board in accordance with the provisions of Water (Prevention and Control of Pollution) Act, 1974 (as amended).
28. The stack monitoring system employed by the applicant shall be opened for inspection to this Board at any time.
29. There shall not be any fugitive or episodal discharge from the premises.
30. In case of such episodal discharge/emissions the industry shall take immediate action to bring down the emission within the limits prescribed by the Board in conditions/stop the operation of the plant. Report of such accidental discharge /emission shall be brought to the notice of the Board within 24 hours of occurrence.
31. The applicant shall keep the premises of the industrial plant and air pollution control equipments clean and make all hoods, pipes, valves, stacks/chimneys leak proof. The air pollution control equipments, location, inspection chambers, sampling port holes shall be made easily accessible at all times.
32. Any upset condition in any of the plant/plants of the factory which is likely to result in increased effluent discharge/emission of air pollutants and / or result in violation of the standards mentioned above shall be reported to the Headquarters and Regional Office of the Board by fax / speed post within 24 hours of its occurrence.
33. The industry has to ensure that minimum three varieties of trees are planted at the density of not less than 1000 trees per acre. The trees may be planted along boundaries of the industries or industrial premises. This plantation is stipulated over and above the bulk plantation of trees in that area.
34. The solid waste such as sweeping, wastage packages, empty containers residues, sludge including that from air pollution control equipments collected within the premises of the industrial plants shall be disposed off scientifically to the satisfaction of the Board, so as no to cause fugitive emission, dust problems through leaching etc., of any kind.
35. All solid wastes arising in the premises shall be properly classified and disposed off to the satisfaction of the Board by :
  - i) Land fill in case of inert material, care being taken to ensure that the material does not give rise to leachate which may percolate into ground water or carried away with storm run-off.
  - ii) Controlled incineration, wherever possible in case of combustible organic material.
  - iii) Composting, in case of bio-degradable material.
36. Any toxic material shall be detoxicated if possible, otherwise be sealed in steel drums and buried in protected areas after obtaining approval of this Board in writing. The detoxication or sealing and burying shall be carried out in the presence of Board's authorized persons only. Letter of authorization shall be obtained for handling and disposal of hazardous wastes.
37. If due to any technological improvement or otherwise this Board is of opinion that all or any of the conditions referred to above requires variation (including the change of any control equipment either in whole or in part) this Board shall after giving the applicant an opportunity of being heard, vary all or any of such condition and thereupon the applicant shall be bound to comply with the conditions so varied.
38. The applicant, his/heirs/legal representatives or assignees shall have no claim whatsoever to the condition or renewal of this consent after the expiry period of this consent.
39. The Board reserves the right to review, impose additional conditions or condition, revoke change or alter the terms and conditions of this consent.
40. Notwithstanding anything contained in this conditional letter of consent, the Board hereby reserves to it the right and power under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 to review any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Act by the Board.
41. The conditions imposed as above shall continue to be in force until revoked under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 and section 21 A of Air (Prevention & Control of Pollution) Act, 1981.
42. In case the consent fee is revised upward during this period, the industry shall pay the differential fees to the Board (for the remaining years) to keep the consent order in force. If they fail to pay the amount within the period stipulated by the Board the consent order will be revoked without prior notice.
43. The Board reserves the right to revoke/refuse consent to operate at any time during period for which consent is granted in case any violation is observed and to modify/ stipulate additional conditions as deemed appropriate.





# CONSENT ORDER

JODA WEST MANGANESE MINES OF M/S. TATA STEEL LIMITED

Page 5 of 12

## GENERAL CONDITIONS FOR UNITS WITH INVESTMENT OF MORE THAN Rs 50 CRORES, AND 17 CATEGORIES OF HIGHLY POLLUTING INDUSTRIES (RED A).

1. The applicant shall analyse the emissions every month for the parameters indicated in TABLE B & C as mentioned in this order and shall furnish the report thereof to the Board by the 10<sup>th</sup> of the succeeding month.
2. The applicant shall provide and maintain at his own cost three ambient air quality monitoring stations for monitoring Suspended Particulate Matter, Sulphur Dioxide, Oxides of Nitrogen, Hydro-Carbon, Carbon-Monoxide and monitor the same once in a day/week/fortnight/month. The data collected shall be maintained in a register and a monthly extract be furnished to the Board.
3. The applicant shall provide and maintain at his own cost a meteorological station to collect the data on wind velocity, direction, temperature, humidity, rainfall, etc. and the daily reading shall be recorded and the extract sent to the Board once in a month.
4. The applicant shall forward the following information to the Member Secretary, State Pollution Control Board, Odisha, Bhubaneswar regularly.
  - a. Report of analysis of stack monitoring, ambient air quality monitoring meteorological data as required every month.
  - b. Progress on planting of trees quarterly.
5. The applicant shall install mechanical composite sampling equipment and continuous flow measuring / recording devices on the effluent drains of trade as well as domestic effluent. A record of daily discharge shall be maintained.
6. The following information shall be forwarded to the Member Secretary on or before 10<sup>th</sup> of every month.
  - a. Performance / progress of the treatment plant.
  - b. Monthly statement of daily discharge of domestic and/or trade effluent.
7. Non-compliance with effluent limitations
  - a) If for any reason the applicant does not comply with or is unable to comply with any effluent limitations specified in this consent, the applicant shall immediately notify the consent issuing authority by telephone and provide the consent issuing authority with the following information in writing within 5 days of such notification.
    - i) Causes of non-compliance
    - ii) A description of the non-compliance discharge including its impact on the receiving waters.
    - iii) Anticipated time of continuance of non-compliance if expected to continue or if such condition has been corrected the duration or period of non-compliance.
    - iv) Steps taken by the applicant to reduce and eliminate the non-complying discharge and
    - v) Steps to be taken by the applicant too prevent the condition of non-compliance.
  - b) The applicant shall take all reasonable steps to minimize any adverse impact to natural waters resulting from non-compliance with any effluent limitation specified in this consent including such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge.
  - c) Nothing in this consent shall be construed to relieve the applicant from civil or criminal penalties for non-compliance whether or not such non-compliance is due to factors beyond his control, such as break-down, electric failure, accident or natural disaster.
8. The applicant shall at his own cost get the effluent samples collected both before and after treatment and get them analysed at an approval laboratory every month for the parameters indicated in Part-D and shall submit in duplicate the report thereof to the Board.
9. The addition of various treatment chemicals should be done only with mechanical dosers and proper equipment for regulation of correct dosages determined daily and for proper uniform feeding. Crude practices such as dumping of chemicals in drains or sumps or trickling of acids or alkalis arbitrarily and utilizing poles for stirring etc. should not be resorted to.
10. In the disposal of treated effluent on land for irrigation, the industry shall keep in view of the need for:
  - Rotation of crops
  - Change of point of application of effluent on land
  - A portion of land kept fallow.
11. The adoption of these would avoid soil becoming sick or slate, the industry may ensure this in consultation with the Agriculture Department.
12. It is the sole responsibility of the industry to ensure that there are no complaints at any time from the royats in the surrounding areas as a result of discharge of sewage or trade effluent if any.
13. Proper housekeeping shall be maintained by a dedicated team.
14. The industry must constitute a team of responsible and technically qualified personnel who will ensure continuous operation of all pollution control devices round the clock (including night hours) and should be in a position to explain the status of operation of the pollution control measures to the inspecting officers of the Board at any point of time. The name of these persons with their contact telephone numbers shall be intimated to the concerned. Regional Officer and Head Office of the Board and in case of any change in the team it shall be intimated to the Board immediately.





**E. SPECIAL CONDITIONS:**

- 1) This consent order is subject to compliance of orders of the Hon'ble Supreme Court of India in the matter of W. P. (Civil) 114/2014.
- 2) This consent order is subject to permission from MoEF & CC, Govt. of India and Steel and Mines Department, Government of Odisha for continuing of mining operation.
- 3) The validity of the Consent to Operate is subject to availability of valid mining scheme from IBM, Govt. of India.
- 4) Mining operation is subject to availability of all other statutory clearances.
- 5) Drills shall either be operated with dust extractors or equipped with water injection system to minimize dust generation in the work environment.
- 6) Controlled blasting shall be practiced to minimize generation of dust and fly rocks.
- 7) Regular water sprinkling shall be carried out in critical areas prone to air pollution such as around crushing and screening plant. Water sprinkling shall also be carried out on haul roads at frequent interval so that it should always remain in wet condition. Haulage roads shall be devoid of ruts and potholes and shall be maintained properly to avoid generation of dust during movement of vehicles.
- 8) Dust suppression measures preferably dry fog system shall be provided at all appropriate places of mineral handling plants (screening plant). Loading the unloading areas including all the transfer points shall also have efficient dust suppression arrangements (dry fog system). These shall be properly maintained and operated.
- 9) Mechanized wheel washing facility for the ore transport vehicles shall be provided at the exit point of the mine. The wheel washing facility shall be integrated with complete recirculation system.
- 10) The vehicles carrying ore for transportation from the mine shall be covered with tarpaulin (both bottom & top).
- 11) Regular water sprinkling on mineral transportation roads passing through the habitation area as well as other strategic point on the National Highway shall be done jointly by the mining lessees in consultation with the Regional Officer.
- 12) Four Ambient Air Quality Monitoring Stations shall be established in core zone and buffer zone for monitoring of ambient air quality and location of the stations shall be decided in consultation with the Regional Officer, State Pollution Control Board based on the metrological data, topographical features and environmentally and ecologically sensitive targets.
- 13) The monitoring of ambient air quality shall be carried out twice in a week (24 hourly) at a particular site and the consolidated data shall be submitted to the State Pollution Control Board, once in a year.
- 14) The ambient air quality shall remain within prescribed national ambient air quality standards.
- 15) The top soil generated shall be stored at earmarked site (s) only and stabilized with plantation or shall be used for land reclamation and plantation.





## CONSENT ORDER

JODA WEST MANGANESE MINES OF M/S. TATA STEEL LIMITED

Page 7 of 12

- 16) The over burden generated during the course of mining shall be stacked at earmarked dump site (s) and stabilized with plantation or used for reclamation of excavated land followed by plantation.
- 17) The project proponent shall ensure that no natural watercourse and / or water resources are obstructed due to any mining operations.
- 18) Check dams and check weirs shall be constructed at appropriate places of the mine lease area to prevent direct flow of runoff to nearby water bodies. The surface runoff water from the existing runoff management system shall meet the prescribed standards as stated in Part A (SI No. 2) of the consent order.
- 19) Retention wall shall be constructed at the toe of topsoil dump and OB dump. Garland drain shall be constructed around topsoil dumps, over burden dumps and mineral stack yards terminating at settling pit to prevent direct disposal of runoff to nearby water bodies.
- 20) Garland drain and sedimentation pit shall be de-silted after monsoon or as and when required. The runoff discharge quality from runoff management system shall meet the prescribed standards as stated in Part A (SI No. 2) of the consent order.
- 21) Domestic effluents shall be treated in a sewage treatment plant (STP) and or shall be discharged to soak pit via septic tank constructed as BIS specification. The treated wastewater quality of STP shall remain within the following standards and shall be used for plantation:

pH	-	6.5 -9.0
TSS	-	<100 mg/l
BOD	-	30 mg/l
Fecal Coliform	-	<1000 MPN/100 ml.
- 22) ETP shall be operated at all time for workshop and wastewater generated during mining operation, if any. The quality of the treated wastewater shall conform to the prescribed standard as stated in Part A (SI No. 2) of the consent order.
- 23) Regular monitoring of water quality of upstream and downstream of surface water bodies existed if any within 5 Km shall be carried out once in every month and record shall be maintained and submitted to the State Pollution Control Board once in every year. Monitoring shall be carried out through MoEF& CC accredited laboratory.
- 24) Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells. The monitoring should be done four times a year in pre-monsoon (April/May), monsoon (August), post-monsoon (November) and winter (January) seasons. Data thus collected should be submitted to the Board quarterly.
- 25) The mine shall take necessary action for compliance with the air and water quality standards as stipulated in this order.
- 26) Adequate measures shall be taken for control of noise levels below the following limits.

(6.00 AM - 9.00 PM) - Leq 75 dB(A)

(9.00PM - 6.00 AM) - Leq 70 dB(A)






## CONSENT ORDER

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JODA WEST MANGANESE MINES OF M/S. TATA STEEL LIMITED

- 27) Ambient air quality monitoring data, noise monitoring data and water / wastewater quality monitoring data shall be electronically displayed at the entry point of the mine or at a suitable location of the mine.
- 28) Plantation of trees shall be undertaken in the colony/ township, over top soil dumps, OB dumps, along the side of haul road and in other areas of the mines not being utilized for mining activities. The mine shall take up avenue plantation and plantation in nearby village areas in consultation with DFO/Horticulture Department. The annual plantation details shall be submitted to the Board by 30<sup>th</sup> April every year.
- 29) A copy of the annual return (annual return submitted to IBM, Govt. of India/ Directorate of Mines, Govt. of Odisha) shall be submitted to this Board every year.
- 30) The environmental statement report for the financial year ending 31<sup>st</sup> March shall be submitted to the Board in Form -V on or before 30<sup>th</sup> September every year.

  
MEMBER SECRETARY

STATE POLLUTION CONTROL BOARD, ODISHA

TO,

SRI AWNISH KUMAR, CHIEF AND AGENT  
JODA WEST MANGANESE MINES OF  
M/S. TATA STEEL LIMITED,  
AT/PO: BICHHAKUNDI, VIA: JODA  
DIST: KEONJHAR, PIN-758034

Memo No. \_\_\_\_\_ /Dt. \_\_\_\_\_ /

Copy forwarded to :

- i) Regional Officer, State Pollution Control Board, Keonjhar
- ii) District Collector, Keonjhar
- iii) Director of Mines, Govt. of Odisha, Bhubaneswar
- iv) Director, Environment-cum-Special Secretary, F & E. Dept. Govt. of Odisha, Bhubaneswar.
- v) D.F.O, Keonjhar
- vi) Deputy Director of Mines, Joda
- vii) Addl. Chief Env. Engineer, (Hazardous Waste Management Cell)
- viii) Sr. Env. Scientist, Central Lab. SPCB, Bhubaneswar
- ix) Consent Register

  
CHIEF ENV. ENGINEER (M)  
STATE POLLUTION CONTROL BOARD, ODISHA





**GENERAL STANDARDS FOR DISCHARGE OF  
ENVIRONMENTAL POLLUTANTS**





**GENERAL STANDARDS FOR DISCHARGE OF  
ENVIRONMENTAL POLLUTANTS PART –A : EFFLUENTS**

Sl.No.	Parameters	Standards			
		Inland surface	Public sewers	Land for irrigation	Marine Costal Areas
		(a)	(b)	(c)	(d)
1.	Colour & odour	Colourless/Odourless as far as practicable	-----	See 6 of Annex-1	See 6 of Annex-1
2.	Suspended Solids (mg/l)	100	600	200	For process wastewater – 100 b. For cooling water effluent 10% above total suspended matter of influent.
3.	Particular size of SS	Shall pass 850	-----	-----	-----
5.	pH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
6.	Temperature	Shall not exceed 5°C above the receiving water temperature	-----	-----	Shall not exceed 5°C above the receiving water temperature
7.	Oil & Grease mg/l max.	10	20	10	20
8.	Total residual chlorine	1.0	----	-----	1.0
9.	Ammonical nitrogen (as N) mg/l max.	50	50	-----	50
10.	Total Kjeldahl nitrogen (as NH <sub>3</sub> ) mg/1 max.	100	----	-----	100
11.	Free ammonia (as NH <sub>3</sub> ) mg/1 max.	5.0	----	-----	5.0
12.	Biochemical Oxygen Demand (5 days at (20°C) mg/1 max.	30	350	100	100
13.	Chemical Oxygen Demand, mg/1 max.	250	----	-----	250
14.	Arsenic (as As) mg/1 max.	0.2	0.2	0.2	0.2
15.	Mercury (as Hg) mg/1 max.	0.01	0.01	-----	0.001
16.	Lead (as pb) mg/1 max.	01.	1.0	-----	2.0





## CONSENT ORDER

JODA WEST MANGANESE MINES OF M/S. TATA STEEL LIMITED

Page 11 of 12

17.	Cadmium (as Cd) mg/l max.	2.0	1.0	-----	2.0
18.	Hexavalent Chromium (as Cr + 6) mg/l max.	0.1	2.0	-----	1.0
19.	Total Chromium (as Cr) mg/l max.	2.0	2.0	-----	2.0
20.	Copper (as Cu) mg/l max.	3.0	3.0	-----	3.0
21.	Zinc (as Zn) mg/l max.	5.0	15	-----	15
22.	Selenium (as Se) mg/l max.	0.05	0.05	-----	0.05
23.	Nickel (as Ni) mg/l max.	3.0	3.0	-----	5.0
24.	Cyanide (as CN) mg/l max.	0.2	2.0	0.2	0.02
25.	Fluoride ( as F) mg/l max.	2.0	15	-----	15
26.	Dissolved Phosphates (as P) mg/l max.	5.0	-----	-----	-----
27.	Sulphide (as S) mg/l max.	2.0	-----	-----	5.0
28.	Phenolic compounds as (C <sub>6</sub> H <sub>5</sub> OH) mg/l max.	1.0	5.0	-----	5.0
29.	Radioactive materials a. Alpha emitter micro curie/ml. b. Beta emitter micro curie/ml.	10 <sup>7</sup> 10 <sup>6</sup>	10 <sup>7</sup> 10 <sup>6</sup>	10 <sup>8</sup> 10 <sup>7</sup>	10 <sup>7</sup> 10 <sup>6</sup>
30.	Bio-assay test	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent
31.	Manganese (as Mn)	2 mg/l	2 mg/l	-----	2 mg/l
32.	Iron (Fe)	3 mg/l	3 mg/l	-----	3 mg/l
33.	Vanadium (as V)	0.2 mg/l	0.2 mg/l	-----	0.2 mg/l
34.	Nitrate Nitrogen	10 mg/l	-----	-----	20 mg/l



## NATIONAL AMBIENT AIR QUALITY STANDARDS

Sl. No.	Pollutants	Time Weighed Average	Concentrate of Ambient Air		
			Industrial Residential, Rural and other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1.	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Annual * 24 Hours **	50 80	20 80	-Improved west and Gaeke - Ultraviolet fluorescence
2.	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Annual * 24 Hours **	40 80	30 80	- Modified Jacob & Hochheiser ( Na-Arsenite) - Chemiluminescence
3.	Particulate Matter (size less than 10µm) or PM <sub>10</sub> µg/m <sup>3</sup>	Annual * 24 Hours **	60 100	60 100	-Gravimetric - TOEM - Beta Attenuation
4.	Particulate Matter (size less than 2.5µm) or PM <sub>2.5</sub> µg/m <sup>3</sup>	Annual * 24 Hours **	40 60	40 60	-Gravimetric - TOEM - Beta Attenuation
5.	Ozone (O <sub>3</sub> ) µg/m <sup>3</sup>	8 Hours ** 1 Hours **	100 180	100 180	- UV Photometric - Chemiluminescence - Chemical Method
6.	Lead (Pb) µg/m <sup>3</sup>	Annual * 24 Hours **	0.50 1.0	0.50 1.0	-AAS/ICP method after sampling on EMP 2000 or equivalent filter paper. - ED-XRF using Teflon filter
7.	Carbon Monoxide (CO) mg/m <sup>3</sup>	8 Hours ** 1 Hours **	02 04	02 04	- Non Dispersive Infra Red (NDIR) Spectroscopy
8.	Ammonia (NH <sub>3</sub> ) µg/m <sup>3</sup>	Annual* 24 Hours**	100 400	100 400	-Chemiluminescence - Indophenol Blue Method
9.	Benzene (C <sub>6</sub> H <sub>6</sub> ) µg/m <sup>3</sup>	Annul *	05	05	-Gas Chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10.	Benzo (a) Pyrene (BaP)-Particulate phase only, ng/m <sup>3</sup>	Annual*	01	01	-Solvent extraction followed by HPLC/GC analysis
11.	Arsenic (As), ng/m <sup>3</sup>	Annual*	06	06	-AAS/ICP method after sampling on EPM 2000 or equivalent filter paper
12.	Nickel (Ni),ng/m <sup>3</sup>	Annual*	20	20	-AAS/ICP method after sampling on EPM 2000 or equivalent filter paper

\* Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

\*\* 24 hourly or 08 hourly or 01 hourly monitored values, as applicable, shall be complied with 98% of the time in a year, 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.



OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS (WILDLIFE)  
& CHIEF WILDLIFE WARDEN, ODISHA, BDA APARTMENT, 5<sup>TH</sup> FLOOR,  
PRAKRUTI BHAWAN, NILAKANTHA NAGAR, BHUBANESWAR-12  
Ph. No.0674-2564587, FAX No.0674-2565062  
(Website:odishawildlife.org, E. mail: odishawildlife@gmail.com)

Memo No. **7.726** /1 WL-SSP-93/2015 Dated, Bhubaneswar, the **31** Aug, 2015

To

The Principal Chief Conservator of Forests, Odisha,  
Bhubaneswar

**Sub: Approval of Site Specific Wildlife Conservation Plan in respect of Joda West Manganese Mines of TATA Steel Ltd. in Keonjhar Forest Division**

It is to inform you that M/s TATA Steel Ltd. has to implement a Site Specific Wildlife Conservation Plan for its Joda West Manganese mines in Keonjhar district in compliance to Specific Condition No.(xvi) stipulated in the Environment Clearance granted by Govt. of India, MoEF vide their letter No. J-11015/86/2004-IA.II(M) dated 13.9.2005.

2. The Site Specific Wildlife Conservation Plan in respect of the above project has been approved by the undersigned with financial forecast of **₹1130.08 lakh** (Rupees eleven crore thirty lakh eight thousand) only for the following activities.

a.	For activities to be implemented by the user agency in project area	₹150.60 lakh
b.	For activities to be implemented by DFO, Keonjhar Division in project impact area	₹979.48 lakh
<b>Grand Total:</b>		<b>₹1130.08 lakh</b>

3. Various activities in the lease hold area will be executed by the Project proponent under the guidance of the Divisional Forest Officer, Keonjhar Division. A sum of ₹979.48 lakh only may be deposited in the CAMPA fund meant for the purpose for implementation of various activities within the project impact area by the Forest Deptt. as envisaged in the plan.

4. The User Agency may be advised to note the following conditions for future compliance.

- This Plan may be revisited after 5 years and the User Agency will give undertaking to contribute towards the revised cost of the conservation plan till the project period, if any.

P.T.O.



- The project proponent has to prepare and submit the Conservation Plan for the next 10 years of their lease period (balance period for which forest land remains diverted) at least one year before the expiry of the present Conservation Plan and deposit the outlay amount upon its approval. In case of delay, it will be dealt as per law for violations of Forest Conservation Act, 1980 and Environment (Protection) Act, 1986.
- The project proponent has to give an undertaking to bear the differential cost in case of enhancement of wage rate during the time of implementation of this plan.

**Encl: 2 copies of approved  
site specific WL Conservation Plan**



**Principal Chief Conservator of Forests (WL)  
& Chief Wildlife Warden, Odisha**

Memo No. 7727 /date 31-08-2015

Copy forwarded for information and necessary action to –

1. Special Secretary to Govt. of Odisha, F&E Deptt., Bhubaneswar
2. Regional Chief Conservator of Forests, Rourkela Circle with reference to memo No.5699 dt 16.7.2015 of the DFO, Keonjhar Division
3. Divisional Forest Officer, Keonjhar Division with reference to his memo No.5698 dt 16.7.2015 alongwith a copy of the approved site specific wildlife conservation plan
- ✓ 4. The Head, M/s Joda West Manganese Mines (TATA Steel Ltd.), At/PO- Joda, Dist. – Keonjhar alongwith a copy of the approved site specific wildlife conservation plan



**Principal Chief Conservator of Forests (WL)  
& Chief Wildlife Warden, Odisha**



## AMBIENT AIR MONITORING REPORT



# Mitra S. K. Private Limited

## Address of Laboratory :

Building No. P-45, Udayan Industrial Estate,  
3, Pngladanga Road - Kolkata 700015  
West Bengal  
Tel. : +91 7044000120  
Email: udayanlab@mitrask.com



TC-0000

Lab No. MSK/ED/1507



Scan for Portal

URL: TC-89502400004819F

## Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

WPo. - Joda, Dist. - Keonjhar, Orissa - 756034 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample :

Date(s) of performance :

Location of performance of

Reference No. & Date :

Discipline :

MSKPL/ED/2023-24/R/15175

19/03/2024

MSK/NB/ED/2023-24/R3/SWJ5CF

07/03/2024

07/03/2024 - 15/03/2024

Permanent Facility

3000155017/035, Date - 15/03/2023

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	04/03/2024
5. Place of sampling	Near Gangajuda Po
6. Environmental conditions during sampling & Transport	1) Temperature: 16-27 deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain fall
7. Sampling Plan & Method used	Na & Com Chain Maintained
8. Identification of the personnel performing sampling by MSK	IS 5182(P-11, 12) & USEPA
9. Field Equipments Used	LALIN NAYAK
	MSK/BSU/FIELD/RDS-4

Report No. : MSKPL/ED/2023-24/R/15175

Sample No. : MSK/NB/ED/2023-24/R3/SWJ5CF

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL 1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL 4.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL 0.5)
4	Lead as (Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as (Mn)	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.13
6	Nickel as (Ni)	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL 5.0)

Opinion :

Limit as per CPCB notification. New limits taken from year 2020 for ambient air quality.

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name

Designation : Technical in Charge

Authorized Signatory

Signature

Name

Designation : Technical in Charge

No results were reported for the following parameters:

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No (received part of sample(s) for chemical analysis (RHS - previous sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report.

No (received part of sample(s) for chemical analysis (RHS - Nickel & Lead Water) shall be retained for 15 days as per CPCB guidelines, and 1 month from the date of issue of the Test Report.

No (received part of sample(s) for Microbiological analysis (RHS - previous sample(s) Food, Sewage Water, Swallow) shall be retained for 15 days from the date of issue of the Test Report.

Lead Office: Branch Office (Bh Road) 140, B.J.C. Road, Kailash, (Kolkata) West Bengal, India  
Tel. 91 33 40143000 / 22400007 Fax: 91 33 22800003  
Email: info@mitrask.com Website: www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Fata Steel Ltd. (MGM) Joda West

At Po. - Joda, Dist. - Boudh, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/005235

Date :

14/03/2024

Sample No. :

MSKGL/ED/2023-24/03/00140

Reference No. & Date :

909156017/056, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn. Mines (JWIMM)
4. Date of sampling	04/03/2024
5. Place of sampling	Near Gangajada Pk.
6. Environmental conditions (during sampling & transport)	Light Rain fall
7. Sampling (In & Method used)	NA

Report No. : MSKGL/ED/2023-24/005235

Sample No. : MSKGL/ED/2023-24/03/00140

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UDM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	12.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (C)	2 8HR	0.49
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 6) (C)	80 24 HR	21.8
4	Ozone (O <sub>3</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR	802 (DL-20/1)
5	Particulate Matter (<10µm)	micro g/m <sup>3</sup>	IS 5182 (Part 23) (C)	100 24 HR	173
6	Particulate Matter (<2.5µm)	micro g/m <sup>3</sup>	IS 5182 (Part 24) (C)	60 24 HR	85
7	Sulphur Dioxide (SO <sub>2</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 2) (C)	80 24 HR	7.8

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory









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## TEST REPORT

### Name & Address of Customer :

Tree Steel Ltd (MGM) Joda West

At Po. - Joda, Dist. - Karonhar, Odisha - 758034 India Pin

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKQLE/ED/2023-24/005235

14/03/2024

MSKQLE/ED/2023-24/00500138

3000158017/056, Ddm - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mtn. Mines (JWIMM)
4. Date of sampling	14/03/2024
5. Place of sampling	Near Railway Station
6. Environmental conditions during sampling & transport	Clear, Breezy
7. Sampling Plan & Method used	IS 5182

Report No. : MSKQLE/ED/2023-24/005235

Sample No. : MSKQLE/ED/2023-24/00500138

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	100 24 HR	11.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (D)	2 24 HR	0.61
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 6) (D)	80 24 HR	24.3
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	100 1 HR	BDL (DL 20.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (D)	100 24 HR	2.23
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) (D) (D)	60 24 HR	1.02
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 3) (D)	80 24 HR	7.3

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory

Head Office:

Director's Centre (B-1) Phase-1, 100, N.J.C. Road, P.O. Bahal - 758014, West Bengal, India.  
Tel : 03-25-4549881 / 2549880 Fax : 03-25-2549886  
Email : info@msk.co.in Website : www.msk.co.in

Page 1 of 1



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata-700015  
West Bengal  
Tel : +91 9044032120  
Email: udayanlab@mitrascl.com



TC-0900



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URL: TC-6950240000046171

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

ALPO, Joda, Dist - Keonjhar, Odisha - 758034, India

Report No. :

MSKPL/ED/2023-24/M1517S

Date :

19/03/2024

Sample No. :

MSKNB/ED/2023-24/03/CJ88BC

Date of receipt of sample:

07/03/2024

Date(s) of performance:

07/03/2024 - 18/03/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/066, Date : 16/03/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	NA
4. Date of sampling	04/03/2024
5. Place of sampling	Near H-Quarry Rest Shelter
6. Environmental conditions during sampling & Transport	1) Temperature: 10-27 deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS-5182P-11, 13 & USEPA
8. Identification of the personnel performing sampling by MSK	LALIN NAYAN
9. Field Equipments Used	MSK/BBL FIELD QDS-1

Report No. : MSKPL/ED/2023-24/M1517S

Sample No. : MSKNB/ED/2023-24/03/CJ88BC

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro g/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro g/m3	USEPA-IO 3.4, June	1 (24 hours)	BDL(DL:0.01)
5	Manganese as Mn	micro g/m3	USEPA-IO 3.4, June	Not Specified	0.12
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion :

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

Name:

Designation : Technical in Charge

Authorized Signatory:

Signature:

Name:

Designation:

Dr. Devdatta Dasgupta

Technician in Charge

This report is valid only for the tested sample.

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The retained part of sample for chemical analysis (then - polychlorinated biphenyls (PCBs), VOCs) shall be retained for 15 days from the date of issue of the Test Report. Polychlorinated biphenyls (PCBs) shall be retained for 2 days.

The retained part of sample for chemical analysis (then - polychlorinated biphenyls (PCBs), VOCs) shall be retained for 15 days from the date of issue of the Test Report.

The retained part of sample for chemical analysis (then - polychlorinated biphenyls (PCBs), VOCs) shall be retained for 15 days from the date of issue of the Test Report.

The retained part of sample for chemical analysis (then - polychlorinated biphenyls (PCBs), VOCs) shall be retained for 15 days from the date of issue of the Test Report.

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Tel : +91 9044032120 / 2660037 Fax : 91 33 2660038

Email: info@mitrascl.com Website: www.mitrascl.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel LM, (MGM), Joda West

AtPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/005223

Date :

14/03/2024

Sample No. :

MSKGL/ED/2023-24/0000136

Reference No. & Date :

90015631/058, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:-

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn Mine (JWIMM)
4. Date of sampling	04/03/2024
5. Place of sampling	Point H - Quarry West Choke
6. Environmental conditions during sampling & Transport	Light Rain fall
7. Sampling Plan & Method used	N/A

Report No. : MSKGL/ED/2023-24/005223

Sample No. : MSKGL/ED/2023-24/0000136

## RESULT

### Analysis Result of Ambient Air

Sr No.	Parameter	Units	Method	Limit	Result
1	Amonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	100 24 HR.	17.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (I)	2 24 HR.	0.39
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 6) (I)	30 24 HR.	21.2
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	100 1 1/HR.	BDL (DL-30.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (I)	100 24 HR.	193
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (I)	60 24 HR.	84
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (I)	80 24 HR.	8.6

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P-46, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700016  
West Bengal  
Tel : +91 794036120  
Email : udayanlab@mitrask.com



TC-2550



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URL: TC-695024000004816F

## Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West

APPO - Joda, Dist - Kanchinpur, Odisha - 755034 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample :

Date(s) of performance :

Location of performance of

Reference No. & Date :

Discipline :

MSKPL/ED/2023-24/71517M

19/03/2024

MSK/HS/ED/2023-24/03/3258AH

07/03/2024

07/03/2024 - 16/03/2024

Permanent Facility

3000166017/060, Date - 16/09/2023

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results.

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(s) if any	NA
4. Date of sampling	04/03/2024
5. Place of sampling	Near D-Quarry Screen
6. Environmental conditions during sampling & transport	1) Temperature: 16-27 deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain (fall) No & Direction Measured
7. Sampling Plan & Method used	IS 5182 (Part 11) & USEPA
8. Identification of the personnel performing sampling by MSK	LALIN NAYAK
9. Field Equipments Used	MSK/BSL/FIELD/PCS-II

Report No. : MSKPL/ED/2023-24/71517M

Sample No. : MSK/HS/ED/2023-24/03/3258AH

## RESULT

### Chemical

Sl No	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead as (Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hour)	BDL(DL:0.01)
5	Manganese as (Mn)	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.08
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Option :

Limit as per CPCB notification, New Delhi, 18th November 2009 for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature:   
Name: Dr. Devendra Banerjee  
Designation: Technician in Charge

Authorized Signatory:

Signature:   
Name: Dr. Devendra Banerjee  
Designation: Technician in Charge

This report is valid only for the sample(s) analyzed.

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The retention period of sample(s) for chemical analysis (MSK - packaged sample(s)) Food, Water shall be retained for 15 days from the date of issue of the Test Report. For chemical sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (BSL, Soil & Liquid/Water) shall be retained for 15 days as per CPCB guidelines & (MSK) - from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Food - packaged sample(s)) Food, Soaked Water, Soaked Root shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Branch: Gachibowli Floor, 140, A.J.C. Road, Nallakota - 700016, West Bengal, India

Tel: 31-23-4093000/3269007 Fax: 91-23-2300000

Email: info@mitrask.com Website: www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

AsPu, Joda, Dist - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/006234

Date :

14/03/2024

Sample No. :

MSKGL/ED/2023-24/0300137

Reference No. & Date :

3000166017/056, Date : 11/06/2023

We hereby certify that the following sample Taken by us has been analyzed with the following results:-

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn. Nipha (7/11MM)
4. Date of sampling	14/03/2024
5. Place of sampling	Near D-Quarry, Joda West
6. Environmental conditions during sampling & transport	Light Rainfall
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/006234

Sample No. : MSKGL/ED/2023-24/0300137

## RESULT

### Analysis Result of Ambient Air

Sl No	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 15)	400 24 HR	13.4
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (C)	2 8 HR	0.55
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 6) (D)	80 24 HR	20
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 8)	160 1 HR	BOL (DL-20/0)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (D)	190 24 HR	160
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) (D)	80 24 HR	91
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (C)	80 24 HR	8.8

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. K-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700010  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-8950



Scan for Portal

URL: TC-89502400004815F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West

As/To : Joda, Dist. - Keonjhar, Odisha - 756034 India

Report No. :

MSKPI/ED/2023-24/P1517M

Date :

19/03/2024

Sample No. :

MSKNB/ED/2023-24/03/2VC881

Date of receipt of sample :

07/03/2024

Date(s) of performance :

07/03/2024 - 16/03/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000158017/055 Date - 18/09/2023

Discipline :

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	NA
4. Date of sampling	04/03/2024
5. Place of sampling	Near D-Quarry Shifting Yard
6. Environmental conditions during sampling & transport	1) Temperature: 10-27 deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain fall: No & Cold Churn: Maintained
7. Sampling Plan & Method used	IS:5182(P-1, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	LALIN KAYAK
9. Field Equipments Used	MSK/BRL/FIELD/DE-2

Report No. : MSKPI/ED/2023-24/P1517M

Sample No. : MSKNB/ED/2023-24/03/2VC881

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro g/m3	IS 5182 (Part 11)	6 (Annual)	BDL(DL:4.3)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 13)	1 (Annual)	BDL(DL:0.5)
4	Lead as Pb	micro g/m3	USEPA-IO 3.4, June	1 (24 hours)	BDL(DL:0.01)
5	Manganese as Mn	micro g/m3	USEPA-IO 3.4, June	Not Specified	0.17
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Decision : Limit as per CPCB notification, New Delhi: 18th November 2009, for Ambient air quality

Statement of Conformity NA

END

Reviewed By:

Signature:   
Name: Dr. Devendra Banerjee  
Designation: Supervisor in Charge

Authorized Signatory

Signature:   
Name: Dr. Devendra Banerjee  
Designation: Supervisor in Charge

This results relate only to the sample(s) tested.

This Test Report shall not be reproduced, stored, or used, without the permission of Mitra S. K. Private Limited.

The retained part of sample(s) for chemical analysis (Air - particulate suspended) Food, Water shall be retained for 15 days from the date of issue of the Test Report. Retainable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Air - Lead & Lead Water) shall be retained for 15 days as per CPCB guidelines & (Air) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for microbiological analysis (Air - particulate non-viable) Food, Sewage Water, Borewell Water shall be retained for 15 days from the date of issue of the Test Report.

Head Office: 37/222/2 (Main Floor), 74/1 A.J.C. Road Road, Odessa - 700016, West Bengal, India  
Tel : 91 33 40140000 / 23800007 Fax : 91 33 23800008  
Email : info@mitrask.com Website : www.mitrask.com



Address of Branch :  
P.O. Barbil Dist. Keonjhar Odisha - 758035



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (JWM) Joda West

BarPa. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/001199

Date :

14/03/2024

Sample No. :

MSKGL/ED/2023-24/03/001136

Reference No. & Date :

3800156017/056 Date : 15/08/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn. Mines (JWMN)
4. Date of sampling	04/03/2024
5. Place of sampling	Under O-Quarry Setting Yard
6. Environmental conditions during sampling & Transport	Light Rain cell
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/001199

Sample No. : MSKGL/ED/2023-24/03/001136

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/d	IS 5182 (Part 25)	400 24 HR.	11.1
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (D)	2 8HR.	0.58
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/d	IS 5182 (Part 6) (D)	80 24 HR.	22.7
4	Ozone (O <sub>3</sub> )	micro gram/d	IS 5182 (Part 9)	180 1 HR.	806 (DL-20/d)
5	Particulate Matter (<10µm)	micro gram/d	IS 5182 (Part 21) (D)	180 24 HR.	187
6	Particulate Matter (<2.5µm)	micro gram/d	IS 5182 (Part 24) (D)	60 24 HR.	91
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/d	IS 5182 (Part 2) (D)	80 24 HR.	6.8

— END —

Report Verified By



For Mitra S. K. Private Limited

Authorised Signatory









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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MSM) Joda West

AirPo. - Joda. Dist. - Keonjhar, Odisha - 758004 India (IN)

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/005227

14/03/2024

MSKGL/ED/2023-24/000135

300156017/006, Date - 15/03/2023

We hereby certify that the following analysis carried by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn. Mines (JWMM)
4. Date of sampling	04/03/2024
5. Place of sampling	Near Tata Office
6. Environmental conditions during sampling & transport	Light Rain (all)
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/005227

Sample No. : MSKGL/ED/2023-24/000135

## RESULT

### Analysis Result of Ambient Air

Sr No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	14.4
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (D)	2 8HR.	0.57
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 5) (D)	80 24 HR.	19.9
4	Ozone (O <sub>3</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 9)	100 1 HR.	BDL (DL:20.9)
5	Particulate Matter (<10µm)	micro g/m <sup>3</sup>	IS 5182 (Part 23) (A)	100 24 HR.	200
6	Particulate Matter (<2.5µm)	micro g/m <sup>3</sup>	IS 5182 (Part 24) (A) (D)	60 24 HR.	90
7	Sulphur Dioxide (SO <sub>2</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 2) (D)	80 24 HR.	7.3

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory

Head Office:

Branch Office (for Proof): TSE, A.L.C., 99/90 Road, Cuttack - 753015, West Bengal, India.  
T. No. : 01 22 45 43 81 / 2255007 Fax : 01 22 2094054  
Email : msksk@msksk.com Website : www.msksk.com

Page 1 of 1



## Address of Laboratory

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3, Pargadanga Road, Kolkata 700015  
West Bengal  
Tel.: +91 7044036120  
Email: udayanlab@msk.com



TC-0950



TESTING = INSPECTION



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ULR: TC-89602400600482

## Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

At/Pr. - Joda, Dist. - Keonhar, Odisha - 756034 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample :

Date(s) of performance :

Location of performance of

Reference No. & Date :

Discipline :

MSK/LED/2023-24/M1517B

18/03/2024

MSK/NB/ED/2023-24/03/Y05892

07/03/2024

07/03/2024 - 18/03/2024

Permanent Facility

3000156017/056, Date = 18/03/2023

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/03/2024
5. Place of sampling	Near Gargadanga Pt
6. Environmental conditions during sampling & transport	1) Temperature: 16-29 deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain fall: No & Cloud Cover: Maintained
7. Sampling Place & Method used	IS 5182 (Part 11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	LALIN NAYAN
9. Field Equipments Used	MSK/BBU/FIELD/DS-4

Report No. : MSK/LED/2023-24/M1517B

Sample No. : MSK/NB/ED/2023-24/03/Y05892

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	µg/m <sup>3</sup>	USEPA-IO 3,4, June	6 (Annual)	BDL (DL:1.0)
2	Benzene	micro gm/m <sup>3</sup>	IS 5182 (Part 11)	5 (Annual)	BDL (DL:4.2)
3	Benz(a)Pyrene	ng/m <sup>3</sup>	IS 5182 (Part 12)	1 (Annual)	BDL (DL:0.5)
4	Lead as (Pb)	micro gm/m <sup>3</sup>	USEPA-IO 3,4, June	1 (24 Hours)	BDL (DL:0.01)
5	Manganese as (Mn)	micro gm/m <sup>3</sup>	USEPA-IO 3,4, June	Not Specified	BDL (DL:0.01)
6	Nickel as (Ni)	ng/m <sup>3</sup>	USEPA-IO 3,4, June	20 (Annual)	BDL (DL:5.0)

Opinion :

Limit as per CPCB notification, New Delhi, 30th November 2009, for Ambient air quality.

Statement of Conformity : NA

END

Reviewed by:

Signature:

Name: Dr. Devendra Chatterjee

Description: Technical in Charge

Authorized Signatory:

Signature:

Name: Dr. Devendra Chatterjee

Description: Technical in Charge

This report is valid only for the period 2023-24.

The Test Report shall not be reproduced or used in full, without the permission of Mitra S. K. Private Limited.

No reserved part or portions for chemical analysis for: (a) Airborne particulate Food, Water shall be retained for 15 days from the date of issue of the Test Report. (b) Airborne particulate shall be retained 2 days.

On the date of issue of the Test Report

The reserved part of sample for chemical analysis (Soil, Road & Urban Waste) shall be retained for 15 days as per CPCB guideline & (Air) 15 days from the date of issue of the Test Report.

For (a) Airborne particulate (b) Airborne particulate (Food, Water) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: 3000156017/056, Date = 18/03/2023

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Email: info@msk.com Website: www.msk.com





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## TEST REPORT

### Name & Address of Customer :

Tan Steel Ltd (MGM) Joda West

APD, - Joda, Dist. - Kancher, Orissa - 750034 India Pin

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGLIED/2023-24/005224

14/03/2024

MSKGLIED/2023-24/00148

300415801/0050, Date : 15/03/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mine (JWIMM)
4. Date of sampling	05/03/2024
5. Place of sampling	Near Damaged area
6. Environmental conditions during sampling & Transport	Good
7. Sampling Plan & Method used	NA

Report No. : MSKGLIED/2023-24/005224

Sample No. : MSKGLIED/2023-24/00148

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Arsenic (As)	micro gram/l	IS 5182 (Part 25)	100 24 HR.	12.0
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (C)	2 8HR.	0.57
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/l	IS 5182 (Part 5) (C)	80 24 HR.	20.1
4	Ozone (O <sub>3</sub> )	micro gram/l	IS 5182 (Part 3)	180 1 HR.	BUL (DL 20.0)
5	Particulate Matter (<3.3um)	micro gram/l	IS 5182 (Part 23) (C)	100 24 HR.	180
6	Particulate Matter (<2.5um)	micro gram/l	IS 5182 (Part 24) (C) (C)	60 24 HR.	86
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/l	IS 5182 (Part 2) (C)	80 24 HR.	7.1

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Head Office:

Head Office (for India), P.O. Barfi Di Kancher, Kolkata - 750035, West Bengal, India  
Tel: 03-26 404380 / 404381 Fax: 03-26 404382  
Email: info@msk.com Website: www.msk.com



## Address of Laboratory :

Building No. P-46, Udayan Industrial Estate  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044035120  
Email: udayanlab@mitrask.com



TC-8980



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URL: TC-89502400000462#

## Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

A/Pn - Joda, Dist. - Kanchipur, Odisha - 750034 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance at

Reference No. &amp; Date :

Discipline:

MSKPL/ED/2023-24/81517N

18/03/2024

MSKNB/ED/2023-24/03/TFNB007

07/03/2024

07/03/2024 - 15/03/2024

Permanent Facility

3000150017/005, Date - 15/09/2023

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/03/2024
5. Place of sampling	Near Railway Siding
6. Environmental conditions during sampling & Transport	1) Temperature: 15-29 deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain fall: NA & Cold Cholo Monsooned
7. Sampling Plan & Method used	IS 5102 (Part 1, 2) & USEPA
8. Identification of the personnel performing sampling by MSK	LALIN NAYAK
9. Field Equipments Used	MSK/BBU/ISL/DROG-3

Report No. : MSKPL/ED/2023-24/81517N

Sample No. : MSKNB/ED/2023-24/03/TFNB007

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA IO 3.4, June	5 (Annual)	BDL(DL-1.0)
2	Benzene	micro gm/m3	IS 5102 (Part 1, 1)	5 (Annual)	BDL(DL-4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5102 (Part 1, 2)	1 (Annual)	BDL(DL-0.5)
4	Lead as Pb	micro gm/m3	USEPA IO 3.4, June	1 (24 Hours)	0.05
5	Manganese as Mn	micro gm/m3	USEPA IO 3.4, June	Not Specified	0.36
6	Nickel as Ni	ng/m3	USEPA IO 3.4, June	20 (Annual)	40.4

Option : Limit as per CPCB notification, New Delhi / 15th November 2005, for Ambient air quality

Statement of Conformity : NA

END

Reviewed By:

Signature:

Name: Dr. Devotion Banerjee

Designation: Technical in Charge

Authorized Signatory:

Signature:

Name: Dr. Devotion Banerjee

Designation: Technical in Charge

No results visible only in the sample tested.

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No reserved part of samples for microbial analysis (Micro-organisms) (Micro-organisms) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Permissible sample(s) shall be retained 2 days.

on the date of issue of the Test Report.

No reserved part of sample(s) for reference analysis (Bak, Soil &amp; Liquid Media) shall be retained for 15 days unless per CPCB guidelines, but 1 month from the date of issue of the Test Report.

No reserved part of sample(s) for microbiological analysis (non-permissible sample(s) Food, Sewer Water, Stained food) shall be retained for 15 days from the date of issue of the Test Report.

No reserved part of sample(s) for microbiological analysis (non-permissible sample(s) Food, Sewer Water, Stained food) shall be retained for 15 days from the date of issue of the Test Report.

No reserved part of sample(s) for microbiological analysis (non-permissible sample(s) Food, Sewer Water, Stained food) shall be retained for 15 days from the date of issue of the Test Report.

No reserved part of sample(s) for microbiological analysis (non-permissible sample(s) Food, Sewer Water, Stained food) shall be retained for 15 days from the date of issue of the Test Report.

No reserved part of sample(s) for microbiological analysis (non-permissible sample(s) Food, Sewer Water, Stained food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Strategy Centre (Dh. Road) / 40, A-4, New Road, Kolkata - 700015, West Bengal, India  
Tel : +91 33 40140000 / 23002867 Fax : 91 33 23004000  
Email : info@mitrask.com Website : www.mitrask.com





Name (in block): \_\_\_\_\_

## TEST REPORT

Name &amp; Address of Customer:

Total Steel Lit.(MGM) Joint West

Abd. - Jodhpur Dist. - Koojhar, Odisha - 758034 India Pin

Report No.:

Drain =

Sample No. 7

Reference No. &amp; Date :

MSMA, EDG 03-24/005232

14/US/PT/EN

MSKGL/EDU2023-24/03100146

3000156017056, Date: 10/01/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	APC
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Jade West Intn & Mtn. Areas (JW/MAN)
4. Date of sampling	05/03/2024
5. Place of sampling	Ngor Railway Station
6. Environmental conditions during sampling & Transport	Cloudy
7. Sampling Plan & Method used	ISA

Report No.: MKGLIED01123-24/0523/

Sample No.: MSKGL/ED/2023-JM/03/00145

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	ISM	Method	Limit	Result
1	Amonia (NH3)	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	11.5
2	Cation Peroxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part III) (D)	2 HR	0.37
3	Nitrogen Dioxide (NO2)	micro gram/m <sup>3</sup>	IS 5182 (Part 5) (U)	80 24 HR.	24.5
4	Ozone (O3)	micro gram/m <sup>3</sup>	IS 5182 (Part 1)	180 1 HR.	90 (DL-20/1)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5180 (Part 2) (U)	100 24 HR.	220
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) (U) (D)	60 24 HR.	107
7	Sulphur Dioxide (SO2)	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (D)	80 24 HR.	7.8

- END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory

Building No. P-48, Udayan Industrial Estate,  
3, Pasladanga Road, Kolkata 700016  
West Bengal  
Tel. : +91-7044000720  
Email: udayanlab@mitrascl.com



TC-9509



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URL: TC-9502400004623F

## Name & Address of Customer :

Tata Steel Ltd (MOM) Joda West

AsPo. - Joda, Dist. - Kanker, Odisha - 758004 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/Y1517B

19/03/2024

MSKNB/ED/2023-24/MSKQB8AU

07/03/2024

07/03/2024 - 19/03/2024

Permanent Facility

3000158017/056, Date - 19/03/2023

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/03/2024
5. Place of sampling	Near H-Quarry Rest Station
6. Environmental conditions during sampling & Transport	1) Temperature: 15-25 deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain fall: No & Cold Drift/Mist/Haze
7. Sampling Plan & Method used	IS 5182 (Part 11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	LALIN NAYAK
9. Field Equipments Used	MSKBBLIFIELDROB-1

Report No. : MSKPL/ED/2023-24/Y1517B

Sample No. : MSKNB/ED/2023-24/MSKQB8AU

## RESULT

### Chemical

Sl No.	Parameter	UCM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA IO 3-4, June	6 (Annual)	BDL (DL-1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	3 (Annual)	BDL (DL-4.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL (DL-0.5)
4	Lead (as Pb)	micro gm/m3	USEPA IO 3-4, June	1 (24 hours)	0.03
5	Manganese as Mn	micro gm/m3	USEPA IO 3-4, June	Not Specified	0.23
6	Nickel as Ni	ng/m3	USEPA IO 3-4, June	20 (Annual)	7.3

Option:

Limit as per CPCB notification, New Delhi, 10th November 2009, (in Primary air quality)

Statement of Conformity: NA

— END —

Reviewed By:

Signature:   
Name: Dr. Divyanshu Banerjee  
Designation: Testimonial in Charge

Authorized Signatory:

Signature:   
Name: Dr. Divyanshu Banerjee  
Designation: Testimonial in Charge

The results remain valid for 15 days from the date of issue of the Test Report.

The Test Report shall not be considered valid unless the permission of Mitra S. K. Private Limited is obtained.

The Test Report shall not be considered valid for chemical analysis (Air - particulate sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Particulate sample(s) shall be retained 2 days.

For the date of issue of the Test Report

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Head Office: 3000158017/056, Date - 19/03/2023

Head Office: 3000158017/056, Date - 19/03/2023

Head Office: 3000158017/056, Date - 19/03/2023

Head Office: 3000158017/056, Date - 19/03/2023

Head Office: 3000158017/056, Date - 19/03/2023



# Mitra S. K. Private Limited

Address of Branch :

P.O. Barhi Of Kanchpur Distt 756 035



Scan QR Code

## TEST REPORT

Name & Address of Customer :

Tata Steel Ltd. (MGM), Joda West

AlPO, - Joda, Dist. - Kanchpur, Odisha - 756034 (India) Pin

Report No. :

MSKGL/ED/2023-24/005230

Date :

14/03/2024

Sample No. :

MSKGL/ED/2023-24/0000144

Reference No. & Date :

1000156017/056, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:-

1. Grab	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn. Mines (JWIMM)
4. Date of sampling	05/03/2024
5. Place of sampling	Near H-Downy Road, Shyamnagar
6. Environmental conditions during sampling & transport	Cloudy
7. Sampling (Type & Method used)	NR

Report No. : MSKGL/ED/2023-24/005230

Sample No. : MSKGL/ED/2023-24/0000144

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micro gram/m3	IS 5182 (Part 25)	400 24 HR	16.0
2	Carbon Monoxide (CO)	mg/m3	IS 5182 (Part 18) (C)	2 8HR	0.52
3	Nitrogen Dioxide (NO2)	micro gram/m3	IS 5182 (Part 6) (D)	80 24 HR	23.3
4	Ozone (O3)	micro gram/m3	IS 5182 (Part 1)	180 1 HR	BDL (DL 20.0)
5	Particulate Matter (<10um)	micro gram/m3	IS 5182 (Part 23) (D)	100 24 HR	183
6	Particulate Matter (<2.5um)	micro gram/m3	IS 5182 (Part 24) (D) (C)	60 24 HR	88
7	Sulphur Dioxide (SO2)	micro gram/m3	IS 5182 (Part 3) (D)	80 24 HR	6.9

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory

Head Office: Branch Office (MGM), V.M. & J.C. Road, Barhi, Joda West, Odisha - 756034, India.  
Tel : 91-99 40143000 / 0676007 Fax : 91-99 2000000  
Email : hr@mitraskspl.com Website : www.mskpl.com

Page 1 of 1



## Address of Laboratory :

Building No. P-46, Udayan Industrial Estate,  
3, Pasladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitras.com



TC-0830



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ULR: TC-69502400004822

## Name & Address of Customer :

Tata Steel Ltd.(NGM), Joda West

At/Po. - Joda, Dist. - Kanchipur, Odisha - 756024 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/15176

15/03/2024

MSKNB/ED/2023-24/03/EDK88G

07/03/2024

07/03/2024 - 15/03/2024

Permanent Facility

3000156017/055 Date - 15/03/2024

Chemical

We hereby certify that the following sample Drawn by (or has been analysed with the following results.

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/03/2024
5. Place of sampling	near D-Quarry Screen
6. Environmental conditions during sampling & Transport	1) Temperature : 16-29 (deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	LAUN NAYAK
9. Field Equipments Used	MSK/BBL/FIELD/RDS-8

Report No. : MSKPL/ED/2023-24/15176

Sample No. : MSKNB/ED/2023-24/03/EDK88G

## RESULT

### Chemical

Sl No.	Parameter	UCM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.03
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.26
6	Nickel as Ni	ug/m3	USEPA-IO 3.4, June	20 (Annual)	0.0

Opinion:

Limit as per CPCB notification, New Delhi, 10th November 2005, for Ambient air quality

Statement of Conformity : NA

END

Reviewed By:

Signature:   
Name: Dr. Devidutta Banerjee  
Designation: Technical in Charge

Authorized Signatory:

Signature:   
Name: Dr. Devidutta Banerjee  
Designation: Technical in Charge

The issues remain only if the item(s) tested

This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

The reference given at (Sample) for (Unique) Analysis (Refer - sample/Date/Time) For (Water) shall be retained for 15 days from the date of issue of the Test Report. For (Solid) sample(s) shall be retained 3 days

from the date of issue of the Test Report.

The reference given at (Sample) for (Unique) Analysis (Refer - Sample/Date/Time) For (Water) shall be retained for 15 days from the date of issue of the Test Report. For (Solid) sample(s) shall be retained 3 days from the date of issue of the Test Report.

The reference given at (Sample) for (Unique) Analysis (Refer - Sample/Date/Time) For (Water) shall be retained for 15 days from the date of issue of the Test Report. For (Solid) sample(s) shall be retained 3 days from the date of issue of the Test Report.

Head Office: 3rd/4th Floor, TLR, A J.C. Dey Road, Calcutta - 700016, West Bengal, India  
Tel : 91-33-4014000 / 2058007 Fax: 91-33-2766103  
Email: info@mitras.com Kolkata : www.msk.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MTM) Joda West

MTPO - Joda, Dist - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/003229

Date :

14/03/2024

Sample No. :

MSKGL/ED/2023-24/00300143

Reference No. & Date :

3000150017/054, Date - 16/03/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn. Mines (JW&M)
4. Date of sampling	09/03/2024
5. Place of sampling	Near D-4 Quarry, Surpan
6. Environmental conditions during sampling & Transport	Clouds
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/003229

Sample No. : MSKGL/ED/2023-24/00300143

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH3)	micro gram/m3	IS 5162 (Part 25)	400 24 HR.	11.3
2	Carbon Monoxide (CO)	mg/m3	IS: 5162 (Part 10) (O)	2 8-Hr.	0.60
3	Nitrogen Dioxide (NO2)	micro gram/m3	IS: 5162 (Part 6) (O)	80 24 HR.	24.8
4	Ozone (O3)	micro gram/m3	IS-5162 (Part 9)	100 1 HR.	BOL (CL-20.0)
5	Particulate Matter (<10um)	micro gram/m3	IS: 5162 (Part 23) (O)	100 24 HR.	308
6	Particulate Matter (<2.5um)	micro gram/m3	IS 5162 (Part 24) (O)	60 24 HR.	99
7	Sulphur Dioxide (SO2)	micro gram/m3	IS: 5162 (Part 2) (O)	80 24 HR.	7.1

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. F-48, Udayan Industrial Estate,  
3, Pagla Road, Kolkata 700015  
West Bengal  
Tel : +91 7040351120  
Email : udayanlab@mitraskl.com



TG-0580



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URL: TC-895024000004621F

## Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

AUPD - Joda, Dist - Kanchipuram, Odisha - 756034 (India)

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSK/PL/ED/2023-24/L-15179

19/03/2024

MSK/NB/ED/2023-24/03/EB1872

07/03/2024

07/03/2024 - 10/03/2024

Permanent Facility

3000158017/065, Date: 16/09/2023

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/03/2024
5. Place of sampling	Near D-Quarry Sorting Yard,
6. Environmental conditions during sampling & Transport	1) Temperature: 18-28 deg C-2) Barometric Pressure: 707 mm of Hg-3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	LALIN NAYAK
9. Field Equipments Used	MSK/BBL/FIELD/0252

Report No.: MSK/PL/ED/2023-24/L-15179

Sample No.: MSK/NB/ED/2023-24/03/EB1872

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	3 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	3 (Annual)	BDL(DL:4.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead as Pb	micro gm/m3	USEPA-IO 3.4, June	1 (24 hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.30
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion:

Limit as per CPCB notification, New Delhi, 18th November, 2009, for permanent air quality

Statement of Conformity: NA

— END —

Reviewed By:

Signature:   
Name: Dr. Devendra Kumar Singh  
Designation: Technical in Charge

Authorized Signatory:

Signature:   
Name: Dr. Devendra Kumar Singh  
Designation: Technical in Charge

This report is valid only for the sample(s) analyzed.

This Test Report and all its contents shall remain the property of Mitra S. K. Private Limited.

The retained part of sample(s) for chemical analysis (Micro-permeable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Permeable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Sediment, Sludge) shall be retained for 15 days from the date of issue of the Test Report. (HPLC analysis & any 4 hours from the date of issue of the Test Report. The retained part of sample(s) for chemical analysis (Micro-permeable sample(s) Food, Sediment, Sludge) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Ground Floor, Plot No. 248, A.J.C. Road, Kharak, P.O. West, West Bengal, India.  
Tel : 03-26143011/2262017 Fax : 03-2620109  
Email : info@mitraskl.com Website : www.mitraskl.com





Read this (Carefully)

## Name & Address of Customer :

Two Star Ltd. (MGM) Joda West

APU - Joda Dist. - Keonjhar, Odisha - 768034 India Pin

## TEST REPORT

Report No. :

Date :

Sample No.

Reference No. & Date :

MSKGL/ED/2023-24/005225

14/03/2024

MSKGL/ED/2023-24/00142

3000158017/050, Date - 15/03/2023

We hereby certify that the following sample tested by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West loc & Mo. Nines (JWNM)
4. Date of sampling	05/03/2024
5. Place of sampling	Near Railway Station, Joda
6. Environmental conditions during sampling & Transport	Cloudy
7. Sampling Method & Method used	NA

Report No. : MSKGL/ED/2023-24/005225

Sample No. : MSKGL/ED/2023-24/00142

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro ppm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	12.7
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (C)	2 8HR.	0.55
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro ppm/m <sup>3</sup>	IS 5182 (Part 6) (D)	80 24 HR.	21.8
4	Ozone (O <sub>3</sub> )	micro ppm/m <sup>3</sup>	IS 5182 (Part 8)	180 1 HR.	RDL (DL 20.0)
5	Particulate Matter (<10µm)	micro ppm/m <sup>3</sup>	IS 5182 (Part 23) (D)	100 24 HR.	178
6	Particulate Matter (<2.5µm)	micro ppm/m <sup>3</sup>	IS 5182 (Part 24) (D)	50 24 HR.	16
7	Sulphur Dioxide (SO <sub>2</sub> )	micro ppm/m <sup>3</sup>	IS 5182 (Part 2) (D)	80 24 HR.	7.0

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagaradanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036720  
Email : udayanlab@mitraspk.com



TC-6900

Lab No. : MSK/GEN/1907



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URL: TC-695024000604620F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM), Joda West

A/Po. : Joda, Dist. : Kachhikar, Odisha - 756034 (India)

Report No. :

Date :

Sample No. :

Date of receipt of sample :

Date(s) of performance :

Location of performance of

Reference No. & Date :

Discipline :

MSKPL/ED/2023-24/215121/

19/03/2024

MSKNB/ED/2023-24/M5/5ML88U

07/03/2024

07/03/2024 - 19/03/2024

Permanent Facility

3000156017/056, Date : 19/03/2023

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/03/2024
5. Place of sampling	Near Tata Office
6. Environmental conditions during sampling & Transport	1) Temperature : 16-29 deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5153 (Part 1) & USEPA
8. Identification of the personnel performing sampling by MSK	LALIN NAYAK
9. Field Equipments Used	MSKBBU/FIELD/RDS-2

Report No. : MSKPL/ED/2023-24/215121/

Sample No. : MSKNB/ED/2023-24/M5/5ML88U

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3 & 4, June	5 (Annual)	BDL (DL: 1.0)
2	Benzene	micro gram/m3	IS 5162 (Part 1)	5 (Annual)	BDL (DL: 4.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 1)	1 (Annual)	BDL (DL: 0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-IO 3 & 4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gram/m3	USEPA-IO 3 & 4, June	Not Specified	0.36
6	Nickel as Ni	ng/m3	USEPA-IO 3 & 4, June	20 (Annual)	BDL (DL: 5.0)

Option : Limit as per CPCB notification, New Delhi, 16th November 2002, for Ambient air quality

Statement of Conformity : NA

END

Reviewed By

Signature

Name

Designation

Dr. Divyanshu Banerjee

Technician in Charge

Authorized Signatory

Signature

Name

Designation

Dr. Divyanshu Banerjee

Technician in Charge

Our results relate only to the sample tested.

Our Test Report shall not be reissued except in full, without the permission of Mitra S.K. Private Limited.

The relevant part of sample(s) for retest analysis (Water - minimum sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Retestable sample(s) shall be retained 2 days

on the date of issue of the Test Report.

The relevant part of sample(s) for retest analysis (Soil, Road & Liquid Waste) shall be retained for 15 days as per CPCB guidelines & 24571 hours from the date of issue of the Test Report.

The relevant part of sample(s) for retest analysis (Food, Sealed Water, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: 32nd Floor (3rd Floor) / 4th / 5th / 6th / 7th / 8th / 9th / 10th / 11th / 12th / 13th / 14th / 15th / 16th / 17th / 18th / 19th / 20th / 21st / 22nd / 23rd / 24th / 25th / 26th / 27th / 28th / 29th / 30th / 31st / 32nd / 33rd / 34th / 35th / 36th / 37th / 38th / 39th / 40th / 41st / 42nd / 43rd / 44th / 45th / 46th / 47th / 48th / 49th / 50th / 51st / 52nd / 53rd / 54th / 55th / 56th / 57th / 58th / 59th / 60th / 61st / 62nd / 63rd / 64th / 65th / 66th / 67th / 68th / 69th / 70th / 71st / 72nd / 73rd / 74th / 75th / 76th / 77th / 78th / 79th / 80th / 81st / 82nd / 83rd / 84th / 85th / 86th / 87th / 88th / 89th / 90th / 91st / 92nd / 93rd / 94th / 95th / 96th / 97th / 98th / 99th / 100th / 101st / 102nd / 103rd / 104th / 105th / 106th / 107th / 108th / 109th / 110th / 111th / 112th / 113th / 114th / 115th / 116th / 117th / 118th / 119th / 120th / 121st / 122nd / 123rd / 124th / 125th / 126th / 127th / 128th / 129th / 130th / 131st / 132nd / 133rd / 134th / 135th / 136th / 137th / 138th / 139th / 140th / 141st / 142nd / 143rd / 144th / 145th / 146th / 147th / 148th / 149th / 150th / 151st / 152nd / 153rd / 154th / 155th / 156th / 157th / 158th / 159th / 160th / 161st / 162nd / 163rd / 164th / 165th / 166th / 167th / 168th / 169th / 170th / 171st / 172nd / 173rd / 174th / 175th / 176th / 177th / 178th / 179th / 180th / 181st / 182nd / 183rd / 184th / 185th / 186th / 187th / 188th / 189th / 190th / 191st / 192nd / 193rd / 194th / 195th / 196th / 197th / 198th / 199th / 200th / 201st / 202nd / 203rd / 204th / 205th / 206th / 207th / 208th / 209th / 210th / 211st / 212nd / 213th / 214th / 215th / 216th / 217th / 218th / 219th / 220th / 221st / 222nd / 223rd / 224th / 225th / 226th / 227th / 228th / 229th / 230th / 231st / 232nd / 233rd / 234th / 235th / 236th / 237th / 238th / 239th / 240th / 241st / 242nd / 243rd / 244th / 245th / 246th / 247th / 248th / 249th / 250th / 251st / 252nd / 253rd / 254th / 255th / 256th / 257th / 258th / 259th / 260th / 261st / 262nd / 263rd / 264th / 265th / 266th / 267th / 268th / 269th / 270th / 271st / 272nd / 273rd / 274th / 275th / 276th / 277th / 278th / 279th / 280th / 281st / 282nd / 283rd / 284th / 285th / 286th / 287th / 288th / 289th / 290th / 291st / 292nd / 293rd / 294th / 295th / 296th / 297th / 298th / 299th / 300th / 301st / 302nd / 303rd / 304th / 305th / 306th / 307th / 308th / 309th / 310th / 311st / 312nd / 313th / 314th / 315th / 316th / 317th / 318th / 319th / 320th / 321st / 322nd / 323rd / 324th / 325th / 326th / 327th / 328th / 329th / 330th / 331st / 332nd / 333rd / 334th / 335th / 336th / 337th / 338th / 339th / 340th / 341st / 342nd / 343rd / 344th / 345th / 346th / 347th / 348th / 349th / 350th / 351st / 352nd / 353rd / 354th / 355th / 356th / 357th / 358th / 359th / 360th / 361st / 362nd / 363rd / 364th / 365th / 366th / 367th / 368th / 369th / 370th / 371st / 372nd / 373rd / 374th / 375th / 376th / 377th / 378th / 379th / 380th / 381st / 382nd / 383rd / 384th / 385th / 386th / 387th / 388th / 389th / 390th / 391st / 392nd / 393rd / 394th / 395th / 396th / 397th / 398th / 399th / 400th / 401st / 402nd / 403rd / 404th / 405th / 406th / 407th / 408th / 409th / 410th / 411st / 412nd / 413th / 414th / 415th / 416th / 417th / 418th / 419th / 420th / 421st / 422nd / 423rd / 424th / 425th / 426th / 427th / 428th / 429th / 430th / 431st / 432nd / 433rd / 434th / 435th / 436th / 437th / 438th / 439th / 440th / 441st / 442nd / 443rd / 444th / 445th / 446th / 447th / 448th / 449th / 450th / 451st / 452nd / 453rd / 454th / 455th / 456th / 457th / 458th / 459th / 460th / 461st / 462nd / 463rd / 464th / 465th / 466th / 467th / 468th / 469th / 470th / 471st / 472nd / 473rd / 474th / 475th / 476th / 477th / 478th / 479th / 480th / 481st / 482nd / 483rd / 484th / 485th / 486th / 487th / 488th / 489th / 490th / 491st / 492nd / 493rd / 494th / 495th / 496th / 497th / 498th / 499th / 500th / 501st / 502nd / 503rd / 504th / 505th / 506th / 507th / 508th / 509th / 510th / 511st / 512nd / 513th / 514th / 515th / 516th / 517th / 518th / 519th / 520th / 521st / 522nd / 523rd / 524th / 525th / 526th / 527th / 528th / 529th / 530th / 531st / 532nd / 533rd / 534th / 535th / 536th / 537th / 538th / 539th / 540th / 541st / 542nd / 543rd / 544th / 545th / 546th / 547th / 548th / 549th / 550th / 551st / 552nd / 553rd / 554th / 555th / 556th / 557th / 558th / 559th / 560th / 561st / 562nd / 563rd / 564th / 565th / 566th / 567th / 568th / 569th / 570th / 571st / 572nd / 573rd / 574th / 575th / 576th / 577th / 578th / 579th / 580th / 581st / 582nd / 583rd / 584th / 585th / 586th / 587th / 588th / 589th / 590th / 591st / 592nd / 593rd / 594th / 595th / 596th / 597th / 598th / 599th / 600th / 601st / 602nd / 603rd / 604th / 605th / 606th / 607th / 608th / 609th / 610th / 611st / 612nd / 613th / 614th / 615th / 616th / 617th / 618th / 619th / 620th / 621st / 622nd / 623rd / 624th / 625th / 626th / 627th / 628th / 629th / 630th / 631st / 632nd / 633rd / 634th / 635th / 636th / 637th / 638th / 639th / 640th / 641st / 642nd / 643rd / 644th / 645th / 646th / 647th / 648th / 649th / 650th / 651st / 652nd / 653rd / 654th / 655th / 656th / 657th / 658th / 659th / 660th / 661st / 662nd / 663rd / 664th / 665th / 666th / 667th / 668th / 669th / 670th / 671st / 672nd / 673rd / 674th / 675th / 676th / 677th / 678th / 679th / 680th / 681st / 682nd / 683rd / 684th / 685th / 686th / 687th / 688th / 689th / 690th / 691st / 692nd / 693rd / 694th / 695th / 696th / 697th / 698th / 699th / 700th / 701st / 702nd / 703rd / 704th / 705th / 706th / 707th / 708th / 709th / 710th / 711st / 712nd / 713th / 714th / 715th / 716th / 717th / 718th / 719th / 720th / 721st / 722nd / 723rd / 724th / 725th / 726th / 727th / 728th / 729th / 730th / 731st / 732nd / 733rd / 734th / 735th / 736th / 737th / 738th / 739th / 740th / 741st / 742nd / 743rd / 744th / 745th / 746th / 747th / 748th / 749th / 750th / 751st / 752nd / 753rd / 754th / 755th / 756th / 757th / 758th / 759th / 760th / 761st / 762nd / 763rd / 764th / 765th / 766th / 767th / 768th / 769th / 770th / 771st / 772nd / 773rd / 774th / 775th / 776th / 777th / 778th / 779th / 780th / 781st / 782nd / 783rd / 784th / 785th / 786th / 787th / 788th / 789th / 790th / 791st / 792nd / 793rd / 794th / 795th / 796th / 797th / 798th / 799th / 800th / 801st / 802nd / 803rd / 804th / 805th / 806th / 807th / 808th / 809th / 810th / 811st / 812nd / 813th / 814th / 815th / 816th / 817th / 818th / 819th / 820th / 821st / 822nd / 823rd / 824th / 825th / 826th / 827th / 828th / 829th / 830th / 831st / 832nd / 833rd / 834th / 835th / 836th / 837th / 838th / 839th / 840th / 841st / 842nd / 843rd / 844th / 845th / 846th / 847th / 848th / 849th / 850th / 851st / 852nd / 853rd / 854th / 855th / 856th / 857th / 858th / 859th / 860th / 861st / 862nd / 863rd / 864th / 865th / 866th / 867th / 868th / 869th / 870th / 871st / 872nd / 873rd / 874th / 875th / 876th / 877th / 878th / 879th / 880th / 881st / 882nd / 883rd / 884th / 885th / 886th / 887th / 888th / 889th / 890th / 891st / 892nd / 893rd / 894th / 895th / 896th / 897th / 898th / 899th / 900th / 901st / 902nd / 903rd / 904th / 905th / 906th / 907th / 908th / 909th / 910th / 911st / 912nd / 913th / 914th / 915th / 916th / 917th / 918th / 919th / 920th / 921st / 922nd / 923rd / 924th / 925th / 926th / 927th / 928th / 929th / 930th / 931st / 932nd / 933rd / 934th / 935th / 936th / 937th / 938th / 939th / 940th / 941st / 942nd / 943rd / 944th / 945th / 946th / 947th / 948th / 949th / 950th / 951st / 952nd / 953rd / 954th / 955th / 956th / 957th / 958th / 959th / 960th / 961st / 962nd / 963rd / 964th / 965th / 966th / 967th / 968th / 969th / 970th / 971st / 972nd / 973rd / 974th / 975th / 976th / 977th / 978th / 979th / 980th / 981st / 982nd / 983rd / 984th / 985th / 986th / 987th / 988th / 989th / 990th / 991st / 992nd / 993rd / 994th / 995th / 996th / 997th / 998th / 999th / 1000th / 1001st / 1002nd / 1003rd / 1004th / 1005th / 1006th / 1007th / 1008th / 1009th / 1010th / 1011st / 1012nd / 1013th / 1014th / 1015th / 1016th / 1017th / 1018th / 1019th / 1020th / 1021st / 1022nd / 1023rd / 1024th / 1025th / 1026th / 1027th / 1028th / 1029th / 1030th / 1031st / 1032nd / 1033rd / 1034th / 1035th / 1036th / 1037th / 1038th / 1039th / 1040th / 1041st / 1042nd / 1043rd / 1044th / 1045th / 1046th / 1047th / 1048th / 1049th / 1050th / 1051st / 1052nd / 1053rd / 1054th / 1055th / 1056th / 1057th / 1058th / 1059th / 1060th / 1061st / 1062nd / 1063rd / 1064th / 1065th / 1066th / 1067th / 1068th / 1069th / 1070th / 1071st / 1072nd / 1073rd / 1074th / 1075th / 1076th / 1077th / 1078th / 1079th / 1080th / 1081st / 1082nd / 1083rd / 1084th / 1085th / 1086th / 1087th / 1088th / 1089th / 1090th / 1091st / 1092nd / 1093rd / 1094th / 1095th / 1096th / 1097th / 1098th / 1099th / 1100th / 1101st / 1102nd / 1103rd / 1104th / 1105th / 1106th / 1107th / 1108th / 1109th / 1110th / 1111st / 1112nd / 1113th / 1114th / 1115th / 1116th / 1117th / 1118th / 1119th / 1120th / 1121st / 1122nd / 1123rd / 1124th / 1125th / 1126th / 1127th / 1128th / 1129th / 1130th / 1131st / 1132nd / 1133rd / 1134th / 1135th / 1136th / 1137th / 1138th / 1139th / 1140th / 1141st / 1142nd / 1143rd / 1144th / 1145th / 1146th / 1147th / 1148th / 1149th / 1150th / 1151st / 1152nd / 1153rd / 1154th / 1155th / 1156th / 1157th / 1158th / 1159th / 1160th / 1161st / 1162nd / 1163rd / 1164th / 1165th / 1166th / 1167th / 1168th / 1169th / 1170th / 1171st / 1172nd / 1173rd / 1174th / 1175th / 1176th / 1177th / 1178th / 1179th / 1180th / 1181st / 1182nd / 1183rd / 1184th / 1185th / 1186th / 1187th / 1188th / 1189th / 1190th / 1191st / 1192nd / 1193rd / 1194th / 1195th / 1196th / 1197th / 1198th / 1199th / 1200th / 1201st / 1202nd / 1203rd / 1204th / 1205th / 1206th / 1207th / 1208th / 1209th / 1210th / 1211st / 1212nd / 1213th / 1214th / 1215th / 1216th / 1217th / 1218th / 1219th / 1220th / 1221st / 1222nd / 1223rd / 1224th / 1225th / 1226th / 1227th / 1228th / 1229th / 1230th / 1231st / 1232nd / 1233rd / 1234th / 1235th / 1236th / 1237th / 1238th / 1239th / 1240th / 1241st / 1242nd / 1243rd / 1244th / 1245th / 1246th / 1247th / 1248th / 1249th / 1250th / 1251st / 1252nd / 1253rd / 1254th / 1255th / 1256th / 1257th / 1258th / 1259th / 1260th / 1261st / 1262nd / 1263rd / 1264th / 1265th / 1266th / 1267th / 1268th / 1269th / 1270th / 1271st / 1272nd / 1273rd / 1274th / 1275th / 1276th / 1277th / 1278th / 1279th / 1280th / 1281st / 1282nd / 1283rd / 1284th / 1285th / 1286th / 1287th / 1288th / 1289th / 1290th / 1291st / 1292nd / 1293rd / 1294th / 1295th / 1296th / 1297th / 1298th / 1299th / 1300th / 1301st / 1302nd / 1303rd / 1304th / 1305th / 1306th / 1307th / 1308th / 1309th / 1310th / 1311st / 1312nd / 1313th / 1314th / 1315th / 1316th / 1317th / 1318th / 1319th / 1320th / 1321st / 1322nd / 1323rd / 1324th / 1325th / 1326th / 1327th / 1328th / 1329th / 1330th / 1331st / 1332nd / 1333rd / 1334th / 1335th / 1336th / 1337th / 1338th / 1339th / 1340th / 1341st / 1342nd / 1343rd / 1344th / 1345th / 1346th / 1347th / 1348th / 1349th / 1350th / 1351st / 1352nd / 1353rd / 1354th / 1355th / 1356th / 1357th / 1358th / 1359th / 1360th / 1361st / 1362nd / 1363rd / 1364th / 1365th / 1366th / 1367th / 1368th / 1369th / 1370th / 1371st / 1372nd / 1373rd / 1374th / 1375th / 1376th / 1377th / 1378th / 1379th / 1380th / 1381st / 1382nd / 1383rd / 1384th / 1385th / 1386th / 1387th / 1388th / 1389th / 1390th / 1391st / 1392nd / 1393rd / 1394th / 1395th / 1396th / 1397th / 1398th / 1399th / 1400th / 1401st / 1402nd / 1403rd / 1404th / 1405th / 1406th / 1407th / 1408th / 1409th / 1410th / 1411st / 1412nd / 1413th / 1414th / 1415th / 1416th / 1





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## TEST REPORT

### Name & Address of Customer :

Jata Steel Ltd.(JGM) Joda West

AirPo. - Joda Dist. - Kewajpur, Odisha - 758034 India-Pin

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/005228

14/03/2024

MSKGL/ED/2023-24/03/00141

3060106017/098 Date - 15/03/2024

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West iron & Mn. Mines (JWMIM)
4. Date of sampling	05/03/2024
5. Place of sampling	Natal Tinga Office
6. Environmental conditions during sampling & Transport	Cloudy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/005228

Sample No. : MSKGL/ED/2023-24/03/00141

## RESULT

### Analysis Result of Ambient Air

S. No.	Parameter	Unit	Method	Unit	Result
1	Acidmist (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	500 24 HR.	14.1
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 16) (O)	2 8HR.	0.58
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 6) (O)	50 24 HR.	21.5
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 11)	100 1 HR.	50.1 (DL-35.0)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (O)	100 24 HR.	210
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) (O)	50 24 HR.	103
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (O)	50 24 HR.	7.0

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



# Mitra S. K. Private Limited

## Address of Laboratory :

Building No. B-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : 91 7044000120  
Email: udayanlab@mskask.com



TC-6950

Doc No: MSK00011907



Scan the Portal

URL: TC-695024000030138

## Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

At/Po : Joda, Dist. : Kanchipuram, District - 755034 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample :

Date(s) of performance :

Location of performance of

Reference No. & Date :

Discipline :

MSKPL/ED/2023-24/11360H

22/03/2024

MSKNB/ED/2023-24/03/2K1C34

14/03/2024

14/03/2024 - 22/03/2024

Permanent Facility

3000156017/056, Date - 15/06/2023

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	11/03/2024
5. Place of sampling	Near Gopalpada Rd (JWMM)
6. Environmental conditions during sampling & Transport	1) Temperature: 15-30 deg C 2) Barometric Pressure: 708 mm of Hg 3) Rain fall: No & Cold Clear/Maintained
7. Sampling Plan & Method used	IS 5182 (Part 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Mantri Akash Kr. Sengupta
9. Field Equipments Used	MSK/BBU/FIELD/RDS-11

Report No. : MSKPL/ED/2023-24/11360H

Sample No. : MSKNB/ED/2023-24/03/2K1C34

## RESULT

### Chemical

Sl No	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m <sup>3</sup>	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gram/m <sup>3</sup>	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m <sup>3</sup>	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gram/m <sup>3</sup>	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gram/m <sup>3</sup>	USEPA-IO 3.4, June	Not Specified	0.15
6	Nickel as Ni	ng/m <sup>3</sup>	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Option :

Limit as per CPCB notification: New Delhi, 15th November 2008, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

Name:

Designation:

Ms. Hriti Ganguly  
Executive Chemist

Authorized Signatory:

Signature:

Name:

Designation:

Dr. Soumyajit Mukherjee  
Lab in charge

or results refer only to the sample(s) tested.

The Test Report shall not be reproduced (except in full) without the permission of Mitra S. K. Private Limited.

A reserved part of sample(s) for chemical analysis (Non-hazardous sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Hazardous sample(s) shall be retained 2 days.

A reserved part of sample(s) for chemical analysis (Non-Solid & Liquid Waste) shall be retained for 15 days as per CPCB guidelines & safety norms from the date of issue of the Test Report.

A reserved part of sample(s) for Microbiological analysis (Micro-organisms culture(s) Food, Drinking Water: Sealed Bott) shall be retained for 15 days from the date of issue of the Test Report.

and Office: South Centre (B1) Floor, T-8, A.C. Road, India. Tel: 91 7044000120 Fax: 91 7044000120

Email: info@mskask.com Website: www.mskask.com



# Mitra S. K. Private Limited

Address of Branch :

P.O. Barhi/Di Kionhar Orissa 758 035



Sample Photo

## TEST REPORT

Name & Address of Customer :

Tulu Steel Ltd.(MGM) Joda West

At/Plc. : Joda, Dist. : Kionhar, Orissa - 758034 Joda Pn

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/005545

27/03/2024

MSKGL/ED/2023-24/03/00490

3000150017/050, Date - 15/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Steel Mills (JWISM)
4. Date of sampling	11/03/2024
5. Place of sampling	Near Gangajoda Pn (JWISM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/005545

Sample No. : MSKGL/ED/2023-24/03/00490

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UDM	Method	Limit	Result
1	Ammonia (NH3)	micro gram/m3	IS 5182 (Part 13)	400 24 HR.	13.1
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (O)	2 8HR.	0.53
3	Nitrogen Dioxide (NO2)	micro gram/m3	IS: 5182 (Part 5) (O)	80 24 HR.	21.6
4	Ozone (O3)	micro gram/m3	IS 5182 (Part 9)	180 1 HR.	EOL (DL 20.0)
5	Particulate Matter (<10µm)	micro gram/m3	IS: 5182 (Part 23) (O)	100 24 HR.	176
6	Particulate Matter (<2.5µm)	micro gram/m3	IS 5182 (Part 24) (O)	60 24 HR.	85
7	Sulphur Dioxide (SO2)	micro gram/m3	IS: 5182 (Part 2) (O)	80 24 HR.	7.3

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



# Mitra S. K. Private Limited

## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Paglainga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7944000120  
Email: udayanlab@mitrasrsk.com



TC-0850

Lab No.: MSKGEN1907



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DLR: TC-605024000000016F

## Name & Address of Customer :

Tata Steel Ltd. (NCM) Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 752034 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/M15907

22/03/2024

MSKNB/ED/2023-24/MUG1C05

14/03/2024

14/03/2024 - 22/03/2024

Damanpet Facility

3000158017/056 Date : 16/09/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	11/03/2024
5. Place of sampling	Near Railway Siding, (JVNMM)
6. Environmental conditions during sampling & Transport	1) Temperature: 15-30 deg C 2) Barometric Pressure: 706 mm of Hg 3) Rain fall: No & Cloud Cover: Minimum
7. Sampling Plan & Method used	IS 5162 (Part 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Nathi Akash K. Selli
9. Field Equipments Used	MSK/BEL/FIELD/RDS-3

Report No. : MSKPL/ED/2023-24/M15907

Sample No. : MSKNB/ED/2023-24/03/MUG1C05

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5162 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benz(a)Pyrene	ng/m3	IS 5162 (Part 12)	1 (Annual)	BDL(DL:0.6)
4	Lead as (Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 hour)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.20
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion

Limit as per CPCB notification: New Delhi, 16th November, 2008 for Ambient air quality.

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

Name:

Designation:

P. Ganguly

Mr. Poo Ganguly

Executive Chemist

Authorized Signatory:

Signature:

Name:

Designation:

Dr. Sanku Chandra Nath

Lab in charge

is results relate only to the sample(s) analyzed.

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is reserved part of sample(s) for chemical analysis (Over, permeable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Permeable sample(s) shall be retained 2 days.

is reserved part of sample(s) for chemical analysis (Soil, Sludge & Liquid Waste) shall be retained for 15 days as per CPCB guidelines & Any inconsistency the date of issue of the Test Report.

is reserved part of sample(s) for Microbiology analysis (Micro - permeable sample(s) Food, Solid Waste, Sewage Effluent) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Shreeji Garden (2nd Floor), 74B, A.J.C. Road, Kolkata - 700016, West Bengal, India  
Tel: +91 99 431 40001 / 22602947 Fax: +91 30 22600008  
Email: udayanlab@mitrasrsk.com Website: www.mitrask.com





Scan QR Code

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

AUPD - Joda Dist. - Keonjhar, Odisha - 758004 India PM

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGLIED/2023-24/005555

27/03/2024

MSKGLIED/2023-24/03/00489

3000150017/MSD; Date - 15/03/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(s) (if any)	Joda West Iron & Mn Mines (JWMM)
4. Date of sampling	11/03/2024
5. Place of sampling	Near Railway Station, Jharbela
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGLIED/2023-24/005555

Sample No. : MSKGLIED/2023-24/03/00489

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 26)	400 24 HR.	12.4
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (D)	2 8HR.	0.58
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 6) (D)	80 24 HR.	24.1
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 8)	180 1 HR.	BOD/DL 20.01
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (D)	100 24 HR.	221
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) (D)	60 24 HR.	105
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (D)	80 24 HR.	7.5

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory

Head Office:

Plot No. 1, Sector 1, Phase 1, A.P.C. Road, Bhubaneswar - 751005, West Bengal, India.  
Tel: 91-93 40-14300 / 2265001 / Fax: 91-93 2265002  
Email: info@msk.co.in Website: www.msk.co.in

Page 1 of 1



## Address of Laboratory

Building No. P-45, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700016  
West Bengal  
Tel.: +91 7044035120  
Email: udayanlab@mitrasl.com



TC-6950

Doc No: MSK/CEH/0907



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URL: TC-6950240060050117

## Name & Address of Customer:

Tata Steel Ltd. (MGV), Joda West

ANPa - Joda, Dist. - Koorhar, Orissa - 758034 India

## TEST REPORT

Report No.:

Date:

Sample No.:

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date

Discipline:

MSK/LED/2023-24/W18602

22/03/2024

MSK/NEFD/2023-24/03/RV1C16

14/03/2024

14/03/2024 - 22/03/2024

Permanent Facility

3000150017/006, Date - 16/09/2023

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following details:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	NA
4. Date of sampling	11/03/2024
5. Place of sampling	Near H-Quarry East Shelter (JNM)
6. Environmental conditions during sampling & transport	1) Temperature: 16-20 deg C 2) Barometric Pressure: 708 mm of Hg 3) Rain fall: No & Clouds: Maintained
7. Sampling Plan & Method used	IS 5182 (Part 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Mondal Akash K. Saha
9. Field Equipments Used	MSK/BBL/FIELD/RDS-1

Report No.: MSK/LED/2023-24/W18602

Sample No.: MSK/NEFD/2023-24/03/RV1C16

## RESULT

### Chemical

Sl No.	Parameter	Unit	Method	Limit	Result
1	Arsenic as (As)	ng/m <sup>3</sup>	USEPA-IO 3.4, Junc	5 (Annual)	BDL (DL: 1.0)
2	Benzene	micro gram/m <sup>3</sup>	IS 5182 (Part 11)	5 (Annual)	BDL (DL: 4.2)
3	Benzo(a)Pyrene	ng/m <sup>3</sup>	IS 5182 (Part 12)	1 (Annual)	BDL (DL: 0.5)
4	Lead as Pb	micro gram/m <sup>3</sup>	USEPA-IO 3.4, Junc	1 (24 Hours)	0.02
5	Manganese as Mn	micro gram/m <sup>3</sup>	USEPA-IO 3.4, Junc	Not Specified	0.13
6	Nickel as Ni	ng/m <sup>3</sup>	USEPA-IO 3.4, Junc	20 (Annual)	BDL (DL: 0.8)

Option:

Limit as per CPCB notification: New Delhi, 19th November 2008, for Ambient air quality

Statement of Conformity: NA

— END —

Received By:

Signature:

Name:

Designation:

Mr. P. Gogoi

Quality Chemist

Authorized Signatory:

Signature:

Name:

Designation:

Lab. In-charge

Remarks: (Add only to the letterhead)

The Test Report shall not be reproduced (copy) in full, without the permission of Mitra S. K. Private Limited.

The relevant part of sample(s) to chemical analysis (Name: sample(s) (s) Food, Water) and to retained (i.e. 15 days from the date of issue of the Test Report). Potentially sample(s) shall be retained 2 days.

on the day of issue of the Test Report.

or retained part of sample(s) for chemical analysis (Solid, Liquid & Liquid) shall be retained for 15 days as per CPCB guidelines (i.e. 15 days from the date of issue of the Test Report).

or retained part of sample(s) for Microbiological analysis (i.e. Food, Bacteriological, Fungal, Yeast, Mold) shall be retained for 15 days from the date of issue of the Test Report.

Lead Office:

3/15/11 Centre (R) Floor, T48, A.J.C. Road Road, Kolkata - 700016, West Bengal, India  
Tel.: 91 33 40140001-9155907 Fax: 91 33 22600029  
Email: info@mitrasl.com Website: www.mitrasl.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MOM) Joda West

At/To : Joda, Dist. - Keonjhar, Orissa - 758034 India Pin

Report No. :

MSKGLUEDY2023-24/05554

Date :

27/03/2024

Sample No. :

MSKGLUEDY2023-24/050488

Reference No. & Date :

3000158077058, Date : 15/09/2023

We hereby certify that the following samples drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn. Mines (JWMM)
4. Date of sampling	11/03/2024
5. Place of sampling	Nave M. Quarry Road, Orissa (JWMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGLUEDY2023-24/05554

Sample No. : MSKGLUEDY2023-24/050488

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 20)	400 24 HR.	18.1
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (C)	2 BHR.	0.51
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 5) (C)	80 24 HR.	20.1
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 10)	150 1 HR.	90 (01-2021)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (C)	100 24 HR.	201
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) (C) 15	60 24 HR.	95
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (C)	80 24 HR.	7.2

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



ULR: TC-89502400000501

## Chemical

Page 4 of 9





See the Process

## TEST REPORT

**Name & Address of Customer :**

Texas State Ltd (TSLM) - Auto Wash

AtFO - Joda, Dist. - Keonjhar, Odisha - 758034 India PW

Report No. :

MSK GUE/ED/2023-24/10535-1

File

27/03/2023

Sample No. :

MSKGLAED2023-24/REV004BT

Reference No. &amp; Date :

1000156017056 Date - 15/09/2014

We hereby certify that the following sample drawn by us has been analyzed with the following method:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Jada West Iron & Mn Mine (JWMM)
4. Date of sampling	11/03/2004
5. Place of sampling	Just D Quarry down (JWMM)
6. Environmental conditions during sampling & transport	Cool & Sunny
7. Sampling Plan & Method used	NA

Report No.: MSKGL/ED/2023-24/005551

Sample No.: MSKGUEdu2023-24/03/m5487


## RESULT

### Analysis Result of Ambient Air

Sl No	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micro gram/m3	IS 5182 (Part 25)	400 24 HR	14.5
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (C)	2 8HR	0.49
3	Nitrogen Dioxide (NO2)	micro gram/m3	IS: 5182 (Part 6) (C)	80 24 HR	21.0
4	Ozone (O3)	micro gram/m3	IS 5182 (Part 3)	180 1 HR	BDL (DL: 20.0)
5	Particulate Matter (<10um)	micro gram/m3	IS-5182 (Part 23) (C)	100 24 HR	110
6	Particulate Matter (<2.5um)	micro gram/m3	IS-5182 (Part 23) (C)	60 24 HR	88
7	Sulphur Dioxide (SO2)	micro gram/m3	IS: 5182 (Part 2) (C)	80 24 HR	0.4

—END—

Report Verified By



For Mitra S. K. Private Limited

**Authorized Signatory**



# Mitra S. K. Private Limited

## Address of Laboratory :

Building No. P-44, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel: +91 7044008120  
Email: udayanlab@mitrask.com



TC-9900

Doc No: MSKGEN/1607



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ILR: TC-69502400000015P

## Name & Address of Customer :

Tata Steel Ltd. (MGM), Joda West

AirPs - Joda, Dist - Keonjhar, Orissa - 756034 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/P15800

22/03/2024

MSKNB/ED/2023-24/03/BU15FH

14/03/2024

14/03/2024 - 22/03/2024

Permanent Facility

3000158017/355, Date: 15/03/2023

Chemical

We hereby certify that the following sample Driven by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	11/03/2024
5. Place of sampling	Near D-Quarry Sorting Yard, (JWMM)
6. Environmental conditions during sampling & Transport	1) Temperature: 16-30 deg C 2) Barometric Pressure: 708 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Mantri Akash Kr. Sethi
9. Field Equipments Used	MSK/BBL/FIELD/CROS-6

Report No. : MSKPL/ED/2023-24/P15800

Sample No. : MSKNB/ED/2023-24/03/BU15FH

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.03
5	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	0.45
6	Nickel as Ni	ug/m3	USEPA-IO 3.4, June	20 (Annual)	22.5

Option :

Limit as per CPCB notification, New Delhi, 1986 November 2000, for Ambient air quality

Statement of Conformity: NA

— END —

Received By:

Signature:

Name:

Designation:

P. Ganguly

Mr. P. Ganguly

Executive Chemist

Authorized Signatory:

Signature:

Name:

Designation:

Dr. Subhendra Mahapatra

Lab In-charge

We warrant valid only to the party(s) listed

in Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

We warrant our (s) sample(s) for chemical analysis (Non-hazardous sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Hazardous sample(s) shall be retained 2 days

on the day of issue of the Test Report.

Numbered set of address(es) for chemical analysis (Soil, Slime & Liquid Waste) shall be retained for 15 days as per CPCB guidelines (or) 3 months from the date of issue of the Test Report.

Numbered set of address(es) for Microbiological analysis (Food, Spiced Variety, Spiced food) shall be retained for 15 days from the date of issue of the Test Report.

and Office: Shree Ganga (8th Floor), 745, A.L.C. Tower Road, Kolkata - 700015, West Bengal, India

Tel: 91-33-4014000 / 2294007 (Ext: 91-33-2294000)

Email: info@mitrask.com / Kolkata: info@mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGN) Joda West

Attn : Joda, Dist. - Keonjhar, Odisha - 758034 India (IN)

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/05547

27/03/2024

MSKGL/ED/2023-24/05547/05

3007156017/056, Date : 15/04/2024

We hereby certify that the following sample drawn at 02 has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn. Mines (JWIMM)
4. Date of sampling	11/03/2024
5. Place of sampling	Mesa D. Champa District, West. (JWIMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/05547

Sample No. : MSKGL/ED/2023-24/05547/05

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	12.5
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (O)	2 6HR	0.82
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 6) (O)	60 24 HR	22.1
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR	BDN (DL:20.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (O)	100 24 HR	150
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) (2015) (O)	60 24 HR	94
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (O)	80 24 HR	7.2

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P. 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7014036120  
Email : udayanlab@mitrask.com



TC-0950



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URL: TC-855024000005014E

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

AI/PO, Joda, Dist:- Kanchipuram, Odisha - 756034 India

Report No. :

MSKPL/ED/2023-24/A15909

Date :

12/03/2024

Sample No. :

MSKNB/ED/2023-24/03/711C2E

Date of receipt of sample :

14/03/2024

Date(s) of performance :

14/03/2024 - 22/03/2024

Location of performance of

Baranagar Facility

Reference No. & Date :

3000156017/058, Date : 16/09/2023

Discipline :

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	11/03/2024
5. Place of sampling	Near Time Office, JWM/MW
6. Environmental conditions during sampling & Transport	1) Temperature: 16-20 (Avg C 2) Barometric Pressure: 708 mm of Hg 3) Rain fall
7. Sampling Plan & Method used	No. 2 Cold Churn Method
8. Identification of the personnel performing sampling by MSK	IS-5162(P-1), (2) & USEPA
9. Field Equipments Used	Peak Main Akash Kr. Sethi
	MSK/BL/RECORDS-2

Report No. : MSKPL/ED/2023-24/A15909

Sample No. : MSKNB/ED/2023-24/03/711C2E

## RESULT

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ug/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL: 1.0)
2	Benzene	micro gm/m3	IS 5162 (Part 11)	5 (Annual)	BDL(DL: 4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5162 (Part 12)	1 (Annual)	BDL(DL: 0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.57
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL: 5.0)

Opinion : Limit as per CPCB notification: New Delhi, 18th November 2002 for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By  
Signature  
Name : Mr. P. Garguly  
Designation : Executive Chemist

Authorized Signatory

Signature

Name

Dr. Soupticko Mukherjee

Designation

Lab in charge

We should retain copy of the (Test) Report

The Test Report shall not be duplicated outside in full without the permission of Mitra S. K. Private Limited

We reserve the right to re-sample (s) for re-analysis (Micro - particulate matter(s) Frost, Water) shall be retained for 15 days from the date of issue of the Test Report. Permissible sample(s) shall be retained 2 days

on the date of issue of the Test Report

We reserve the right to re-sample (s) for re-analysis (Micro - particulate matter(s) Frost, Water) shall be retained for 15 days as per CPCB guidelines & (s) re-sample from the date of issue of the Test Report

We reserve the right to re-sample (s) for re-analysis (Micro - particulate matter(s) Frost, Water) shall be retained for 15 days from the date of issue of the Test Report

Head Office : Street/ Centre (3rd Floor), T4E, A/C, New Road, Kolkata - 700018 West Bengal, India

Tel : 91 33 47140008 / 23940007 Fax : 91 33 23940006

Email : info@sklab.com Website : www.mitrask.com





Scale for Portal

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

AtPd. - Joda Dist - Keonjhar, Odisha - 758034 India Pin

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGLBQ/2023-24/05553

27/03/2024

MSKGLBQ/2023-24/0500485

3000156017/056, Date - 16/06/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:-

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(s) (eg)	Joda West Iron & Mn Mine (JWMM)
4. Date of sampling	11/03/2024
5. Place of sampling	Near Tata Office, Joda West
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Place & Method used	NA

Report No. : MSKGLBQ/2023-24/05553

Sample No. : MSKGLBQ/2023-24/0500485

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	15.2
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (O)	2 8HR	0.48
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 5) (O)	80 24 HR	22.4
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	100 1 HR	80.1 (CL-20.0)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (O)	100 24 HR	205
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (O)	60 24 HR	99
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 21) (O)	80 24 HR	7.8

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pajladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7049630120  
Email : udayanlab@mitras.com



TC-8950

Lab No. : MSKQB/15/07



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ILR: TC-89503400005020

## Name & Address of Customer :

Tata Steel Ltd.(MOM), Joda West

At/Po. - Joda, Dist. - Keonjhar Orissa - 755004 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample :

Date(s) of performance :

Location of performance of

Reference No. & Date :

Discipline :

MSKPL/ED/2023-24/V1590V

22/03/2024

MSKNB/ED/2023-24/V1590V/CUL

14/03/2024

14/03/2024 - 22/03/2024

Permanent Facility

3000156017/056, Date : 18/04/2024

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	NA
4. Date of sampling	12/03/2024
5. Place of sampling	Near Ganeshpada Pt (J/M/W)
6. Environmental conditions during sampling & Transport	1) Temperature - 19-30 deg C 2) Barometric Pressure: 709 mm of Hg 3) Rain fall - No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling or MSK	Dhambudhar Das Lab In-charge
9. Field Equipments Used	MSK/BBL/PIELDURDS-4

Report No. : MSKPL/ED/2023-24/V1590V

Sample No. : MSKNB/ED/2023-24/03/2V1/CUL

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m <sup>3</sup>	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m <sup>3</sup>	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benz(a)Pyrene	ng/m <sup>3</sup>	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.8)
4	Lead as (Pb)	micro gm/m <sup>3</sup>	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m <sup>3</sup>	USEPA-IO 3.4, June	Not Specified	0.20
6	Nickel as Ni	ng/m <sup>3</sup>	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 16th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Received by:

Signature

Name

Designation

Ms. Priya Ganguly  
Executive Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Subrata Kumar Chatterjee  
Lab In-charge

is result valid only for the sample(s) tested.

is Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

is returned part of samples for chemical analysis (that is, available sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Pertinent sample(s) shall be retained 2 days on the date of issue of the Test Report.

is returned part of samples for chemical analysis (that is, available sample(s) Food, Water) shall be retained for 15 days as per CPCB guidelines & (for 15 days from the date of issue of the Test Report).

is returned part of samples for chemical analysis (that is, available sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Ground Floor (2nd Floor), TWR A, J.C. Road, Kolkata - 700015 West Bengal, India  
Tel : +91 22 401 5000/1 22402017 Fax : 91 22 22050008  
Email : info@mitras.com Website : www.mitrask.com



# Mitra S. K. Private Limited

Address of Branch :

P.O. Dandi Di Kanti/Or Odessa 738 035



Scan the QR Code

## Name & Address of Customer :

Tata Steel Ltd. (MGM) Joda West

At Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

## TEST REPORT

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/005555

27/03/2024

MSKGL/ED/2023-24/0300496

3000159017/025 Date : 15/03/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Air
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines (JWMM)
4. Date of sampling	12/03/2024
5. Place of sampling	Near Waterpump Pit (JWMM)
6. Circumstantial conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/005555

Sample No. : MSKGL/ED/2023-24/0300496

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1.	Aerosols (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5192 (Part 25)	400 24 HR.	12.9
2.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 01) (C)	2 8HR.	0.55
3.	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 01) (C)	80 24 HR.	21.0
4.	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 3)	180 1 HR.	BDL (DL 20.0)
5.	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS: 5183 (Part 25) (C)	100 24 HR.	182
6.	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (Part 25) (C)	50 24 HR.	98
7.	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 21) (C)	80 24 HR.	8.7

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-46, Udayan Industrial Estate,  
3 Pagladanga Road, Kolkata 700016  
West Bengal  
Tel. : +91 9644030120  
Email: udayanlab@mitras.com



TC-0830



Scan for Portal

URL: TC-6960240000502a

## Name & Address of Customer :

Tata Steel Ltd. (MGM) Joda West

A/Ps. - Joda, Dist. - Keonjhar, Odisha - 756034 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/K1560K

22/03/2024

MSKNB/ED/2023-24/03/Y61C8S

14/03/2024

14/03/2024 - 22/03/2024

Permanent Facility

3000166017/066, Date = 18/09/2023

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(s) if any	NA
4. Date of sampling	12/03/2024
5. Place of sampling	Near Railway Siding, (JWMM)
6. Environmental conditions during sampling & Transport	1) Temperature: 15-30 deg C 2) Barometric Pressure: 709 mm of Hg 3) Rain fall: No & Cold Churn Maintained
7. Sampling Plan & Method used	IS 5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Dharmabudhar Das Lathi Naik
9. Field Equipments Used	MSKBBL/FIELDVRDS-3

Report No. : MSKPL/ED/2023-24/K1560K

Sample No. : MSKNB/ED/2023-24/03/Y61C8S

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3-A, June	6 (Annual)	BDL(DL-1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL-4.3)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL-0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3-A, June	1 (24 Hours)	BDL(DL-0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3-A, June	Not Specified	0.27
6	Nickel as Ni	ng/m3	USEPA-IO 3-A, June	20 (Annual)	BDL(DL-5.0)

Opinion : Limit as per CPCB notification, New Delhi, 18/5 November 2009 for Ambient Air quality

Statement of Conformity : NA

END

Reviewed By

Signature

Date

Designation

Mr. Pankaj Chandra

Executive Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Pankaj Chandra

Lab in charge

Results valid only for the tested method

This Test Report shall not be reproduced except in full without the permission of Mitra S. K. Private Limited

A retained part of sample(s) for chemical analysis (Refr. - preservative sensitive) Food/ Water shall be retained for 35 days from the date of issue of the Test Report. Periodic sample(s) shall be retained 2 days

to the date of issue of the Test Report

A retained part of sample(s) for microbiological analysis (Bac. Aseptic & Liquid Waste) shall be retained for 15 days as per CPCB guidelines. (Any 1 month from the date of issue of the Test Report)

A retained part of sample(s) for microbiological analysis (Micro- preservative sensitive) Food, Spiced Water, Spiced Food shall be retained for 35 days from the date of issue of the Test Report

Sad Office: Streety Circle (2nd Floor), T4BLA, 1st, Road Road, Kolkata - 700016 West Bengal, India.  
Tel. : +91 9644143000 / 23850001 Fax : +91 9644143000  
Email : info@mitras.com Website : www.mitrask.com



# Mitra S. K. Private Limited

Address of Branch :

P.O. Barhi Di Koonjar Gissa 758 035



Scan for Detail

## Name & Address of Customer :

Tata Steel Ltd (NKM) Joda West

APC - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

## TEST REPORT

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/05550

27/03/2024

MSKGL/ED/2023-24/0300480

3001150170356, Date - 14/03/2024

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn. Mines (JWMM)
4. Date of sampling	12/03/2024
5. Place of sampling	Open Fieldwork Station (JWMM)
6. Flow/temperature/conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/05550

Sample No. : MSKGL/ED/2023-24/0300480

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	12.0
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (C)	2 8HR.	0.01
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 6) (C)	80 24 HR.	22.0
4	Ozone (O <sub>3</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 9)	100 1 HR.	BOL/CL: 20.0
5	Particulate Matter (<10um)	micro g/m <sup>3</sup>	IS 5182 (Part 23) (C)	150 24 HR.	215
6	Particulate Matter (<2.5um)	micro g/m <sup>3</sup>	IS 5182 (Part 24) (C)	60 24 HR.	102
7	Sulphur Dioxide (SO <sub>2</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 2) (C)	80 24 HR.	9.1

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Head Office: 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# Mitra S. K. Private Limited

## Address of Laboratory :

Bolding No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044030120  
Email: udayanlab@mitrasak.com



TL-6960

SW No: MSKGEN/1907



Scan for Portal

URL: TC-680024000005023F

## Name & Address of Customer :

Tata Steel Ltd. (MGM), Joda West

At/Po. - Joda, Dist. - Kharajpur, Odisha - 750034 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/110305

22/03/2024

MSKNB/ED/2023-24/03/WB1C4V

14/03/2024

14/03/2024 - 22/03/2024

Permanent Facility

3000150017/055, Date - 16/09/2023

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	12/03/2024
5. Place of sampling	Near H-Quarry Rest Shelter (JMM)
6. Environmental conditions during sampling & Transport	1) Temperature: 19-30 deg C 2) Barometric Pressure: 706 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182 (Part 11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Dharmabrother Das, Jatin Nair
9. Field Equipments Used	MS08BL/FIELD/RDS-1

Report No. : MSKPL/ED/2023-24/110305

Sample No. : MSKNB/ED/2023-24/03/WB1C4V

## RESULT

### Chemical

Sl No.	Parameter	UCM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA IO 3.4, June	6 (Annual)	BDL (DL 1.0)
2	Benzene	micro g/m3	IS 5182 (Part 11)	5 (Annual)	BDL (DL 4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL (DL 0.5)
4	Lead (as Pb)	micro g/m3	USEPA IO 3.4, June	1 (24 Hours)	0.05
5	Manganese as Mn	micro g/m3	USEPA IO 3.4, June	Not Specified	0.30
6	Nickel as Ni	ng/m3	USEPA IO 3.4, June	20 (Annual)	0.5

Option :

Limit as per CPCB notification, New Delhi, 16th November 2004, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By

Signature

Name

Designation

Mr. Tushar Dasgupta  
Executive Chemist

Authorized Signatory:

Signature

Name

Designation

Dr. Bhabanjan Mukhopadhyay  
Lab in Charge

is valid only for the following reasons:

a) Test Report shall not be reproduced except in full without the permission of Mitra S.K. Private Limited.

b) Retained part of sample for re-analysis (for - water/air/soil/food) shall be retained for 15 days from the date of issue of the Test Report.

c) Retained part of sample for re-analysis (for - solid & liquid waste) shall be retained for 15 days as per Office Circulars. (for - water/air/soil/food) shall be retained for 15 days from the date of issue of the Test Report.

d) Retained part of sample for re-analysis (for - water/air/soil/food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: (Ranchi Centre) (in India) 748, A.J.C. Road, Ranchi - 767001, West Bengal, India.  
Tel: +91 9434143880 / 22600007 Fax: +91 9432260000  
Email: info@mitrasak.com Website: www.mitrasak.com





Scan for Parts

## TEST REPORT

### Name & Address of Customer :

Ind Steel Ltd.(MGM), Joda West

A/Po. - Joda, Dist. - Konyhar, Odisha - 759034 India Pin

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGLIED/2023-24/005549

27/03/2024

MSKGLIED/2023-24/03/00494

3000158017/050, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West (near S. Mr. Mees (VMM))
4. Date of sampling	12/03/2024
5. Place of sampling	Near H-Quarry Road Station (VMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	N/A

Report No. : MSKGLIED/2023-24/005549

Sample No. : MSKGLIED/2023-24/03/00494

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	15.7
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 18) (O)	2 8HR.	0.49
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 6) (O)	80 24 HR.	21.8
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL (DL 20.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (O)	100 24 HR.	203
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) (O)	60 24 HR.	98
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (O)	80 24 HR.	6.0

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory







# Mitra S. K. Private Limited

Address of Branch :

P.O. Bank Of Kancher District 758 035



Scan for Detail

## Name & Address of Customer :

Tela Steel Ltd (MSM), Joda West

A/P: - Joda, Dist - Keonjhar, Odisha - 758034 India Pin

## TEST REPORT

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/005546

27/03/2024

MSKGL/ED/2023-24/0000493

30001546/17/058 Date - 15/09/2021

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	A/B
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn. Mines (JWMM)
4. Date of sampling	12/03/2024
5. Place of sampling	Near D-Quarry Road (JWMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/005546

Sample No. : MSKGL/ED/2023-24/0000493

## RESULT

### Analysis Result of Ambient Air

Sr No.	Parameter	Unit	Method	Limit	Result
1	Amonia (NH3)	micro gram/m3	IS 5182 (Part 25)	400 24 HR.	13.8
2	Carbon Monoxide (CO)	mg/m3	IS 5182 (Part 16) (O)	2 8HR	0.53
3	Nitrogen Dioxide (NO2)	micro gram/m3	IS 5182 (Part 8) (O)	80 24 HR.	22.5
4	Ozone (O3)	micro gram/m3	IS 5182 (Part 5)	780 1 HR.	BDL (CL 20.0)
5	Particulate Matter (<10um)	micro gram/m3	IS 5182 (Part 21) (O)	100 24 HR.	163
6	Particulate Matter (<2.5um)	micro gram/m3	IS 5182 (Part 21) (O)	60 24 HR.	89
7	Sulphur Dioxide (SO2)	micro gram/m3	IS 5182 (Part 2) (O)	80 24 HR.	6.7

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Head Office:

Direct: C-105 (1st Floor), T-10, A.J.C. Road, Bhubaneswar - 751019, West Bengal, India.  
Tel: +91 33 4010100 / 22044447 Fax: +91 33 2560000  
Email: [info@msk.com](mailto:info@msk.com) Website: [www.msk.com](http://www.msk.com)







# Mitra S. K. Private Limited

Address of Branch :

P.O. Barbal Di Keonjhar Odisha - 758 035



Scan QR Code

Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

AsPo. - Joda, Dist. - Keonjhar, Odisha - 758034 (India) Pin

## TEST REPORT

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/005552

27/03/2024

MSKGL/ED/2023-24/0300492

30X0160017/06, Date - 18/03/2024

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Air
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines (JWMM)
4. Date of sampling	12/03/2024
5. Place of sampling	Newly Created Dusting Yard, JWMM
6. Environmental conditions during sampling & Transport	Clean & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/005552

Sample No. : MSKGL/ED/2023-24/03/00492

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	12.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (C)	2 5 HR.	0.8+
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 6) (C)	80 24 HR.	21.7
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	160 1 HR.	EDL (DL-20.0)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (C)	100 24 HR.	184
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) (C)	60 24 HR.	88
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (C)	80 24 HR.	6.8

END

Report Verified By

(189)

For Mitra S. K. Private Limited

Authorised Signatory

Head Office: Mumbai (4th Floor) 748, A.J.C. Road, Kalyan - 400104, West. District, India.  
Tel : 91 22 411 0000 / 22689927 Fax : 91 22 22689924  
Email : info@mitras.com Website : www.mitrask.com



# Mitra S. K. Private Limited

## Address of Laboratory :

Building No. P-4B, Udayan Industrial Estate,  
3, Pegadanga Road, Kolkata 700015  
West Bengal  
Tel : 491 7044030/320  
Email: udayanlab@mitraspk.com



TC-0800

Doc No : MSKGEN1007



Scan for Portal

URL: TC-895024000050302

## Name & Address of Customer :

Tate Steel Ltd.(MGM), Joda West

AsPo:- Joda, Dist. - Keonjhar, Orissa - 758034 (India)

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/91590X

22/03/2024

MSKNB/ED/2023-24/032710SK

14/03/2024

14/03/2024 - 22/03/2024

Permanent Facility

3000156017/055, Date - 16/09/2023

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	12/03/2024
5. Place of sampling	Near Time OSOs, (JWMM)
6. Environmental conditions during sampling & Transport	1) Temperature: 14-30 deg C 2) Barometric Pressure: 709 mm of Hg 3) Rain fall: NA & Cold Coast Maintained
7. Sampling Plan & Method used	IS:5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Chandrabhar Das Lalin Nayak
9. Field Equipments Used	MSK/GRU/TELD/RDS-2

Report No. : MSKPL/ED/2023-24/91590X

Sample No. : MSKNB/ED/2023-24/032710SK

## RESULT

### Chemical

Sl No.	Parameter	LODM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-10 3.4, June	0 (Annual)	SDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	SDL(DL: 2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	SDL(DL: 0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-10 3.4, June	1 (24 hours)	0.04
5	Manganese as Mn	micro gm/m3	USEPA-10 3.4, June	Not Specified	0.06
6	Nickel as Ni	ng/m3	USEPA-10 3.4, June	20 (Annual)	9.7

Opinion :

Limit as per CPCB notification, New Delhi, 18th November 2009 for Ambient air quality

Statement of Conformity: NA

— END —

Reviewed By:

Signature:

Name:

Designation:

P. Ganguly

Mr. P. Ganguly

Executive Chemist

Authorized Signatory:

Signature:

Name:

Designation:

Dr. Chandrabhar Das Lalin Nayak

Lab in charge

For results related only to the sample(s) tested.

The Test Report shall not be reproduced or used in full or in part for the purpose of Mitra S. K. Private Limited.

A reserved part of sample(s) for verification purpose (Microbiological sample(s) Food, Water) shall be retained for 15 days from the date of receipt of the Test Report. Periodic sample(s) shall be retained 2 days

on the date of issue of the Test Report.

A reserved part of sample(s) for chemical analysis (Solid, Liquid & Gaseous) shall be retained for 15 days as per CPCR guidelines & (As) & (Aq) & (G) sample(s) shall be retained 2 days

on the date of issue of the Test Report. A reserved part of sample(s) for microbiological analysis (Food, Water) shall be retained for 15 days from the date of receipt of the Test Report.

Head Office:

Office: 35/1, 35/2, 35/3, 35/4, A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ, AK, AL, AM, AN, AO, AP, AQ, AR, AS, AT, AU, AV, AW, AX, AY, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GG, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LL, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MM, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NN, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VV, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WW, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YY, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ.





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West

APPO - Joda, Dist - Keonjhar, Odisha - 756034, India (IN)

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/005548

27/03/2024

MSKGL/ED/2023-24/000491

300015601/050, Date : 15/03/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(s) (if any)	Joda West Iron & Mn. Mines (JWIMM)
4. Date of sampling	12/03/2024
5. Place of sampling	Atat Tana Office, JWIMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/005548

Sample No. : MSKGL/ED/2023-24/000491

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	14.5
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (C)	2 8HR.	0.42
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 6) (C)	80 24 HR.	21.7
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 5)	180 1 HR.	BDL (CL-2011)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (C)	100 24 HR.	269
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) (C)	80 24 HR.	100
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (C)	80 24 HR.	7.5

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory

Head Office:

Mitra S. K. Private Limited, 7th Floor, 7th A.C. Road, Bahadur Nagar, Cuttack - 753005, West Bengal, India.  
Tel : 91 33 4143350 / 22880017 Fax : 91 33 22880001  
Email : info@msk.co.in Website : www.msk.co.in

Page 1 of 1









Scan for Report

## Name & Address of Customer :

Iron Steel Ltd.(MSM), Joda West

A/Po. - Joda, Dist. - Koorjhar, Odisha - 758034 India (IN)

## TEST REPORT

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/005598

28/03/2024

MSKGL/ED/2023-24/0300871

3000158017056, Date - 15/04/2024

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (any)	Joda West Iron & Steel Mills (JWSM)
4. Date of sampling	18/03/2024
5. Place of sampling	Near Gate No. 1 (JWSM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/005598

Sample No. : MSKGL/ED/2023-24/0300871

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Aerosols (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 25)	400 24 HR	15.0
2	Carbon Monoxide (CO)	ppm	IS: 5182 (Part 10) (C)	2 8HR	0.81
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 6) (C)	80 24 HR	20.5
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	160 1 HR	BDL/DL 20.0y
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS: 5182 (Part 23) (C)	180 24 HR	167
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS: 5182 (Part 24) (C)	60 24 HR	95
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 2) (C)	80 24 HR	0.7

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



# Mitra S. K. Private Limited

## Address of Laboratory :

Building No. P-48 Udayan Industrial Estate  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044600120  
Email: udayanlab@mitrask.com



TC-0960

Doc No: MSK02181907



Scan for Portal

URL: TC-695024000050447

## Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

At/Po. - Joda Dist. - Keonjhar, Odisha - 758034 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/X/1619M

28/03/2024

MSKNB/ED/2023-24/03/VB314M

21/03/2024

21/03/2024 - 28/03/2024

Damodar (Factory)

3000196017/050, Date - 15/08/2023

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	18/03/2024
5. Place of sampling	Neer Railway Siding, (JWMM)
6. Environmental conditions during sampling & Transport	1) Temperature: 15-25 deg C 2) Barometric Pressure: 713 mm of Hg 3) Rain (fall) No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182 (Part 1) & USEPA
8. Identification of the personnel performing sampling by MSK	Dhambhachar Das
9. Field Equipments Used	MSK/BBU/FIELD/PCS-3

Report No. : MSKPL/ED/2023-24/X/1619M

Sample No. : MSKNB/ED/2023-24/03/VB314M

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.03
5	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	0.33
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	7.4

Option: Limit as per CPCB notification, New Delhi, 18th November 2009, for ambient air quality

Statement of Conformity: NA

END

Reviewed By:

Signature

Name

Designation

Mr. P. Garguly  
Senior Analyst

Affirmed Signature

Signature

Name

Designation

Dr. S. K. Das  
Lab in charge

It can be noted only to the report is issued.

The Test Report shall not be reissued except if full without the permission of Mitra S. K. Private Limited.

In respect of part of sample(s) for chemical analysis (As, Benzene, Sample(s) For (WMM)) shall be retained for 15 days from the date of issue of the Test Report. For chemical analysis (As, Benzene, Sample(s) shall be retained 2 days from the date of issue of the Test Report.

In respect of part of sample(s) for chemical analysis (As, Benzene, Sample(s) shall be retained for 15 days as per CPCB guidelines & (As, Benzene, Sample(s) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Sheet's Centre (1st Floor) 74E, A, J. C. Road, Bhubaneswar - 751017, West Bengal, India.  
Tel : 91 23 40143000 / 23400017 Fax : 91 23 22860038  
Email : info@mitrask.com Website : www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGW), Joda West

At Po. - Joda, Dist. - Keonjhar Odisha - 758034, India Pin

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/CD/2023-24/005905

15/03/2024

MSKGL/CD/2023-24/000800

3000150017/SGS, Dated : 15/03/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Air
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines (JWMM)
4. Date of sampling	15/03/2024
5. Place of sampling	Near Railway Station, JWMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	N/A

Report No. : MSKGL/CD/2023-24/005905

Sample No. : MSKGL/CD/2023-24/000800

## RESULT

### Analysis Result of Ambient Air

Sl. No.	Parameter	UCM	Method	Limit	Result
1	Ambient (NH <sub>3</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 28)	400 24 HR.	14.7
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (C)	2 8HR	0.53
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro g/m <sup>3</sup>	IS: 5182 (Part 6) (C)	80 24 HR.	22.7
4	Ozone (O <sub>3</sub> )	micro g/m <sup>3</sup>	IS: 5182 (Part 9)	180 1 HR.	80 (DL-26.0)
5	Particulate Matter (<10µm)	micro g/m <sup>3</sup>	IS: 5182 (Part 23) (C)	100 24 HR.	217
6	Particulate Matter (<2.5µm)	micro g/m <sup>3</sup>	IS: 5182 (Part 24) (C)	50 24 HR.	101
7	Sulphur Dioxide (SO <sub>2</sub> )	micro g/m <sup>3</sup>	IS: 5182 (Part 21) (C)	80 24 HR.	8.7

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory







## Address of Branch :

P.O. Barabati, Keonjhar District 758 025



Scan the QR Code

## TEST REPORT

## Name &amp; Address of Customer :

Tina Steel Ltd (MSM), Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

## Report No. :

MSKGLIED/2023-24/005578

## Date :

28/09/2024

## Sample No. :

MSKGLIED/2023-24/03/00799

## Reference No. &amp; Date :

3000165017/056, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West (msl) & msl: MSLA (JWMM)
4. Date of sampling	18/09/2024
5. Place of sampling	Near H-Quarry Rest Shelter (JWMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGLIED/2023-24/005578

Sample No. : MSKGLIED/2023-24/03/00799

## RESULT

Analysis Result of Ambient Air					
Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	15.2
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (C)	2 8-HR	0.31
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 10) (C)	80 24-HR	23.8
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	100 1-HR	BDL (DL 20.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 (Part 20) (C)	100 24 HR	291
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (Part 20) (C)	60 24 HR	97
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25) (C)	80 24 HR	5.9

END

Report Verified By

For Mitra S. K. Private Limited

  
 Authorized Signatory



## Address of Laboratory :

Building No. F-46, Udayan Industrial Estate,  
3, Fagladanga Road, Kolkata 700078  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@gmail.com



TC-8930



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URL: TC-86502400006342F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MSM) Joda West

Address : Joda, Dist. - Westbengal, Odisha - 755034 INDIA

Report No. :

MSKPL/ED/2023-24/118107

Date :

28/03/2024

Sample No. :

MSKNB/ED/2023-24/03/MS311Q

Date of receipt of sample:

21/03/2024

Date(s) of performance:

21/03/2024 - 28/03/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000158017/05B, Date - 18/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	NA
4. Date of sampling	18/03/2024
5. Place of sampling	Near D-Quarry Screen (JNM/M)
6. Environmental conditions during sampling & Transport	1) Temperature : 17-25 deg C 2) Barometric Pressure: 713 mm of Hg 3) Rain fall No & Cloud Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Chamtaridhar Das
9. Field Equipments Used	MSK38L/FIELDROSB

Report No. : MSKPL/ED/2023-24/118107

Sample No. : MSKNB/ED/2023-24/03/MS311Q

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-40 3.4, June	5 (Annual)	SD/CL 1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 1)	5 (Annual)	SD/CL 0.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	SD/CL 0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-40 3.4, June	1 (24 Hours)	SD/CL 0.01)
5	Manganese as Mn	micro gm/m3	USEPA-40 3.4, June	Not Specified	0.17
6	Nickel as Ni	ng/m3	USEPA-40 3.4, June	20 (Annual)	SD/CL 5.0)

Opinion :

Limit as per CPCQ notification, New Delhi, 1986 November 30th, for ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name

Designation

Mr. P. Garguay

Executive Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Anupam Kumar

Lab in Charge

The results relate only to the sample(s) tested.

The Test Report shall not be reproduced without the written permission of Mitra S. K. Private Limited.

The retained part of sample(s) for physical analysis (Iron - possible sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perforated sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Solid, Liquid & Gaseous) shall be retained for 15 days as per CPCQ guidelines & (As) 3 months from the date of issue of the Test Report.

The retained part of sample(s) for Microscopic analysis (Iron - possible sample(s) Food, Soiled Water, Sediment food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: General Office (No. Plot), 198 P.L.C. Road, Bhubaneswar - 751015, West Bengal, India.  
Tel. : 91 33 40142000 / 22500007 Fax : 91 33 22500028  
Email : mygarguay@gmail.com Website : mygarguay.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGML) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 (Hqrs) (H)

Report No. :

MSKGL/ED/2023-24/00577

Date :

28/02/2024

Sample No. :

MSKGL/ED/2023-24/0300798

Reference No. & Date :

3000159/17/056, 066 - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	API
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn. Mines (JWMM)
4. Date of sampling	18/05/2024
5. Place of sampling	Near D-Classes Screen (JWMM)
6. Environmental conditions during sampling & transport	Clear & Sunny
7. Sampling Pump & Method used	NA

Report No. : MSKGL/ED/2023-24/00577

Sample No. : MSKGL/ED/2023-24/0300798

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ambient (API)	micro gram/m <sup>3</sup>	IS: 5182 (Part 25)	400 24 HR.	13.4
2	Carbon Monoxide (CO)	ppm/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR.	0.53
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 07) (O)	80 24 HR.	21
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 8)	180 1 HR.	BDL (DL: 20.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	184
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS: 5182 (Part 24) (O)	80 24 HR.	30
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	7.8

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



# Mitra S. K. Private Limited

Doc No. MSK/ED/1807

## Address of Laboratory :

Building No. P-46, Udayan Industrial Estate,  
3, Paschimanga Road, Kolkata 700016  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MG&amp;I), Joda West

ADPb - Joda Thel - Kanchan, Odisha - 755034 India

Report No. :

MSKPL/ED/2023-24/K1610B

Date :

28/03/2024

Sample No. :

MSKNB/ED/2023-24/K33132

Date of receipt of sample:

21/03/2024

Date(s) of performance:

21/03/2024 - 28/03/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date

3000158017/056, Date: 18/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	18/03/2024
5. Place of sampling	Near D-Quarry Sorting Yard, UJVMM
6. Environmental conditions during sampling & transport	1) Temperature: 17-26 deg C 2) Barometric Pressure: 713 mm of Hg 3) Rain fall: No & Clouds: Mainly
7. Sampling Plan & Method used	IS:5182 (P-1 & 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Dharmadhar Das
9. Field Equipments Used	MSK/BBL/FIELDROCS-6

Report No. : MSKPL/ED/2023-24/K1610B

Sample No. : MSKNB/ED/2023-24/K33132

## RESULT

### Chemical

Sl No.	Parameter	UCM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-10.3.4, June	5 (Annual)	BDL (DL: 1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	5 (Annual)	BDL (DL: 4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL (DL: 0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-10.3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gram/m3	USEPA-10.3.4, June	Not Specified	0.27
6	Nickel as Ni	ng/m3	USEPA-10.3.4, June	20 (Annual)	BDL (DL: 5.0)

Option:

Limit as per CPCB notification, New Delhi, 19th November 2009, for Ambient air quality

Statement of Conformity: NA

— END —

Reviewed by:

Signature:

Name:

Designation:

Mr. Pab Garguly

Executive Chemist

Authorized Signature:

Signature:

Name:

Designation:

Dr. Brajendra Kumar Mishra

Lab in charge

This report is valid only to the extent stated.

This Test Report shall not be reproduced (except in full) without the permission of Mitra S. K. Private Limited.

Any retained part of sample(s) for analytical analysis (Micro - particulate sample(s)) Food, Water shall be retained for 15 days from the date of issue of the Test Report. Presorbable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for analytical analysis (Dust, Silt &amp; Total Matter) shall be retained for 15 days except (CPCB prescribed 45 days) 1 month from the date of issue of the Test Report. The retained part of sample(s) for Microbiological analysis (non - presorbable sample(s)) Food, Sewer Water, Sewer Effluent shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

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Tel: +91 22 4045000 / 22550007 Fax: +91 22 22693305  
Email: info@mitrask.com Website: www.mitrask.com

Page 1 of 1





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (WCM) Joda West

At Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/005594

28/03/2024

MSKGL/ED/2023-24/0300797

3000T58017/056, Date - 15/06/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Descriptive of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West & S.S. Mines (JWIMM)
4. Date of sampling	18/03/2024
5. Place of sampling	Joda West & S.S. Mines (JWIMM)
6. Environmental conditions during sampling & Transport	Good & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/005594

Sample No. : MSKGL/ED/2023-24/0300797

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	12.1
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 16) (C)	2 24 HR	0.54
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 6) (C)	80 24 HR	18.9
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	160 1 HR	BUL/DL-20.03
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (C)	100 24 HR	1.67
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) (C)	50 24 HR	0.4
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 7) (C)	80 24 HR	6.8

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P-4B, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7944036120  
Email: udayanialy@mitrasrsk.com



TC-6250



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

At Po - Joda East - Kharaput Odisha - 756034 India

Report No. :

MSKPL/ED/2023-24/016100

Date :

28/03/2024

Sample No. :

MSKNB/ED/2023-24/03/03100

Date of receipt of sample:

21/03/2024

Date(s) of performance:

21/03/2024 - 28/03/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/058, Date = 16/03/2023

Discipline:

Chemical

We hereby certify that the following sample drawn for us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(s) if any	NA
4. Date of sampling	18/03/2024
5. Place of sampling	Near Time Office (JWMM)
6. Environmental conditions during sampling & transport	1) Temperature: 15-25 deg C 2) Barometric Pressure: 713 mm of Hg 3) Rain fall : No & Clouds: Mainly overcast
7. Sampling Plan & Method used	IS-5162(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Dharmendra Das
9. Field Equipments Used	MSK/BSU/FIELDVRS-2

Report No. : MSKPL/ED/2023-24/016100

Sample No. : MSKNB/ED/2023-24/03/03100

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BOL(DL-1.0)
2	Benzene	micro gram/m3	IS-5162 (Part 11)	5 (Annual)	BOL(DL-4.2)
3	Benz(a)Pyrene	ng/m3	IS-5162 (Part 12)	1 (Annual)	BOL(DL-0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	0.37
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BOL(DL-8.0)

Opinion :

Limit as per CPCB notification, New Delhi, 1987 (Revised 2009, for Ambient air quality)

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name : Mr. Pali Ganguly

Designation : Executive Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Subir Kumar Dasgupta

Lab in charge

The results shall apply to the sample analysed.

The Test Report shall not be reproduced without prior written permission of Mitra S. K. Private Limited.

The reserved part of sample(s) for chemical analysis (NA) - (atmospheric sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Maximum sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (IS-5162 (Part 11, 12) & USEPA-IO 3.4, June) shall be retained for 15 days as per CPCB guidelines & (NA) - (atmospheric sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shoppi Centre (Old Floor), 4th & 2nd, Bore Road, Kolkata - 700016, West Bengal, India  
Tel : +91 33-40143000 / 72651000 Fax : +91 33-22651000  
Email: info@mitrasrsk.com Website: www.mitrask.com





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## TEST REPORT

## Name &amp; Address of Customer

Tata Steel Ltd (JWMM) - Joda West

AD/Po. - Joda, Dist. - Keonjhar (Odisha - 758004, India)

Report No. :

MSKGL/ED/2023-24/005891

Date :

28/03/2024

Sample No. :

MSKGL/ED/2023-24/03/00795

Reference No. &amp; Date :

3000150017/056, Date- 16/03/2023

We hereby certify that the following samples submitted by us have been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(s) (if any)	Joda West Area in atm. station (JWMM)
4. Date of sampling	18/03/2024
5. Place of sampling	Near Time Office, (JWMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	N/A

Report No. : MSKGL/ED/2023-24/005893

Sample No. : MSKGL/ED/2023-24/03/00795


## RESULT

## Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (D)	100 24 HR.	10.2
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (D)	2 8HR	0.54
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 6) (D)	80 24 HR.	19.5
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	150 1 HR.	BDL (DL 20.0)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (D)	100 24 HR.	201
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (D)	80 24 HR.	112
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (D)	80 24 HR.	7.9

— END —

Report Verified By



For Mitra S. K. Private Limited

  
 Authorised Signatory









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## TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MOM), Joda West

At/Po : Joda, Dist. : Keonjhar, Odisha - 756034 India Pin

Report No. :

MSKGL/ED/2023-24/005592

Date :

28/03/2024

Sample No. :

MSKGL/ED/2023-24/03/00607

Reference No. & Date :

3000156017/056, Date : 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn Mine (JWMM)
4. Date of sampling	18/03/2024
5. Place of sampling	Near Gangajoda Pn. Division
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/005592

Sample No. : MSKGL/ED/2023-24/03/00607

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	800 24 HR.	13.0
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 18) (C)	3 8HR	0.46
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 19) (C)	80 24 HR.	19.7
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 4)	100 1 HR.	BDL(DL-20.9)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (C)	100 24 HR.	192
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) (C)	60 24 HR.	87
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (C)	80 24 HR.	6.7

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Poddemange Road, Kolkata 700015  
West Bengal  
Tel : +91 7044035120  
Email: udayanmk@mitrask.com



TG-0990



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

APPs: Joda, Dbl - (Receiver, Odisha - 758008) moa

Report No. :

MSKPL/ED/2023-24/G1610Z

Date :

28/03/2024

Sample No. :

MSKNB/ED/2023-24/03/SC317K

Date of receipt of sample:

21/03/2024

Date(s) of performance:

21/03/2024 - 26/03/2024

Location of performance of

Permanget Facility

Reference No. &amp; Date :

3000196017/056 Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	18/03/2024
5. Place of sampling	Near Railway Siding, LJM/M
6. Environmental conditions during sampling & Transport	1) Temperature: 14-25 deg C, 2) Barometric Pressure: 706 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik K. Mantri
9. Field Equipments Used	MSK/BBL/FIELD/DCS-3

Report No. : MSKPL/ED/2023-24/G1610Z

Sample No. : MSKNB/ED/2023-24/03/SC317K

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL-1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL-4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL-0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-IO 3.4, June	1 (24 hours)	0.06
5	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	0.32
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	36.9

**Disclaimer :** Limit as per CPCB notification, New Delhi, 18th November 2005, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

Name:

Designation:

Na. Pal Ganguly

Executive Chemist

Authorized Signatory

Signature:

Name:

Designation:

Dr. Shikha Banerjee

Lab in Charge

The results relate only to the items tested

This Test Report shall remain confidential except in full comply the requirement of Mitra S.K. Private Limited.

The relevant part of the report for chemical analysis (Non-perishable complex) Food, Water shall be retained for 15 days from the date of issue of the Test Report. Perishable complex shall be retained 3 days from the date of issue of the Test Report.

The relevant part of the report for chemical analysis (Non-food &amp; liquid waste) shall be retained for 15 days as per CPCB guideline &amp; (Non-perishable complex) Food, Sewage Waste, Sludge (solid) shall be retained for 15 days from the date of issue of the Test Report.

**Head Office:** Plot No. 10/1, 10/2, 10/3, 10/4, 10/5, 10/6, 10/7, 10/8, 10/9, 10/10, 10/11, 10/12, 10/13, 10/14, 10/15, 10/16, 10/17, 10/18, 10/19, 10/20, 10/21, 10/22, 10/23, 10/24, 10/25, 10/26, 10/27, 10/28, 10/29, 10/30, 10/31, 10/32, 10/33, 10/34, 10/35, 10/36, 10/37, 10/38, 10/39, 10/40, 10/41, 10/42, 10/43, 10/44, 10/45, 10/46, 10/47, 10/48, 10/49, 10/50, 10/51, 10/52, 10/53, 10/54, 10/55, 10/56, 10/57, 10/58, 10/59, 10/60, 10/61, 10/62, 10/63, 10/64, 10/65, 10/66, 10/67, 10/68, 10/69, 10/70, 10/71, 10/72, 10/73, 10/74, 10/75, 10/76, 10/77, 10/78, 10/79, 10/80, 10/81, 10/82, 10/83, 10/84, 10/85, 10/86, 10/87, 10/88, 10/89, 10/90, 10/91, 10/92, 10/93, 10/94, 10/95, 10/96, 10/97, 10/98, 10/99, 10/100, 10/101, 10/102, 10/103, 10/104, 10/105, 10/106, 10/107, 10/108, 10/109, 10/110, 10/111, 10/112, 10/113, 10/114, 10/115, 10/116, 10/117, 10/118, 10/119, 10/120, 10/121, 10/122, 10/123, 10/124, 10/125, 10/126, 10/127, 10/128, 10/129, 10/130, 10/131, 10/132, 10/133, 10/134, 10/135, 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10/1009, 10/1010, 10/1011, 10/1012, 10/1013, 10/1014, 10/1015, 10/1016, 10/1017, 10/1018, 10/1019, 10/1020, 10/1021, 10/1022, 10/1023, 10/1024, 10/1025, 10/1026, 10/1027, 10/1028, 10/1029, 10/1030, 10/1031, 10/1032, 10/1033, 10/1034, 10/1035, 10/1036, 10/1037, 10/1038, 10/1039, 10/1040, 10/1041, 10/1042, 10/1043, 10/1044, 10/1045, 10/1046, 10/1047, 10/1048, 10/1049, 10/1050, 10/1051, 10/1052, 10/1053, 10/1054, 10/1055, 10/1056, 10/1057, 10/1058, 10/1059, 10/1060, 10/1061, 10/1062, 10/1063, 10/1064, 10/1065, 10/1066, 10/1067, 10/1068, 10/1069, 10/1070, 10/1071, 10/1072, 10/1073, 10/1074, 10/1075, 10/1076, 10/1077, 10/1078, 10/1079, 10/1080, 10/1081, 10/1082, 10/1083, 10/1084, 10/1085, 10/1086, 10/1087, 10/1088, 10/1089, 10/1090, 10/1091, 10/1092, 10/1093, 10/1094, 10/1095, 10/1096, 10/1097, 10/1098, 10/1099, 10/1100, 10/1101, 10/1102, 10/1103, 10/1104, 10/1105, 10/1106, 10/1107, 10/1108, 10/1109, 10/1110, 10/1111, 10/1112, 10/1113, 10/1114, 10/1115, 10/1116, 10/1117, 10/1118, 10/1119, 10/1120, 10/1121, 10/1122, 10/1123, 10/1124, 10/1125, 10/1126, 10/1127, 10/1128, 10/1129, 10/1130, 10/1131, 10/1132, 10/





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MSK), Joda West

At/Po. - Joda, Dist. - Keonjhar, Orissa - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/005591

Date :

28/05/2024

Sample No. :

MSKGL/ED/2023-24/0300805

Reference No. & Date :

3000158017/REG, Date - 15/08/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn. Mines (JWIMM)
4. Date of sampling	19/03/2024
5. Place of sampling	Near Railway Station, Joda West
6. Environmental conditions during sampling & transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/005591

Sample No. : MSKGL/ED/2023-24/0300805

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	300 24 HR.	13.7
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (D)	2 B-HC	0.50
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 6) (D)	80 24 HR.	30.8
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 8)	160 1 HR.	BDL (BL/20.0)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (D)	100 24 HR.	221
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) (D)	60 24 HR.	110
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (D)	80 24 HR.	6.3

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P-3B, Udayan Industrial Estate,  
3, Paldi Range Road, Kolkata 700015  
West Bengal  
Tel : +91 7844036120  
Email: udayaniso@msknl.com



TC-1300



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

ALPO, Joda, Dist. - Hooghly, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/C16100

Date :

25/03/2024

Sample No. :

MSKNB/ED/2023-24/03/LB3165

Date of receipt of sample:

21/03/2024

Date(s) of performance:

21/03/2024 - 26/03/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(s) any	NA
4. Date of sampling	19/03/2024
5. Place of sampling	Near H-Quarry Rest Shelter (J/MMM)
6. Environmental conditions during sampling & transport	1) Temperature : 14-22 deg C 2) Barometric Pressure: 705 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182 (Part 1) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Kr. Mantri
9. Field Equipments Used	MSK/BBL/FIELD/DOES

Report No. : MSKPL/ED/2023-24/C16100

Sample No. : MSKNB/ED/2023-24/03/LB3165

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA ID 8-4, June	5 (Annual)	BOL(DL:1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 1)	5 (Annual)	BOL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BOL(DL:0.5)
4	Lead as Pb	micro gram/m3	USEPA ID 8-4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gram/m3	USEPA ID 8-4, June	Not Specified	0.17
6	Nickel as Ni	ng/m3	USEPA ID 8-4, June	20 (Annual)	BOL(DL:5.0)

Option : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

Name:

Ms. Priyanka

Designation:

Executive Chemist

Authorized Signatory:

Signature:

Name:

Dr. Soumya

Designation:

Lab in charge

The results relate only to the sample tested.

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The retention period of sample(s) for chemical analysis (Water - water sample) Food, Water) shall be retained for 15 days from the date of issuance of the Test Report. Permanent sample(s) shall be retained 30 days from the date of issue of the Test Report.

The retained (set of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guidelines & (Air) 3 months from the date of issuance of the Test Report.

The retained (set of sample(s) for microbiological analysis (Water - potable water sample(s) Food, Sealed Water, Sealed (bottle) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Mitra S. K. Private Limited, P-3B, Udayan Industrial Estate, 3, Paldi Range Road, Kolkata 700015, West Bengal, India.  
Tel : +91 7844036120 / 22000077 Fax : +91 33 22000100  
Email : info@msknl.com Website : www.msknl.com



# Mitra S. K. Private Limited

Doc No.: MSK/CDN/1007



## Address of Laboratory :

Building No. P-42, Udayan Industrial Estate,  
3, Pagledanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanish@mitras.com



TL-0250



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

AUPD - Joda, Dist - Kanchipur, Odisha - 755034, India

Report No. :

MSKPL/ED/2023-24/915108

Date :

28/03/2024

Sample No. :

MSKNB/ED/2023-24/03/0531A2

Date of receipt of sample:

21/03/2024

Date(s) of performance:

21/03/2024 - 28/03/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000158017/065, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(s) if any	NA
4. Date of sampling	19/03/2024
5. Place of sampling	Near D-Coarse Screen (JVM/M)
6. Environmental conditions during sampling & transport	1) Temperature: 14-22 deg C 2) Barometric Pressure: 708 mm of Hg 3) Rain: fell
7. Sampling Plan & Method used	Mo & Cold Chain Maintained
8. Identification of the personnel performing sampling by MSK	IS 5182(P-11,12) & USEPA
9. Field Equipments Used	Pratik Kr. Maitri
	MSK/BAUPL/ED/2023-24

Report No. : MSKPL/ED/2023-24/915108

Sample No. : MSKNB/ED/2023-24/03/0531A2

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	0 (Annual)	BOL(DL-1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	0 (Annual)	BOL(DL-4.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BOL(DL-0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.03
5	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	0.25
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	7.8

Opinion :

Limit as per CPCB notification, New Delhi, 1997 (Parameter 2002 for Ambient air quality)

Statement of Conformity : NA

— END —

Received By:

Signature

Name

Designation

P. Garguly  
Mr. P. Garguly

Executive Chemist

Authorized Signatory:

Signature

Name

Designation

Dr. Soumitra Mukherjee  
Lab in charge

This report valid only to the sample tested.

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This received part of sample(s) for chemical analysis (then - subsequently complete) Food, Water, Soil, shall be retained for 15 days from the date of issue of the Test Report. Hazardous sample(s) shall be retained 3 days from the date of issue of the Test Report.

This received part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB provision &amp; User's commitment till end of issue of the Test Report. This received part of sample(s) for Microbiological analysis (Micro - penetrate sample(s) Food, Sewage Water, Basted food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shreeji Centre (4th Floor) 74B, A+C, Bore Road, Kolkata - 700019, West Bengal, India  
Tel : 91 33 4016000 / 52600007 Fax : 91 33 25504005  
Email: info@mitras.com Website: www.mitrask.com



# Mitra S. K. Private Limited

Address of Branch :

P.O. Barhi II Kanchhar Orissa 758035



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## TEST REPORT

Name & Address of Customer :

Joda Steel Ltd (MSM) Joda West

AsPa - Joda, Dist - Kanchhar, Orissa - 758034 India (In)

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/005507

28/03/2024

MSKGL/ED/2023-24/0310004

3000156017/550, Date - 15/03/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda Steel Iron & Mn. Mines (JSMIM)
4. Date of sampling	18/03/2024
5. Place of sampling	Near D/G Quarry, Joda (JSMIM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Referencing Plant & Method used	NA

Report No. : MSKGL/ED/2023-24/005507

Sample No. : MSKGL/ED/2023-24/0310004

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	DOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	13.7
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (IO)	2 8HR.	0.47
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 6) (IO)	80 24 HR.	19.3
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 3)	160 1 HR.	EDL (DL 20.0)
5	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 25) (IO)	100 24 HR.	209
6	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 25) (IO)	60 24 HR.	38
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (IO)	80 24 HR.	7.7

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory

Head Office: 200/201, 202/203, 204, A-1, C, New Road, Kolkata - 700018, West Bengal, India.  
Tel: 91 33 4603000 / 22050897 Fax: 91 33 22560000  
Email: info@msk.com Website: www.msk.com

Page 1 of 1



# Mitra S. K. Private Limited

Doc No.: MSK/02N/1907

## Address of Laboratory :

Building No. F-18, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044038120  
Email: udayanlab@mitrask.com



TC-5950



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ILR: TC-59502400005347F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

AMPS - Joda, Dist. - Kewajpur, Odisha - 758034 India

### Report No. :

MSKFL/ED/2023-24/G1610T

### Date :

23/03/2024

### Sample No. :

MSKNB/ED/2023-24/03/F83180

### Date of receipt of sample:

21/03/2024

### Date(s) of performance:

21/03/2024 - 28/03/2024

### Location of performance of

Permitted Facility

### Reference No. & Date :

3000196017/065, Date: 18/09/2023

### Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmosphere Pollution
2. Description of sample	Ambient Air
3. Unique Idem (location of sample if any)	NA
4. Date of sampling	19/03/2024
5. Place of sampling	Near D-Quarry Spring Yard, (JWMM)
6. Environmental conditions during sampling & transport	1) Temperature: 16-22 deg C 2) Barometric Pressure: 708 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	(S-5) (R-1) (F-1) (F-2) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik K. Mariri
9. Field Equipments Used	MSK/BSL/FIELD/R05-S

Report No. : MSKFL/ED/2023-24/G1610T

Sample No. : MSKNB/ED/2023-24/03/F83180

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL (DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	6 (Annual)	BDL (DL:4.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL (DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL (DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.13
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL (DL:5.0)

### Opinion :

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity: NA

— END —

### Received By:

Signature

Name

Designation

Mr. Pankaj Dasgupta

Executive Chemist

### Authorized Signatory:

Signature

Name

Designation

Dr. Soumitra Dasgupta

Lab In charge

This result relate only to the item(s) tested

This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

This retained part of sample(s) for chemical analysis (Water - permissible parameter) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. (Permissible sample(s) shall be retained 2 days from the date of issue of the Test Report).

This retained part of sample(s) for chemical analysis (Lead, Cadmium &amp; Arsenic) shall be retained for 15 days as per CPCB guideline &amp; (For 1 month from the date of issue of the Test Report).

This retained part of sample(s) for microbiological analysis (Mn - permissible parameter) Food, Sewage Water, Surface water) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Ground Floor (1st Floor) 7/18, A.J.C. Bose Road, Kolkata - 700028, (West Bengal, India)  
Tel: 91 32 4014300 / 2240007 Fax: 91 32 2240008  
Email: info@mitrask.com www.mitrask.com





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## Name & Address of Customer :

Fata Steel Ltd (MNM), Joda West

AdPo. - Joda Dist. - Keonjhar, Odisha - 758034 India (IN)

## TEST REPORT

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGLIED/2023-24/005590

26/03/2024

MSKGLIED/2023-24/0300803

30/01/2023/1158, Date - 15/01/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:-

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn. Mining (JWMM)
4. Date of sampling	19/03/2024
5. Place of sampling	Near D-Cherry Barring Yard (JWMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	WM

Report No. : MSKGLIED/2023-24/005590

Sample No. : MSKGLIED/2023-24/0300803

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2)	400 24 HR.	11.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (O)	2 8HR.	0.46
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 8) (O)	80 24 HR.	19.9
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	100 1 HR.	BDL (DL:20.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 (Part 3) (O)	100 24 HR.	204
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (Part 4) (O)	60 24 HR.	110
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (O)	60 24 HR.	6.6

END

Report Verified By

(Signature)

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. F-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700016  
West Bengal  
Tel : +91 7044035120  
Email: lab@mitra.sk.com



TC-0950



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URL: TC-095024000005346F

## TEST REPORT

### Name & Address of Customer:

Tata Steel Ltd (MGM), Joda West

Address: Joda, Dist: Raipur, Odisha - 755034 India

Report No. :

MSKPL/ED/2023-24/E16104

Date :

26/03/2024

Sample No. :

MSKNB/ED/2023-24/03/7C31BT

Date of receipt of sample:

21/03/2024

Date(s) of performance:

21/03/2024 - 28/03/2024

Location of performance of

Remission Facility

Reference No. & Date :

3000158017/056, Date: 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results.

1. Group	Atmospheric Pollutants
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	19/03/2024
5. Place of sampling	Near Time Office, (JNIMU)
6. Environmental conditions during sampling & (receptor)	1) Temperature: 14-22 deg C 2) Barometric Pressure: 708 mm of Hg 3) Rain fall: No & Clouds: Maintained
7. Sampling Plan & Method used	IS 5182 (Part 1) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik K. Mantri
9. Field Equipments Used	MSK/SEL/FIELD/PCS-2

Report No. : MSKPL/ED/2023-24/E16104

Sample No. : MSKNB/ED/2023-24/03/7C31BT

## RESULT

### Chemical

Sl No	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 1)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 1)	1 (Annual)	BDL(DL:0.5)
4	Lead as (Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	HOL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.23
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion:

Limit as per CPCB notification, New Delhi, with Amendment 2009, for Ambient air quality

Statement of Conformity: NA

— END —

Reviewed by:

Signature

Name

Designation

P. Ganguly  
MS. Poo Ganguly

Executive Chemist

Authorized Signatory:

Signature

Name

Designation

Dr. Soumitra

Lab In-charge

The results relate only to the test(s) stated

This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

The retained part of sample(s) for laboratory analysis (Micro-chemical analysis) (Food, Water) shall be retained for 15 days from the date of issue of this Test Report. (Micro-chemical analysis) shall be retained for 2 days from the date of issue of this Test Report.

The retained part of sample(s) for chemical analysis (Micro, Macro & Liquid Waste) shall be retained for 15 days as per CPCB guideline or (1) month from the date of issue of this Test Report.

The retained part of sample(s) for microbiological analysis (Food, Water, Sewage) shall be retained for 15 days from the date of issue of this Test Report.

Head Office: 3000158017/056, Date: 16/09/2023

Tel : 91 30 4014000 / 2209337 Fax : 91 30 2209008

Email: info@mitra.sk.com Website: www.mitra.sk.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MSM), Joda Wadda

At Po. - Joda, Dist. - Kanchitara, Orissa - 758034 India (IN)

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/005575

28/03/2024

MSKGL/ED/2023-24/03/00602

3000158017056, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (any)	Joda Wadda Iron & Mn. Mines (JWMM)
4. Date of sampling	19/03/2024
5. Place of sampling	Near Time Office, (JWMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	N/A

Report No. : MSKGL/ED/2023-24/005575

Sample No. : MSKGL/ED/2023-24/03/00602

## RESULT

### Analysis Result of Ambient Air

Sl No	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	13.7
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (D)	3 8HR	0.43
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 8) (D)	80 24 HR	17.5
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	100 1 HR	BOL/DL (20.0)
5	Particulate Matter (<10µm)	micro gm/m <sup>3</sup>	IS 5182 (Part 23) (D)	400 24 HR	203
6	Particulate Matter (<2.5µm)	micro gm/m <sup>3</sup>	IS 5182 (Part 24) (D)	80 24 HR	98
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 2) (D)	80 24 HR	9.8

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory

Head Office:

Chandrasekhar Road, P.O. A.J.G. Road, Kolkata - 700056, West Bengal, India.  
Tel : 91 33 46543001 / 2002502 Fax : 91 33 46543005  
Email : info@mitraspk.com Website : www.mitraspk.com

Page 1 of 1



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
D, Pipladanga Road, Kulkas 700116  
West Bengal  
Tel. : +91 7044038120  
Email: udayanind@mitrask.com



TC-6880



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/To: Joda, Dist. - (Kachhikuli) Odisha - 756034 1008

### Report No. :

MSKPL/ED/2023-24/1143C7

### Date :

11/03/2024

### Sample No. :

MSKNB/ED/2023-24/03/NW252V

### Date of receipt of sample:

11/03/2024

### Date(s) of performance:

04/03/2024 - 08/03/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156017/056, Date - 16/09/2023

### Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	02/03/2024
5. Place of sampling	Anganbadi Centre Bichkund Basti (JWMM)
6. Environmental conditions during sampling & Transport	1) Temperature : 17-21 deg C 2) Barometric Pressure: 706 mm of Hg 3) Rain fall No & Cold Chain Maintenance
7. Sampling Plan & Method used	IS 5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pankaj Kumar Mishra
9. Field Equipments Used	N/A

Report No. : MSKPL/ED/2023-24/1143C7

Sample No. : MSKNB/ED/2023-24/03/NW252V

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as As	ng/m3	USEPA-IO 3,4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3,4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3,4, June	Not Specified	0.14
6	Nickel as Ni	ng/m3	USEPA-IO 3,4, June	20 (Annual)	BDL(DL:3.0)

### Opinion :

Limit as per CPCB notification, New Delhi, 19th November 2008, for Ambient air quality

Statement of Conformity : NA

END

### Reviewed By:

Signature

Name

Designation

Dr. Debajit Banerjee

Dr. Debajit Banerjee

Technical in Charge

### Authorized Signatory

Signature

Name

Designation

Dr. Debajit Banerjee

Technical in Charge

The results relate only to the item(s) tested

This Test Report shall not be reproduced or used in any way without the permission of Mitra S.K. Private Limited.

The retention time of sample(s) for chemical analysis (both - portable sample(s) Food, Water) shall be minimum 30 (30) days from the date of issue of the Test Report. Portable sample(s) shall be retained 2 (two) days from the date of issue of the Test Report.

The retention time of sample(s) for chemical analysis (both - liquid & solid) shall be retained for 15 (fifteen) days as per CPCB guidelines & (All) - 1 (one) copy from the date of issue of the Test Report.

The retention time of sample(s) for Microbiological analysis (both - portable sample(s) Food, Bacteriological, Seawater (both) shall be retained for 15 (fifteen) days from the date of issue of the Test Report.

Head Office: 48/49, Sector 10, Phase II, G.D. Birla Road, Kulkas - 700116, West Bengal, India  
Tel. : 91 33 40143800 / 22660007 Fax : 91 33 22660009  
Email : info@mitrask.com Website : www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MSM), Joda West

At Po. - Joda, Dist. - Koorjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/005191

Date :

03/03/2024

Sample No. :

MSKGL/ED/2023-24/0300131

Reference No. & Date :

IG00156017/059, Date - 15/04/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines (JWIMM)
4. Date of sampling	02/03/2024
5. Place of sampling	Amgerton Centre, Panchakul, Joda West (JWIMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Flow & Method used	IS

Report No. : MSKGL/ED/2023-24/005191

Sample No. : MSKGL/ED/2023-24/0300131

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UCM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	BDL (DL: 10.0)
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (C)	2 8HR	0.37
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 6) (C)	80 24 HR.	17.1
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 8)	180 1 HR.	BDL (DL: 20.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 (Part 20) (C)	500 24 HR.	147
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) (Part 6) (C)	60 24 HR.	57
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (C)	80 24 HR.	0.2

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-40, Udayan Industrial Estate,  
9, Pogledanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044035120  
Email : udayanlab@mitrask.com



TC-6890



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URL: TC-695024000003879F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

Attn:- Joda, Dist:- Keonjhar, Odisha - 756034 India

Report No. :

MSKPL/ED/2023-24/0143CC

Date :

11/03/2024

Sample No. :

MSKNB/ED/2023-24/03CXU532

Date of receipt of sample:

04/03/2024

Date(s) of performance:

04/03/2024 - 08/03/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056, Date : 16/08/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by U/L has been analysed with the following results.

1. Group	Atmosphere Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	NA
4. Date of sampling	02/03/2024
5. Place of sampling	Admin Office Bichkundri (JVM/M)
6. Environmental conditions during sampling & Transport	1) Temperature: 17-31 deg C 2) Barometric Pressure: 709 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSN	Pankaj Kumar Mahanta
9. Field Equipments Used	N/A

Report No. : MSKPL/ED/2023-24/0143CC

Sample No. : MSKNB/ED/2023-24/03CXU532

## RESULT

Chemical					
Sl No	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-10 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro g/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro g/m3	USEPA-10 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro g/m3	USEPA-10 3.4, June	Not Specified	0.14
6	Nickel as Ni	ng/m3	USEPA-10 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 19th November 2008, for ambient air quality

Statement of Conformity NA

— END —

Reviewed by:

Signature:   
Name: Dr. Devendra Banerjee  
Designation: Technical in Charge

Authorized Signatory:

Signature:   
Name: Pankaj Kumar Mahanta  
Designation: Lab in Charge

The results relate only to the test(s) listed

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Soil, Air, Water, Sediment, etc.) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

Head Office: Shree Centre (9th Floor), TARE, A/1, D. West End Road, Kolkata - 700015, West Bengal, India  
Tel. : 0133 4914000 / 2283002 Fax : 0133 2283002  
Email : info@mitrask.com Website : www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MSM), Joda West

Air Po. : Joda Dist. : Kancherla, Odisha - 756034 India Pin

Report No. :

MSKGLIED/2023-24/005194

Date :

14/03/2024

Sample No. :

MSKGLIED/2023-24/03/00130

Reference No. & Date :

MSKGLIED/2023-24/03/00130, Date : 15/03/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn. Mine (JWMM)
4. Date of sampling	03/03/2024
5. Place of sampling	Adm Office Bichkundoli J.V. Road
6. Environmental conditions during sampling & transport	Clear & Sunny
7. Sampling Plan & Method used	ref.

Report No. : MSKGLIED/2023-24/005194

Sample No. : MSKGLIED/2023-24/03/00130

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 25)	400 24 HR	11.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (C)	2 24 HR	0.27
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 6) (C)	80 24 HR	17.0
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 8)	160 24 HR	0.01 (0.25, 1)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS: 5182 (Part 20) (C)	100 24 HR	1.06
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS: 5182 (Part 20) (C)	80 24 HR	0.4
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 2) (C)	80 24 HR	0.01 (0.1, 0.5)

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



# Mitra S. K. Private Limited

DE/PL - MSKGEN1807

## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pogatanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrasr.com



TC-8850



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URL: TC-8850/2400004488F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM), Joda West

ALPs : Joda Dist - Keonjhar, Odisha - 756004 India

### Report No. :

MSKPL/ED/2023-24/11517F

### Date :

16/03/2024

### Sample No. :

MSKNB/ED/2023-24/03/P3LB8P

### Date of receipt of sample :

08/03/2024

### Date(s) of performance :

08/03/2024 - 11/03/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156617/058, Date : 16/09/2023

### Discipline :

Chemical

We hereby certify that the following sample Drawn by us has been analysed with the following results.

1. Group	Ambient Air Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	06/03/2024
5. Place of sampling	Lab building Joda
6. Environmental conditions during sampling & transport	1) Temperature: 17-28 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall
7. Sampling Plan & Method used	MoA Cold Chain Monitored
8. Identification of the personnel performing sampling by MSK	IS 5102 (Part 11) & USEPA
9. Field Equipments Used	Latin Nalk, Akash Sethy
	NA

Report No. : MSKPL/ED/2023-24/11517F

Sample No. : MSKNB/ED/2023-24/03/P3LB8P

## RESULT

### Chemical

Sl No	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	0 (Annual)	BDL (DL: 1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL (DL: 4.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL (DL: 0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.31
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL (DL: 5.0)

### Option :

List as per CPCB notification, New Delhi, 16th December 2009, for ambient air quality.

Statement of Conformity : NA

— END —

Drawn by :

Signed :

Name :

Designation :

Mr. Poo Garguly

Executive Chemist

Authorized Signatory

Signature :

Name :

Designation : Executive Chemist

P. Garguly

Mr. Poo Garguly

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

The reserved part of the copy for chemical analysis (HMT - Permissible Ambient) Road, Water, Soil, Slatted Water, Slatted Soil) shall be retained for 15 days from the date of issue of the Test Report. Permissible sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of the copy for chemical analysis (Lead, As &amp; Ni in all Water) shall be retained for 15 days as per CPCB guidelines &amp; (As &amp; Ni) from the date of issue of the Test Report.

The reserved part of the copy for Microbiological analysis (HMT - Permissible Ambient) Road, Slatted Water, Slatted Soil) shall be retained for 15 days from the date of issue of the Test Report.

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Tel : +91 33 401 63020 / 17450007 Fax : +91 33 22030902  
Email : info@mitrasr.com website : www.mskpl.com





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## TEST REPORT

### Name & Address of Customer :

Fate Sawai (30/MSM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Orissa - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/005238

Date :

16/03/2024

Sample No. :

MSKGL/ED/2023-24/0000217

Reference No. & Date :

3005158017, Date - 28/02/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Sawai & Mn. Mines (JWMMS)
4. Date of sampling	05/03/2024
5. Place of sampling	Life building Joda
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/005238

Sample No. : MSKGL/ED/2023-24/0000217

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ambient (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	19.0
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (C)	2 8HR	0.11
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 5) (C)	80 24 HR	21.4
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 6)	150 1 HR	90.0 (L 20.0)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (C)	100 24 HR	11.1
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) (2019) (C)	60 24 HR	69
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 3) (C)	80 24 HR	0.1

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory









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## TEST REPORT

### Name & Address of Customer :

Jala Steel Ltd.(MSM), Jala West

AtPO - Jala, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/005239

14/03/2024

MSKGL/ED/2023-24/0050216

06/0158017, Date : 28/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Jala West Iron & Mn. Mines (JWMM)
4. Date of sampling	06/03/2024
5. Place of sampling	Jala West Project Area
6. Environmental conditions during sampling & transport	Clear & Sunny
7. Sampling Para & Method used	NA

Report No. : MSKGL/ED/2023-24/005239

Sample No. : MSKGL/ED/2023-24/0050216

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	16.1
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (C)	2 8HR	0.18
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 6) (C)	80 24 HR	21.0
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 3)	160 1 HR	BOL (C) (20.0)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (C)	100 24 HR	175
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) 2019 (C)	60 24 HR	70
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (C)	80 24 HR	6.5

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P- 45, Udayan Industrial Estate  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TG-6950



Scan for Portal

URL: TC-695024000005973F

## Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

ANPn - Joda, Dist - Kanchipur, Orissa - 756034 - India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample :

Date(s) of performance :

Location of performance of

Reference No. & Date :

Discipline :

MSKPLJED/2024-25/VN622X

03/04/2024

MSK/NB/ED/2023-24/03/243350

23/03/2024

23/03/2024 - 05/04/2024

Permanent Facility

3000150017/050, Date - 16/09/2023

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	NA
4. Date of sampling	20/03/2024
5. Place of sampling	Roida School
6. Environmental conditions during sampling & transport	1) Temperature: 14-28 deg C 2) Barometric Pressure: 709 mm of Hg 3) Rain fall Mo. & Cold Clear, Moderate
7. Sampling Plan & Method used	IS 5162 (Part 1), IS 5162 (Part 2)
8. Identification of the personnel performing sampling by MSK	Pranab K Sett
9. Field Equipments Used	MSK/BBL/FIELD/ROD-14

Report No. : MSKPLJED/2024-25/VN622X

Sample No. : MSK/NB/ED/2023-24/03/243350

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	0 (Annual)	BDL (DL: 1.0)
2	Benzene	micro gram/m3	IS 5162 (Part 11)	5 (Annual)	BDL (DL: 4.2)
3	Benz[a]Pyrene	ng/m3	IS 5162 (Part 12)	1 (Annual)	BDL (DL: 0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL (DL: 0.01)
5	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	0.10
5	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL (DL: 5.0)

Option : Limit as per BPCR notification, New Delhi, 1987 (November 2008), for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name

Designation

Ms. Poo Garguly

Executive Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Subhankar Majumdar

Lab in charge

This report is valid only for the test(s) listed.

This Test Report shall not be reproduced (used in full, or part) without the permission of Mitra S. K. Private Limited.

The retained part of sample for analytical purpose (Met - analytical sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Retainable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for microbiological purpose (Met - perishable sample(s) Food, Sewage Water, Surface Soil) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Mitra S. K. Private Limited, 74B, A.J.C. Bose Road, Kolkata - 700015, West Bengal, India.  
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Email: info@mitrask.com / info@msk.com www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Jada Steel Ltd.(MGM) , Jada West

At/To : Jada, Dist - Keonjhar, Odisha - 758034 India Pin

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/005618

28/03/2024

MSKGL/ED/2023-24/0510020

3000156017/050, Date - 15/03/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	Jada West Iron & Mn Mine (JWMM)
4. Date of sampling	20/03/2024
5. Place of sampling	Rasta School
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/005618

Sample No. : MSKGL/ED/2023-24/0510020

## RESULT

### Analysis Result of Ambient Air

Sl No	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	BDL(UL:10)
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 18) (D)	2 8HR.	0.24
3	Nitrogen Dioxide (NO <sub>2</sub> )	microgram/m <sup>3</sup>	IS: 5182 (Part 6) (D)	80 24 HR.	16.5
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL(UL:20.0)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS: 5182 (Part 73) (D)	150 24 HR.	147
6	Particulate Matter (>2.5µm)	micro gram/m <sup>3</sup>	IS: 5182 (Part 73) (D)	50 24 HR.	63
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 9) (D)	80 24 HR.	BDL(UL:8.0)

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory:

Building No. F-46, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700016  
West Bengal  
Tel.: +91 7044036120  
Email: udayanlab@mitraskl.com



TC-6950



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URL: TC-6950240000052146

## TEST REPORT

### Name & Address of Customer:

Tata Steel Ltd. (MSK) Joda West

At/Po: Joda Dist: Keonjhar Odisha - 756054 India

Report No.:

Date:

Sample No.:

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date:

Discipline:

MSKPL/ED/2023-24/R16058

26/03/2024

MSKNB/ED/2023-24/O3/O1278W

18/03/2024

18/03/2024 - 26/03/2024

Paramount Facility

3000156017/058, Date: 18/09/2022

Chemical

We hereby certify that the following sample Drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	18/03/2024
5. Place of sampling	Near General Office Khairiandi
6. Environmental conditions during sampling & Transport	1) Temperature: 18-22 deg C 2) Barometric Pressure: 715 mm of Hg 3) Rain fall: No & Cold Chain/Moisture: No
7. Sampling Plan & Method used	IS: 5162 (Part 11, 13) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Mariti
9. Field Equipments Used	MSK/BBL/FIELDVDS-1A

Report No.: MSKPL/ED/2023-24/R16058

Sample No.: MSKNB/ED/2023-24/O3/O1278W

## RESULT

### Chemical

Sl No	Parameter	UCM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL (DL: 1.0)
2	Benzene	micro gram/m3	IS 5162 (Part 11)	5 (Annual)	BDL (DL: 4.2)
3	Benz(a)Pyrene	ng/m3	IS 5162 (Part 12)	1 (Annual)	BDL (DL: 0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.03
5	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	0.43
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	23.8

Option:

Limit as per CPCB notification, New Delhi, 16th November 2009, for Ambient air quality

Statement of Conformity: NA

END

Reviewed By:

Signature

Name

Designation

Executive Chemist

Authorised Signatory:

Signature

Name

Designation

Lab In-charge

Our results relate only to the sample(s) tested.

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The report(s) part of sample(s) for chemical analysis (i.e. for reference sample(s) For, Water) shall be retained for 15 days from the date of issue of the Test Report.

For the date of issue of the Test Report.

The reference part of sample(s) for chemical analysis (i.e. For Liquid Waste) shall be retained for 15 days as per CPCB guidelines. For 1 month from the date of issue of the Test Report.

For reference part of sample(s) for chemical analysis (i.e. For Solid Waste) shall be retained for 15 days from the date of issue of the Test Report.

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For reference part of sample(s) for chemical analysis (i.e. For Solid Waste) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: 3/46, Chandra (old) Road, 7th, A.J.C. Road, Kolkata, India - 700006. West Bengal, India.  
Tel.: +91 33 40141000 / 2968007 Fax: +91 33 22960000  
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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MSM) Joda Road

AsPO - Joda, Dist. - Keonjhar, Orissa - 758034 India Pin

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/005573

27/03/2024

MSKGL/ED/2023-24/03/00652

3001166012/058, Date - 15/03/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda Road Iron & Mn. Mines (JWMM)
4. Date of sampling	15/03/2024
5. Place of sampling	Near General Office (Khandbari)
6. Environmental conditions during Sampling & Transport	Clear & Sunny
7. Sampling Flare & Method Used	NA

Report No. : MSKGL/ED/2023-24/005573

Sample No. : MSKGL/ED/2023-24/03/00652

## RESULT

### Analysis Result of Ambient Air

Sl.No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	BOL/DL:19.0)
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (C)	2 24HR	0.44
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 6) (C)	80 24 HR.	20.1
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 3)	180 1 HR.	BOL/DL:20.0)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (C)	100 24 HR.	134
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) 2018 (C)	60 24 HR.	57
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (C)	80 24 HR.	1.0

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015,  
West Bengal  
Tel. : +91 7044030720  
Email : udayanlab@mitrasmk.com



TC-0530



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## Name & Address of Customer :

Tata Steel Ltd. (MGM), Joda West

A/Po. - Joda, Dist. - Kachhjar, Odisha - 756034 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSK/PL/ED/2023-24/1603E

26/03/2024

MSK/NB/ED/2023-24/1617Y2777

16/03/2024

16/03/2024 - 26/03/2024

Permanent Facility

3000156017/056, Date : 16/09/2023

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	16/03/2024
5. Place of sampling	Kesh Building, Pulp House
6. Environmental conditions during sampling & Transport	1) Temperature: 19-32 deg C; 2) Barometric Pressure: 715 mm of Hg; 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS: 5182 (Part 1), 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Marri
9. Field Equipments Used	MSK/BBU/FIELD/ROS-13

Report No. : MSK/PL/ED/2023-24/1603E

Sample No. : MSK/NB/ED/2023-24/03/17Y2777

## RESULT

### Chemical

Sl No	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA IO 3.4, June	6 (Annual)	BDL (DL 1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 1-1)	6 (Annual)	BDL (DL 4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL (DL 0.6)
4	Lead (as Pb)	micro gram/m3	USEPA IO 3.4, June	1 (24 Hours)	BDL (DL 0.01)
5	Manganese as Mn	micro gram/m3	USEPA IO 3.4, June	Not Specified	0.10
6	Nickel as Ni	ng/m3	USEPA IO 3.4, June	20 (Annual)	BDL (DL 5.0)

Option 1

Limit as per CPCB notification, New Delhi, 16th November 2008, for Ambient air quality

Statement of Conformity: NA

— END —

Reviewed By:

Signature:

Name:

Designation:

Mr. P. K. Ganguly

Executive Chemist

Authorized Signatory:

Signature:

Name:

Designation:

Dr. S. K. Ganguly

Lab In-charge

The results may only be interpreted as follows:

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The retention time of sample(s) for chemical analysis (Non-hazardous except for Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Hazardous sample(s) shall be retained for 2 days.

The retention time of sample(s) for chemical analysis (Non-hazardous except for Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Hazardous sample(s) shall be retained for 2 days.

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The retention time of sample(s) for chemical analysis (Non-hazardous except for Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Hazardous sample(s) shall be retained for 2 days.

Head Office: Shree Chandra 12th Floor, 74D, A.C. Road, New Market, Kolkata - 700016, West Bengal, India.  
Tel. : 91 3840143506 / 3840007 Fax : 91 38 32880000  
Email : info@mitrasmk.com Website : www.mitrasmk.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM) Joda West

ATP, Joda, Dist. - Keonjhar, Odisha - 756034 India Pin

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/005574

27/03/2024

MSKGL/ED/2023-24/000631

3000166017/058, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results.

1. General	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn Mines (JWMM)
4. Date of sampling	19/03/2024
5. Place of sampling	Katha Joda West Iron & Mn Mines
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/005574

Sample No. : MSKGL/ED/2023-24/000631

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Unit	Result
1	Ammonia (NH <sub>3</sub> )	mg/m <sup>3</sup> (ppm)	IS 5162 (Part 25)	400 24 HR	BOL (DL:18.6)
2	Carbon Monoxide (CO)	ppm	IS 5162 (Part 10) (O)	2 24 HR	0.45
3	Nitrogen Dioxide (NO <sub>2</sub> )	ppm	IS 5162 (Part 61) (O)	80 24 HR	15.8
4	Ozone (O <sub>3</sub> )	ppm	IS 5162 (Part 11)	180 1 HR	BOL (DL:20.0)
5	Particulate Matter (<10µm)	mg/m <sup>3</sup>	IS 5162 (Part 23) (O)	100 24 HR	156
6	Particulate Matter (<2.5µm)	mg/m <sup>3</sup>	IS 5162 (Part 23) (O)	60 24 HR	66
7	Sulphur Dioxide (SO <sub>2</sub> )	ppm	IS 5162 (Part 12) (O)	60 24 HR	7.5

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Head Office:

Greenfield, (B. Road), 149, A.J.C. Road, Bandi, Odisha - 756034, West Bengal, India.  
Tel: +91 361 450001 (extension) Fax: +91 361 4500006  
Email: info@mitras.com Website: www.mitras.com

Page 1 of 1









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## Name &amp; Address of Customer :

Tata Steel Ltd. (MGM) Joda West

A.P.O. - Joda, Dist. - Kancher, Odisha - 758034, India Pin

## TEST REPORT

Report No. :

MSKGL/ED/2024-25/000005

Date :

03/04/2024

Sample No. :

MSKGL/EDQ013-24/03/01111

Reference No. &amp; Date :

KOD156017/050, Date : 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines (JWMM)
4. Date of sampling	27/03/2024
5. Place of sampling	Near Time Office (JWMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/000005

Sample No. : MSKGL/ED/2023-24/03/01111

## RESULT

## Analysis Result of Ambient Air


Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5162 (Part 25)	400 24 HR.	16.2
2	Carbon Monoxide (CO)	ppm/m <sup>3</sup>	IS: 5162 (Part 10) (C)	2 BHL	0.58
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5162 (Part 9) (C)	60 24 HR.	22.1
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5162 (Part 3)	160 1 HR.	BDL (DL 20.0)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS: 5162 (Part 23) (C)	100 24 HR.	25.8
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS: 5162 (Part 21) 2013 (C)	60 24 HR.	102
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5162 (Part 21) (C)	60 24 HR.	7.3

— END —

Report Verified By



For Mitra S. K. Private Limited


  
 Authorised Signatory

Head Office:

 Service Centre (S&T) : MG, P.O., Durgam Chaudhary - 700016, West Bengal, India  
 Tel : 91-22-49143000 / 2249143001 / 2249143002 / 2249143003  
 Email : hq@mitras.com / joda@mitras.com / joda@mitras.com

Page 1 of 1



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate  
3, Pongabanga Road, Kolkata 700016  
West Bengal  
Tel : +91 7044030120  
Email: udayanlab@mitrasa.com



TC-8282



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URL: TC-59002400006561F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MSM), Joda West

Attn: Joda Gst, Westing, Odisha - 758034 India

### Report No. :

MSKPL/ED/2024-25/WPP52W

### Date :

06/04/2024

### Sample No. :

MSKNB/ED/2023-24/036V4572

### Date of receipt of sample :

10/03/2024

### Date(s) of performance :

10/03/2024 - 06/04/2024

### Location of performance of

Remandant Facility

### Reference No. & Date :

MSKPL/ED/2023-24/036V4572

### Discipline :

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	27/03/2024
5. Place of sampling	Nepal Durgam Chauri, Jharkhand
6. Environmental conditions during sampling & Transport	1) Temperature: 19-23 deg C 2) Barometric Pressure: 760mm of Hg 3) Rain fall: No 4) Wind Speed: 10-15 km/h
7. Sampling Plan & Method used	IS 5182 (Part 12)
8. Identification of the personnel performing sampling by MSK	Pranav K. Saha
9. Field Equipments Used	MSK/ED/2023-24/036V4572

Report No. : MSKPL/ED/2024-25/WPP52W

Sample No. : MSKNB/ED/2023-24/036V4572

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as As	mg/m3	USEPA-40 3.4 June	5 (Annual)	BOL (DL 1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BOL (DL 4.2)
3	Benzothiazopyrene	mg/m3	IS 5182 (Part 12)	1 (Annual)	BOL (DL 0.5)
4	Lead as Pb	micro gm/m3	USEPA-40 3.4 June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-40 3.4 June	Not Specified	0.27
6	Nickel as Ni	mg/m3	USEPA-40 3.4 June	20 (Annual)	BOL (DL 5.0)

Opinion : Limit as per CPCB notification New Delhi 18th November 2008 for Ambient air quality

Statement of Conformity : NA

END

Reviewed By :

Signature :

Name :

Designation :

MSKPL/ED/2024-25/WPP52W

Environmental Chemist

Authorized Signatory :

Signature :

Name :

Designation :

MSKPL/ED/2024-25/WPP52W

Lab In-charge

The report is valid only for the period tested.

This Test Report shall be valid for a period of 12 months from the date of issue of the Test Report.

The laboratory shall not be responsible for the results of the analysis if the sample is not properly preserved or if the sample is not properly labeled.

From the date of issue of the Test Report.

The laboratory shall not be responsible for the results of the analysis if the sample is not properly preserved or if the sample is not properly labeled.

The laboratory shall not be responsible for the results of the analysis if the sample is not properly preserved or if the sample is not properly labeled.

The laboratory shall not be responsible for the results of the analysis if the sample is not properly preserved or if the sample is not properly labeled.

Head Office : Mitra S. K. Private Limited, 148, A. C. Road, Kolkata - 700016, West Bengal, India

Tel : +91 7044030120 Fax : +91 7044030120

E-mail : info@mitrasa.com, sales@mitrasa.com





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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd. (MGM), Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2024-25/000009

Date :

03/04/2024

Sample No. :

MSKGL/ED/2023-24/0301112

Reference No. &amp; Date :

3000156017/DSB, Date - 15/03/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn. Mines (JWMM)
4. Date of sampling	27/03/2024
5. Place of sampling	Near D-Quarry Spring Yard, Joda West
6. Environmental conditions during sampling & transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/000009

Sample No. : MSKGL/ED/2023-24/0301112

## RESULT

## Analysis Result of Ambient Air

Sl. No.	Parameter	Unit	Method	Time	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	13.9
2	Carbon Monoxide (CO)	ppm	IS 5182 (Part 10) (C)	2 8HR.	0.54
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 8) (C)	80 24 HR.	22.6
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BOL(DL-20.0)
5	Particulate Matter (<10µm)	micro gm/m <sup>3</sup>	IS 5182 (Part 23) (C)	100 24 HR.	211
6	Particulate Matter (<2.5µm)	micro gm/m <sup>3</sup>	IS 5182 (Part 23) (C)	80 24 HR.	102
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 2) (C)	80 24 HR.	1.4

— END —

Report Verified By



For Mitra S. K. Private Limited


  
Authorized Signatory

Head Office:

 25/201, Ghatika (Bh. Pk.), T.N. A.C. Road, Koldia - 750010, Keonjhar, India.  
 Tel. 91 661-414040 Fax: 91 661 2590009  
 Email: info@mitras.com Website: www.mitrask.com

Page 1 of 1



## Address of Laboratory :

Building No. 24-45, Udayan Industrial Estate  
3, Hazratganj Road, Kolkata 700015  
West Bengal  
Tel : +91 7044090120  
Email: udayanlab@mitrascl.com



TC-0239



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URL: TC-095024030006262

## TEST REPORT

### Name & Address of Customer :

Tina Steel Ltd (MCM), Joda West

Address : Joda West, Keshavnagar, Odisha - 751004 (India).

### Report No. :

### Date :

### Sample No. :

### Date of receipt of sample:

### Date(s) of performance:

### Location of performance of

### Reference No. & Date :

### Discipline:

MSKPL/CD/2024-25/V75529

15/04/2024

MSKNB/ED/0023-24/09MMMMW

15/04/2024

10/03/2024, 05/04/2024

Permanent Facility

MSKPL/CD/11/058, Date : 15/06/2023

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results

1. Group	Ambient Air
2. Description of sample	Ambient Air
3. Unique Identification of sample (Factory)	NA
4. Date of sampling	27/03/2024
5. Place of sampling	Neat D-Quarry Screen (75)MM
6. Environmental conditions during sampling & transport	15 Temperature : 19.30 deg C 20 Barometric Pressure: 705 mm of Hg 31 Rain fall No & Cold Churn Malfunction
7. Sampling Plan & Method used	IS 5162 (Part 11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pranay Tri Gopi
9. Field Equipments Used	MSKBBB/FIELD/PLS-II

Report No. : MSKPL/ED/2024-25/V75529

Sample No. : MSKNB/ED/0023-24/03/WD455W

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1.	Arsenic as (As)	ng/m3	USEPA-ID 3.4 June	5 (Annual)	BDL (DL 1.0)
2.	Benzene	micro g/m3	IS 5152 (Part 11)	5 (Annual)	BDL (DL 4.2)
3.	Benzo(a)Pyrene	ng/m3	IS 5162 (Part 12)	1 (Annual)	BDL (DL 0.5)
4.	Lead (as Pb)	micro g/m3	USEPA-ID 3.4 June	1 (24 hours)	BDL (DL 0.01)
5.	Manganese as Mn	micro g/m3	USEPA-ID 3.4 June	Not Specified	0.23
6.	Ticket as Ni	ng/m3	USEPA-ID 3.4 June	20 (Annual)	BDL (DL 5.0)

Opinion : (Nil) as per CPCB notification, New Delhi, 19th November 2009, for Ambient air quality

Statement of Conformity : NA

END

Reviewed By

Signature

Name

Designation

*[Signature]*

Mr. Pratik Das

Executive Chemist

Authorized Signatory

Signature

Name

Designation

*[Signature]*

Mr. Pratik Das

The results made only to the client's use.

This Test Report shall not be reproduced without prior written permission of Mitra S. K. Private Limited.

The relevant part of sample for chemical analysis shall be identified by the client. Within 15 days from the date of issue of the Test Report, the client shall be required to supply the relevant part of sample for the Test Report.

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Head Office: 24-45, Udayan Industrial Estate, Building No. 24-45, Udayan Industrial Estate, Kolkata 700015, West Bengal, India.

Tel : +91 7044090120 Fax : +91 7044090120

Email : info@mitrascl.com Website : www.mitrascl.com



Address of Branch :

P.O., Badli Di Kapatthar Orissa 758 035



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**TEST REPORT**

Name &amp; Address of Customer :

Tata Steel Ltd (JNM), Joda West

At Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2024-25/000015

Date :

15/09/2024

Sample No. :

MSKGL/ED/2023-24/0301113

Reference No. &amp; Date :

3000156017/056, DHD - 15/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines (JNM)
4. Date of sampling	27/03/2024
5. Place of sampling	Near Di Quarry, Joda West
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/000015

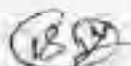
Sample No. : MSKGL/ED/2023-24/0301113

**RESULT****Analysis Result of Ambient Air**

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	100 24 HR.	15.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (C)	2 3HR.	0.54
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 8) (C)	80 24 HR.	20.2
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 18)	180 4 HR.	BCL (DL 30.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (C)	100 24 HR.	208
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) 2015 (C)	50 24 HR.	98
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 21) (C)	80 24 HR.	7.3

— END —

Report Verified By



For Mitra S. K. Private Limited


  
 Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate  
2, Pipladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7944036120  
Email : utayanssk@mitrask.com



TC-0056



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ULR : TC-095024000005253F

## TEST REPORT

### Name & Address of Customer :

Taka Steel Ltd (MGM), Joda West

APR : Joda Dist. : Kalyanpur, Odisha : 758034 India

### Report No. :

MSKPLR02024-05AYT52X

### Date :

06/04/2024

### Sample No. :

MSK/BB/D02023-24/057A4554

### Date of receipt of sample :

30/1/2024

### Date(s) of performance :

30/03/2024 - 06/04/2024

### Location of performance of

Permanent Facility

### Reference No. & Date

3000150017/055, Date : 10/03/2023

### Discipline :

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following details

1. Group	Ambient Air
2. Description of sample	Ambient Air
3. Unique Identification of sample (any)	NA
4. Date of sampling	27/03/2024
5. Place of sampling	Near H Quarry Rest Station (WOMM)
6. Environmental conditions during sampling & Transport	1) Temperature : 15-30 deg C, 2) Barometric Pressure : 760 mm of Hg, 3) Rain fall
7. Sampling Plan & Method used	NA & Cold Chain Maintained
8. Identification of the personnel performing sampling by MSK	IS 5182 Pt. 11, 12 & USEPA
9. Field Equipments Used	Pratibha K. Bhat MSK/BB/FIELD/RO5-1

Report No. : MSKPLR02024-05AYT52X

Sample No. : MSK/BB/D02023-24/057A4554

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1.	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	ND (DL 1.0)
2.	Benzene	micro gram/m3	IS 5182 (Part 11)	5 (Annual)	ND (DL 4.2)
3.	Benzene/Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	ND (DL 0.5)
4.	Lead (as Pb)	micro gram/m3	USEPA-IO 3.4, June	1 (24 Hours)	ND (DL 0.01)
5.	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	0.13
6.	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	5.3

Comment : Limit as per CPCB notification (New Delhi, 18th November 2009) for Ambient air quality

Statement of Customer : NA

END

Received By

Signature

Name

Mr. Anil Kumar

Designation

Executive Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Sanku Kumar

Lab Manager

This report is valid only for the sample(s) tested.  
This Test Report should be used as a reference only, without the permission of Mitra S. K. Private Limited.  
The results are subject to change without notice. (Note : please refer to the Test Method, which is available for 10 days from the date of issue of the Test Report. The valid period of the Test Report is 10 days from the date of issue of the Test Report.)  
The report is valid only for the sample(s) tested. (Note : please refer to the Test Method, which is available for 10 days from the date of issue of the Test Report.)  
The report is valid only for the sample(s) tested. (Note : please refer to the Test Method, which is available for 10 days from the date of issue of the Test Report.)

Head Office:

Ground Floor, Plot No. 149, A-10, Sector-10, Gurgaon, Haryana-122001  
Tel. : +91 98999 99999, Fax : +91 98999 99999  
Email : info@mitrask.com, www.mitrask.com



Address of Branch :

P.O. Bachi Di Kachhar Gress 758 036



Scan for Detail

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd (MSM) Joda West

A/Po - Joda, Dist - Keonjhar, Odisha - 758034 India Pin

**Report No. :**

MSKGL/ED/2024-25/000000

**Date :**

20/04/2024

**Sample No. :**

MSKGL/ED/2023-24/03/01114

**Reference No. & Date :**

1000158017/096, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample(s) (if any)	Joda West Iron & Mn Mines (JWIMM)
4. Date of sampling	27/03/2024
5. Place of sampling	Near H-Quarry Road Junction (JWIMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

**Report No. :** MSKGL/ED/2024-25/000000**Sample No. :** MSKGL/ED/2023-24/03/01114**RESULT****Analysis Result of Ambient Air**

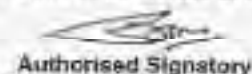
Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	17.2
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 18) (O)	2 8HR	0.54
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR	20.1
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	100 1 hr	BDL(DL:20.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR	216
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS: 5182 (Part 24) (O)	60 24 HR	103
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR	7.1

— END —

Report Verified By



For Mitra S. K. Private Limited

  
Authorised Signatory



# Mitra S. K. Private Limited

## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
1, Padmalaya Road, Kolkata-700015,  
West Bengal  
Tel : +91-904030120  
Email: udayanlab@msk.co.in



Doc No: MSK/EN/1807



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ULR: TC-6950240000062642

## Name & Address of Customer :

Tata Steel Ltd (MSK) Joda West

ALFO - Joda Dist - Sanchal Dist - 758034 India

## TEST REPORT

Report No. :

Date :

Sample No. :

Date of receipt of sample :

Date(s) of performance :

Location of performance of

Reference No. & Date :

Discipline :

MSK/LED/2024-25/MX052Y

06/04/2024

MSK/LED/2023-24/MX7458G

30/07/2024

30/03/2024 - 06/04/2024

Paramarshi Facility

30/01/2021/055, Date : 15/04/2023

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (any)	NA
4. Date of sampling	27/03/2024
5. Place of sampling	Near Railway Station, UDAYAN
6. Environmental conditions during sampling & Transport	1) Temperature : 19.33 deg C 2) Barometric Pressure: 709 mm of Hg 3) Rain (a) No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182 (Part 11)
8. Identification of the personnel performing sampling by MSK	IS 5182 (Part 12) & USEPA
9. Field Equipments Used	Pomax K-500
	MSK/89/FIELD/DRILL

Report No. : MSK/LED/2024-25/MX052Y

Sample No. : MSK/LED/2023-24/MX7458G

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic As (As)	ng/m <sup>3</sup>	USEPA-10 3.4, June	5 (Annual)	BD (DL 1.5)
2	Benzene	micro gram/m <sup>3</sup>	IS 5182 (Part 11)	5 (Annual)	BD (DL 4.2)
3	Benzaldehyde	ng/m <sup>3</sup>	IS 5182 (Part 12)	1 (Annual)	BD (DL 0.5)
4	Lead (as Pb)	micro gram/m <sup>3</sup>	USEPA-10 3.4, June	1 (24 Hours)	0.01
5	Manganese as Mn	micro gram/m <sup>3</sup>	USEPA-10 3.4, June	Not Specified	0.33
6	Nickel as Ni	ng/m <sup>3</sup>	USEPA-10 3.4, June	20 (Annual)	7.2

Options : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

END

Reviewed by :

Signature : P. Sanyal

Name : Mr. P. Sanyal

Designation : Executive Director

Authorized Signatory :

Signature :

Name :

Designation :

Signature : P. Sanyal

The result is valid for 15 days from the date of issue of the Test Report.

The result is valid for 15 days from the date of issue of the Test Report, provided the sample is not re-analysed within 15 days from the date of issue of the Test Report.

The result is valid for 15 days from the date of issue of the Test Report, provided the sample is not re-analysed within 15 days from the date of issue of the Test Report.

The result is valid for 15 days from the date of issue of the Test Report, provided the sample is not re-analysed within 15 days from the date of issue of the Test Report.

The result is valid for 15 days from the date of issue of the Test Report, provided the sample is not re-analysed within 15 days from the date of issue of the Test Report.

Head Office :

Building No. P-48, Udayan Industrial Estate,  
1, Padmalaya Road, Kolkata-700015,  
West Bengal  
Tel : +91-904030120  
Email: udayanlab@msk.co.in





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd./MGML, Joda West

NIPD, - Joda, Dist. - Keonjhar, Odisha - 758034 India PH

Report No. :

MSKGL/ED/2024-25000013

Date :

03/04/2024

Sample No. :

MSKGL/ED/2023-24/03/01115

Reference No. & Date :

3000156017/056, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn. Mines (JWHM)
4. Date of sampling	27/03/2024
5. Place of sampling	New Railway Station, JWHM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25000013

Sample No. : MSKGL/ED/2023-24/03/01115

## RESULT

### Analysis Result of Ambient Air

Sl. No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	NA
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 16) (O)	2 8 HR.	0.35
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 17) (O)	80 24 HR.	22.3
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 3)	180 8 HR.	BDL (DL 30 U)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 22) (O)	100 24 HR.	210
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) 2518 (O)	60 24 HR.	102
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (O)	80 24 HR.	7.9

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory







Address of Branch :

P.O. Baital Di Koorjar - Orissa 758 035



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**TEST REPORT**

Name &amp; Address of Customer :

Tropi Street Ltd (MGM) Joda West

AtPo. - Joda, Dist. - Keonjhar, Orissa - 758004 India Pin

Report No. :

MSKGL/ED/2024-25/000007

Date

15/04/2024

Sample No. :

MSKGL/ED/2023-24/03/01116

Reference No. &amp; Date :

3000156017/055 Date : 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (If any)	Joda West trop & Mr. Minus (JWWM)
4. Date of sampling	27/03/2024
5. Place of sampling	Area (Sampled at P1) (JWMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/000007

Sample No. : MSKGL/ED/2023-24/03/01116

**RESULT****Analysis Result of Ambient Air**

Sr No.	Parameter	Unit	Method	Unit	Result
1	Ammonia (NH <sub>3</sub> )	micro g/m <sup>3</sup>	IS 5162 (Part 2b)	800 24 HR.	13.7
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5162 (Part 10) (C)	2 8HR.	0.47
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro g/m <sup>3</sup>	IS 5162 (Part 16) (C)	80 24 HR.	22.3
4	Ozone (O <sub>3</sub> )	micro g/m <sup>3</sup>	IS 5162 (Part 8)	180 1 HR.	SD (DL-20.0)
5	Particulate Matter (<10um)	micro g/m <sup>3</sup>	IS 5162 (Part 25) (C)	800 24 HR.	208
6	Particulate Matter (<2.5um)	micro g/m <sup>3</sup>	IS 5162 (Part 24) (C)	80 24 HR.	90
7	Sulphur Dioxide (SO <sub>2</sub> )	micro g/m <sup>3</sup>	IS 5162 (Part 2) (C)	80 24 HR.	7.4

END

Report Verified By



For Mitra S. K. Private Limited

Authorised Signatory



**Address of Laboratory :**  
 Building No. 11, Ab, Udayan Industrial Estate,  
 3, Pagladanga Road, Mooka 700014,  
 West Bengal  
 Tel. +91 704039120  
 Email: udayanlab@msk.com



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URL: TC-664034000006771F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MSK), Joda West

As Per : Joda Q4 - Keonjhar, Odisha - 751038 India

### Report No. :

MSKPL/EO/2024-25/MQ042M

### Date :

06/04/2024

### Sample No. :

MSKNB/EO/2023-24/03/MQ45B3

### Date of receipt of sample :

03/03/2024

### Date(s) of performance :

30/03/2024 - 06/04/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

MSK/16017/056, Date : 16/03/2023

### Discipline :

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(s) if any	NA
4. Date of sampling	26/03/2024
5. Place of sampling	Near Gargaguda Pt (JMM)
6. Environmental conditions during sampling & Transport	1) Temperature: 18-34 deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain fall: No & Gale Force: Moderate
7. Sampling Plan & Method used	IS 5132 (Part 11) & USEPA
8. Identification of the personnel performing sampling by MSK	Parag for Mohanti
9. Field equipment used	MSK/BBU/FIELD/FGS-4

Report No. : MSKPL/EO/2024-25/MQ042M

Sample No. : MSKNB/EO/2023-24/03/MQ45B3

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1.	Arsenic as (As)	ng/m <sup>3</sup>	USEPA-ID 3 & 4 June	6 (Annual)	BDL (DL 1.0)
2.	Benzene	micro gm/m <sup>3</sup>	IS 5132 (Part 11)	5 (Annual)	BDL (DL 4.2)
3.	Benzofluoranthene	ng/m <sup>3</sup>	IS 5132 (Part 12)	1 (Annual)	BDL (DL 0.5)
4.	Lead as Pb	micro gm/m <sup>3</sup>	USEPA-ID 3 & 4 June	1 (24 Hours)	0.02
5.	Manganese as Mn	micro gm/m <sup>3</sup>	USEPA-ID 3 & 4 June	Not Specified	0.17
6.	Nickel as Ni	ng/m <sup>3</sup>	USEPA-ID 3 & 4 June	20 (Annual)	BDL (DL 0.1)

Caution : Limit as per CPCB notification, New DMs 18th November 2009 for Ambient air quality

Statement of Conformity : NA

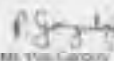
END

Issued By

Signature

Name

Description

  
 Ms. Yash Gargua  
 Executive Chemist

Authorized Signatory

Signature

Name

Description

  
 Dr. Subrata Kumar  
 Lab In Charge

This result is valid only for the period stated.

The Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

The validity of the result is dependent on the quality of the sample and the quality of the equipment used. The result is valid only for the purpose for which it was obtained. The result is not valid for any other purpose. The result is not valid for any other purpose. The result is not valid for any other purpose.

The result is valid only for the purpose for which it was obtained. The result is not valid for any other purpose. The result is not valid for any other purpose. The result is not valid for any other purpose.

Head Office: 11, Ab, Udayan Industrial Estate, 3, Pagladanga Road, Mooka 700014, West Bengal, India

Tel. : +91 704039120 / 704039121 / 704039122

E-mail : udayanlab@msk.com



Address of Branch :

P.O. Barabati, Bhubaneswar - 750 033



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**TEST REPORT**

Name &amp; Address of Customer :

Tata Steel Ltd., (HCOE), Joda West

At/To : Joda Dist. - Keonjhar, Odisha - 751034 (Inda Pih)

Report No. :

MSKGL/ED/2024-25/00011

Date :

JULY/2024

Sample No. :

MSKGL/ED/2023-24/001122

Reference No. &amp; Date :

300158017/055, Date - 15/06/2023

We hereby certify that the following sample drawn by us has been analyzed with the following result:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Ind & Mr. Mitra (JWIMM)
4. Date of sampling	25/03/2024
5. Place of sampling	Near Gangapada Pt. (JWIMM)
6. Environmental conditions during sampling & transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/00011

Sample No. : MSKGL/ED/2023-24/001122

**RESULT**

Analysis Result of Ambient Air					
Sl No.	Parameter	Unit	Standard	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5162 (Part 2)	400 24 HR.	14.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5162 (Part 10) (O)	2 24 HR.	0.58
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5162 (Part 8) (O)	80 24 HR.	23.6
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5162 (Part 6)	180 1 HR.	BDL (CL-20.0)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5162 (Part 23) (O)	190 24 HR.	210
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5162 (Part 24) (O) (O)	80 24 HR.	102
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5162 (Part 2) (O)	80 24 HR.	7.7

— END —

Report Verified By



For Mitra S. K. Private Limited

  
 Authorised Signatory







**Address of Branch :**  
P.O. Balaji Di Keonjhar District 755 005



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MSK) Joda West

M/Ro - Joda East - Keonjhar, Odisha - 755034 India Pin

**Report No. :**

MSKGL/ED/2024-25/000012

**Date :**

18/04/2024

**Sample No. :**

MSKGL/ED/2023-24/03/01121

**Reference No. & Date :**

3000162017/056, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group:	AIR
2. Description of sample:	Ambient Air
3. Unique Identification of sample(s) (any):	Joda West Iron S. Site, Mines (JVWMS)
4. Date of sampling:	25/03/2024
5. Place of sampling:	Main Railway Bridge - (JVWMS)
6. Environmental Situation during sampling & Transport:	Clear & Sunny
7. Sampling Plan & Method used:	NA

**Report No. :** MSKGL/ED/2024-25/000012

**Sample No. :** MSKGL/ED/2023-24/03/01121

## RESULT

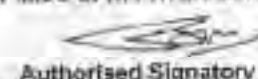
Analysis Result of Ambient Air					
Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH3)	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	15.2
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 15) (C)	2 8 HR	0.48
3	Nitrogen Dioxide (NO2)	micro gram/m <sup>3</sup>	IS 5182 (Part 6) (C)	80 24 HR	23.6
4	Ozone (O3)	micro gram/m <sup>3</sup>	IS 5182 (Part 1)	160 1 HR	60 (EL-20 A)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 (Part 25) (C)	100 24 HR	215
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (Part 21) (C)	60 24 HR	103
7	Sulphur Dioxide (SO2)	micro gram/m <sup>3</sup>	IS 5182 (Part 2) (C)	80 24 HR	7.8

END

Report Verified By



For Mitra S. K. Private Limited:



Authorised Signatory



## Address of Laboratory :

Building No. 24, Udayan Industrial Estate  
3, Padmalaya Road, Kolkata-700015  
West Bengal  
Tel: +91 7044935120  
Email: udayanlab@mitra.co.in



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## TEST REPORT

### Name & Address of Customer :

Fata Steel Ltd (MGM), Joda West  
A/Po - Joda Dist - Keonjhar, Odisha - 755031 India

Report No. :

MSKPL/ED/2024-2575U52G

Date :

05/04/2024

Sample No. :

MSKNS/ED/2023-24/03/MC45A9

Date of receipt of sample :

09/03/2024

Date(s) of performance :

09/03/2024 - 05/04/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3090158017/058 Date : 16/09/2023

Discipline :

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results

1. Group	Atmospheric Pollutants
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	28/03/2024
5. Place of sampling	Heat & Quarry Road Station (MWM)
6. Environmental conditions during sampling & Transport	1) Temperature: 18-34 deg C 2) Barometric Pressure: 1013 mm of Hg 3) Rain fall: No & Cold Churn Mandates
7. Sampling Plan & Method used	IS 5182 (Part 11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pankaj K. Mukherjee
9. Field Equipment used	MSK/BBUFEUDRDS-1

Report No. : MSKPL/ED/2024-2575U52G

Sample No. : MSKNS/ED/2023-24/03/MC45A9

## RESULT

### Chemical

Sl. No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as As	ng/m <sup>3</sup>	USEPA-IQ 3.4, June	5 (Annual)	BDL/DL 1.01
2	Benzene	micro gram/m <sup>3</sup>	IS 5182 (Part 11)	5 (Annual)	BDL/DL 4.2
3	Benzene (Pyrene)	ng/m <sup>3</sup>	IS 5182 (Part 12)	1 (Annual)	BDL/DL 0.5
4	Lead (as Pb)	micro gram/m <sup>3</sup>	USEPA-IQ 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gram/m <sup>3</sup>	USEPA-IQ 3.4, June	Not Specified	0.20
6	Nickel as Ni	ng/m <sup>3</sup>	USEPA-IQ 3.4, June	25 (Annual)	BDL/DL 0.01

Limit as per CPCB notification New Delhi: 15th November 2002, for Ambient air quality

Statement of Conformity : NA

END

Reviewed by

Signature

Name

Designation

*P. Jeyapal*  
Asst. Chemist  
Executive Chemist

Authorized Signatory

Signature

Name

Designation

*C. Jeyapal*  
Asst. Chemist  
Lab in charge

This result is valid only for the sample received

This Test Report should be retained and should not be altered or tampered with. The Test Report should be retained for 15 days from the date of issue of the Test Report. The authority responsible shall be notified if any alteration is made to the Test Report.

The nearest part of sample for duplicate analysis (i.e. Solid & Liquid Water) shall be retained for 15 days as per CPCB guideline (3.4.11) from the date of issue of the Test Report.

The nearest part of sample for duplicate analysis (i.e. Solid & Liquid Water) shall be retained for 15 days as per CPCB guideline (3.4.11) from the date of issue of the Test Report.

Head Office: 3090158017/058 New Delhi: 15th November 2002, for Ambient air quality  
Tel: +91 7044935120 Fax: +91 7044935120  
Email: [info@mitra.co.in](mailto:info@mitra.co.in) Website: [www.mitra.co.in](http://www.mitra.co.in)



Address of Branch :

P.O. Barhi D) Kanchhat Disha 758 034



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**TEST REPORT**

Name &amp; Address of Customer :

Tata Steel Ltd, (MUM) Joda West

A/Po. - Joda Dist. - Kanchhat Ddisha - 758034 India Pin

Report No. :

MSKGL/ED/2024-25/000001

Date :

03/04/2024

Sample No. :

MSKGL/ED/2023-24/0301120

Reference No. &amp; Date :

J000158017/056, Date - 15/04/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Air
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn. Mines (JWMM)
4. Date of sampling	29/03/2024
5. Method of sampling	Near H Quarry Road Squalter (JWMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/000001

Sample No. : MSKGL/ED/2023-24/0301120

**RESULT****Analysis Result of Ambient Air**

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ambient (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 26)	400 24 HR	10.1
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (C)	2 8HR	0.52
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 8) (C)	80 24 HR	31.8
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	100 1 HR	BDL/CL-29.0
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) (C)	100 24 HR	211
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) (C) (C)	80 24 HR	101
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 21) (C)	80 24 HR	7.2

— END —

Report Verified By



For Mitra S. K. Private Limited

  
 Authorised Signatory







Address of Branch :

P.O. Baral Di Koothar D/Sec 758 025



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**TEST REPORT**

Name &amp; Address of Customer :

Tata Steel Ltd (JWM) Joda West

At Post - Joda Dist - Keonjhar Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2024-25/00014

Date :

16/04/2024

Sample No. :

MSKGL/ED/2023-24/0301119

Reference No. &amp; Date :

3000104017/056, Date - 16/04/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Air
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Steel Mills (JWISM)
4. Date of sampling	25/03/2024
5. Place of sampling	Near D-Company Screen (JWISM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/00014

Sample No. : MSKGL/ED/2023-24/0301119

**RESULT****Analysis Result of Ambient Air**

Sl No.	Parameter	Unit	Method	Limit	Result
1	Arsenic (NH3)	micro gram/m <sup>3</sup>	IS: 5182 (Part 25)	400 24 HR	15.5
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (C)	2 8HR	0.50
3	Nitrogen Dioxide (NO2)	micro gram/m <sup>3</sup>	IS: 5182 (Part 11) (C)	80 24 HR	23.0
4	Ozone (O3)	micro gram/m <sup>3</sup>	IS: 5182 (Part 9)	180 1 HR	801 (DL-20.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS: 5182 (Part 23) (C)	100 24 HR	212
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS: 5182 (Part 24) (C) (C)	60 24 HR	101
7	Sulphur Dioxide (SO2)	micro gram/m <sup>3</sup>	IS: 5182 (Part 2) (C)	80 24 HR	7.5

END

Report Verified By



For Mitra S. K. Private Limited


  
 Authorised Signatory



## Address of Laboratory :

Building No. P-28, Udayan Industrial Estate,  
3, Pragadanga Road, Kolkata 700014  
West Bengal  
Tel. +91 7046026120  
Email: udayanlab@msknl.com



10-0050



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URL: TC 68463A9B0006267F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (WCM) - Jharkhand

MRP : Joda, Dist : Reoynar, Jharkhand - 736004 - India

Report No. :

MSKPL/ED/2024-25/XX5529

Date :

06/04/2024

Sample No. :

MSKNB/ED/2023-24/03/AA456F

Date of receipt of sample :

06/03/2024

Date(s) of performance :

06/03/2024 - 06/04/2024

Location of performance of

Permanent Facility

Reference No. & Date :

300156017.056, Date : 16/03/2023

Discipline :

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	26/03/2024
5. Place of sampling	Near D-Glaxy Spring Yard, JMM
6. Environmental conditions during sampling & Transport	1) Temperature: 18-24 deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5102 (I, II, III) & USEPA
8. Identification of the personnel performing sampling by MSK	Pankaj K. Mahanti
9. Field Equipments Used	MSKBBUFIELD0254

Report No. : MSKPL/ED/2024-25/XX5529

Sample No. : MSKNB/ED/2023-24/03/AA456F

## RESULT

### Chemical

Sl. No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m <sup>3</sup>	USEPA-IO 3.4 June	6 (Annual)	BDL (DL 1.0)
2	Benzene	micro gram/m <sup>3</sup>	IS 5152 (Part 1)	5 (Annual)	BDL (DL 4.2)
3	Benzaldehyde	ng/m <sup>3</sup>	IS 5152 (Part 12)	1 (Annual)	BDL (DL 0.5)
4	Lead as Pb	micro gram/m <sup>3</sup>	USEPA-IO 3.4 June	1 (24 Hours)	BDL (DL 0.01)
5	Thiophene as th	micro gram/m <sup>3</sup>	USEPA-IO 3.4 June	Not Specified	0.10
6	Nickel as Ni	ng/m <sup>3</sup>	USEPA-IO 3.4 June	20 (Annual)	BDL (DL 5.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2008, for Ambient air quality

Statement of Conformity : NA

END

Authorized By

Signature

Name

Designation

P. Ganguly

Mr. Pankaj Mahanti

Lead Analyst

Authorized Signatory

Signature

Name

Designation

Dr. Gangadhar Mahapatra  
Lab. In-charge

The result is valid only to the item(s) tested.

The Test Report contains all essential data except the signature of the person(s) of Mitra S. K. Private Limited.

The report is valid for 12 months from the date of analysis. (Note - for sample with high TOC, Volatile) which is extended for 18 days from the date of issue of the Test Report. The validity period is valid for 12 months from the date of issue of the Test Report.

The report is valid for 12 months from the date of analysis. (Note - for sample with high TOC, Volatile) which is extended for 18 days from the date of issue of the Test Report.

The report is valid for 12 months from the date of analysis. (Note - for sample with high TOC, Volatile) which is extended for 18 days from the date of issue of the Test Report.

The report is valid for 12 months from the date of analysis. (Note - for sample with high TOC, Volatile) which is extended for 18 days from the date of issue of the Test Report.

The report is valid for 12 months from the date of analysis. (Note - for sample with high TOC, Volatile) which is extended for 18 days from the date of issue of the Test Report.

The report is valid for 12 months from the date of analysis. (Note - for sample with high TOC, Volatile) which is extended for 18 days from the date of issue of the Test Report.

The report is valid for 12 months from the date of analysis. (Note - for sample with high TOC, Volatile) which is extended for 18 days from the date of issue of the Test Report.

The report is valid for 12 months from the date of analysis. (Note - for sample with high TOC, Volatile) which is extended for 18 days from the date of issue of the Test Report.



## Address of Branch :

P.O. Barbal Ch. Kanchipur District 756 035



Scan for Detail

## TEST REPORT

## Name &amp; Address of Customer :

7001 Street Ltd. (WKM) Joda West

At Po. - Joda, Tal. - Kanchipur District - 756034 India Pin

Report No. :

MSKGL/ED/2024-25000016

Date :

08/04/2024

Sample No. :

MSKGL/ED/2023-24/03/1118

Reference No. &amp; Date :

3900150017/055, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Inn & Mt. Nisara (JWIMM)
4. Date of sampling	28/03/2024
5. Place of sampling	Near Railway Sorting Yard, JWIMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	ISA

Report No. : MSKGL/ED/2024-25000016

Sample No. : MSKGL/ED/2023-24/03/1118

## RESULT

Analysis Result of Ambient Air					
Sl No.	Parameter	Unit	Method	Limit	Result
1	Aerosols (TSP)	micro gram/m <sup>3</sup>	IS: 5182 (Part 25)	400 24 HR.	14.5
2	Carbon Monoxide (CO)	mgm <sup>3</sup>	IS: 5182 (Part 14) (C)	2 8HR.	0.43
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 6) (B)	80 24 HR.	22.0
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 9)	180 1 HR.	BCI (CL 30.0)
5	Particulate Matter (<10um)	microgram/m <sup>3</sup>	IS: 5182 (Part 23) (C)	100 24 HR.	210
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS: 5182 (Part 24) (C)	60 24 HR.	103
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 7) (C)	80 24 HR.	7.0

— END —

Report Verified By

For Mitra S. K. Private Limited

  
 Authorized Signatory







## Address of Branch :

P.O. Badi Di Kharahi, Odisha 750 005



Scan for Profile

## TEST REPORT

## Name &amp; Address of Customer :

188 Street UG, (MCM) - Joda West

At/Po : Joda, Dist - Koriyana, Odisha - 750034, India Pin

Report No. :

MSKGL/ED/2024-25/000010

Date :

15/03/2024

Sample No. :

MSKGL/ED/2023-24/03/01117

Reference No. &amp; Date :

3008166017/KSR; Date - 15/03/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn. Mine (JWIMM)
4. Date of sampling	25/03/2024
5. Place of sampling	Near Time Office (JWIMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2024-25/000010

Sample No. : MSKGL/ED/2023-24/03/01117

## RESULT

Analysis Result of Ambient Air					
Sr No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	19.7
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (C)	2 8HR.	0.57
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 10) (C)	80 24 HR.	23.6
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 10) (C)	180 8 HR.	80.03 (20.0)
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS 5182 (Part 23) (C)	100 24 HR.	224
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (Part 24) (C) (C)	60 24 HR.	110
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 7) (C)	80 24 HR.	7.2

— END —

Report Verified By



For Mitra S. K. Private Limited


  
 Authorised Signatory

## Head Office:

 Service Centre (B&I) Pvt. Ltd., 74B, A.J.C. Road Road, Kolkata - 700019, West Bengal, India  
 Tel: 91 33 4014298 / 22608817 Fax: 91 33 22653004  
 Email: info@servicecentreindia.com www.msk.com

Page 1 of 1





Sample for Period

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM), Joda West

At/Po. : Joda, Dist. : Keonjhar, Orissa - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/005517

Date :

25/03/2024

Sample No. :

MSKGL/ED/2023-24/000010

Reference No. & Date :

3000106017/056, Date : 15/02/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Fugitive Air
3. Unique identification of sample (if any)	Joda West Iron & Mn. Mines (JW/IMM)
4. Date of sampling	25/03/2024
5. Place of sampling	On-Quarry, Brown Plant (JW/IMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/005517

Sample No. : MSKGL/ED/2023-24/000010

## RESULT

### Chemical

Sl No.	Parameter	Unit	Method	Limit	Result
1	Nitrogen Dioxide (as NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part II) (D)		24.2
2	PM10/RPM	micro gm/m <sup>3</sup>	IS 5182: Part 2:2006 (Reaff. 2013) (D)		251
3	PM2.5	micro gm/m <sup>3</sup>	IS 5182 (Part 24)		124
4	Respirable Suspended Particulate Matter (RSPM)	micro gm/m <sup>3</sup>	IS 5182: Part 2:2006 (Reaff. 2013) (D)		251
5	Sulphur Dioxide (as SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182: Part 2 (D)		8.1
6	Suspended Particulate Matter (SPM)	micro gm/m <sup>3</sup>	IS 5182: Part 2:2006 (Reaff. 2013) (D)		448

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory





Scan for Detail

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Jamshedpur

ABPs - Joda, Dist - Keonjhar, Orissa - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/005816

Date :

20/03/2024

Sample No. :

MSKGL/ED/2023-24/03/00816

Reference No. & Date :

3000156017/006, Date - 14/02/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following result:

1. Group	Air
2. Description of sample	Fugitive Air
3. Unique Identification of sample(s) (if any)	Joda West Iron & Steel Mines (JWIMM)
4. Date of sampling	20/03/2024
5. Place of sampling	Gangajoda Rd JWIMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/005816

Sample No. : MSKGL/ED/2023-24/03/00816

## RESULT

Chemical					
Sl No.	Parameter	UCM	Method	Limit	Result
1	Nitrogen Dioxide (as NO <sub>2</sub> )	micro-gram/m <sup>3</sup>	IS: 5182 (Part 8) (O)		22.8
2	PM10/RPM	micro-gram/m <sup>3</sup>	IS 5182 Part 23:2006 (Revit. 2012) (O)		266
3	PM2.5	micro-gram/m <sup>3</sup>	IS 5182 (Part 24)		128
4	Respirable Suspended Particulate Matter (RSPM)	micro-gram/m <sup>3</sup>	IS 5182 Part 23:2006 (Revit. 2012) (O)		266
5	Sulphur Dioxide (as SO <sub>2</sub> )	micro-gram/m <sup>3</sup>	IS 5182, Part 2, (O)		8.4
6	Suspended Particulate Matter (SPM)	micro-gram/m <sup>3</sup>	IS 5182, Part 2, (O)		504

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory




**Test Report**

<b>Name of the Industry</b> TATA Steel Limited		<b>Date of Monitoring</b> 27/03/2024	
Mn Group of Mines, INDIA, Odisha-India		<b>Sample Received on</b> 30/03/2024	
<b>Name of the Mine:</b> Joda West Iron & Mn Mines		<b>Date of Reporting</b> 06/04/2024	
<b>Through:</b> Mitra SK Pvt Ltd AT/PO-Baveli Barbil - Keonjhar- 758035 India		<b>Report No.</b> STD/H/C30/062/24	
		<b>Standard Limit (DGMS)</b> Respirable Dust 3 mg/m <sup>3</sup> If Free Silica Content is < 5%	
<b>Sampler Details</b> SKC Make Sidekick Pump Sr. No. 22553363, 22553359, 22553180, 22553181 & 22553360		<b>Method of Analysis</b> (ST/H/GTP 001-05) Respirable Dust : NIOSH 800 Free Silica : NIOSH 7602	<b>Sampling Flow Rate</b> 2.2 lpm  <b>Sampling Time</b> 481 to 487 Mins.

S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m <sup>3</sup> )	Respirable Dust TWA (mg/m <sup>3</sup> )	Free Silica Content (%)
1	27 <sup>th</sup> March 2024	H-Quarry Sorting yard / ST-138	Foreman	Mr. Subash Tripathi (196144)	-	2.03	2.03	N.D.
2		H-Quarry Dumping yard / ST-139	Tipper Operator	Mr. Surjan Kelai (TSP/970698/1123)	Tipper OD09K8642	2.52	2.55	N.D.
3		H-Quarry main gate / ST-140	Security	Mr. Ranjit Bodra (TSP/109645/0124)	-	2.65	2.68	N.D.
4		Gangagurda Pit sorting yard / ST-141	Worker	Mr. Ranjan Munda (TSP/072881/0124)	-	2.13	2.18	N.D.
5		H-Quarry Sorting yard / ST-142	Supervisor	Mr. Bijay Kumar Das (TSP/988/60/1123)	-	2.50	2.56	N.D.

Environmental Condition: Temperature = 14.6 °C & RH = More than 80 %. (Detection Level = 0.0005 %) N.D.: Not Detected.

**CONCLUSION:** From the above results it can be concluded that Respirable Dust TWA results for all the Personal samples are within the prescribed limit as per DGMS guidelines. Free Silica Content is not detected in all five samples.

	<b>Compiled By</b>	<b>Authorised By</b>
<b>Name</b>	S. Nagaraju	V. Raghavendra Chary
<b>Signature</b>	<i>S. Nagaraju</i>	<i>V. Raghavendra Chary</i>
<b>Date</b>	06/04/2024	06/04/2024





**STARTECH LABS**



**ULR-TC7882** 24000000006E

Test Report			
Name of the Industry		TATA Steel Limited	
Address	Mn. Group of Mines, JODA, Odisha-India.		Date of Monitoring
	Name of the Mine: Khonbong Inchi & Mn Mines.		Sample Received on
	Through:		Date of Reporting
	Mitra SK Pvt Ltd AT/PO-Barbil Barbil - Keonjhar-758085 India.		Report No.
		Standard Limit (DGMS) Respirable Dust 3 mg/m <sup>3</sup> if Free Silica Content is $\leq$ 5%	
Sampler Details		Method of Analysis	Sampling Flow Rate
SKC Make Sidekick Pump St. No.: 22553363, 22553359, 22553180, 22553181 & 22553360		(ST/1H/GTP 001-05) Respirable Dust : NIOSH 600 Free Silica : NIOSH 7602	2.2 lpm
			Sampling Time
			479 to 485 Mints.

S. No.	Date	Location / Sample ID	Activity	Employee Name, Designation & Employee ID	Equipment ID	Respirable Dust (mg/m <sup>3</sup> )	Respirable Dust TWA (mg/m <sup>3</sup> )	Free Silica Content (%)
1	23 <sup>rd</sup> March 2024	Khonboud Mn mines Sorting yard / ST-133	Safety Supervisor	Mr. Deamy Naik (TSP/912168/1023)	-	2.58	2.59	0.0007
2		Khonboud Mn mines Sorting yard / ST-134	Supervisor	Mr. Kirtiranjun Dink (TSP/912314/1023)	-	2.14	2.16	N.D
3		Khonboud Mn mines Sorting yard / ST-135	Worker	Mr. Ramash Singh (TSP/912204/2023)	-	2.22	2.22	N.D
4		Khonboud Mn mines Sorting yard / ST-136	Dumper Operator	Mr. Bhimeson Nag (TSP/886946/1023)	Dumper OD09U/5269	2.84	2.85	N.D
5		Khonboud Mn mines, Screening Plant Area / ST-137	Tipper Operator	Mr. Trijodhan Patra (TSP/912398/1023)	Tipper OD09U/6469	2.06	2.08	N.D

**CONCLUSION:** Present data show no evidence of a statistically significant difference in the mean of the two groups.

**CONCLUSION:** From the above results it can be concluded that Respirable Dust TWA results for all the Personal samples are within the prescribed limit as per DGMS guidelines. Free Silica Content is detected in one sample but within the limit.

	<b>Compiled By</b>	<b>Authorised By</b>
<b>Name</b>	S. Nagaraju	Y. Raghavendra Chary
<b>Signature</b>		
<b>Date</b>	06/04/2024	06/04/2024





## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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URL: TC-695024000002263F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (WGL) Joda West

A/Po. - Joda, Dist - Keonjhar, Odisha - 755034, India

Report No. :

MSKPL/ED/2023-24/312791

Date :

12/02/2024

Sample No. :

MSKNB/ED/2023-24/02/83G18K

Date of receipt of sample:

03/02/2024

Date(s) of performance:

03/02/2024 - 12/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/02/2024
5. Place of sampling	Near Time Office JMM
6. Environmental conditions during sampling & Transport	1) Temperature :10-28 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Akash Kumar Setty
9. Field Equipments Used	MSK/BBL/FIELD/RDS-2

Report No. : MSKPL/ED/2023-24/312791

Sample No. : MSKNB/ED/2023-24/02/83G18K

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL (CL 1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL (CL 4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL (CL 0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.49
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	8.5

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2006, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed By:

Signature:

Name:

Designation:

P. Gargoty  
MR. P. Gargoty  
Executive Chemist

Authorized Signatory:

Signature:

Name:

Designation:

Dr. Soumyajit Mukherjee  
Lab. in Charge

The results shall only be for limited period.

This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 7 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Branch/Centre (2nd Floor), 7/8, A.I.C. Road, Kolkata - 700019, West Bengal, India.  
Tel : 91 38 40143800 / 22650007 Fax : 91 33 22620005  
Email : info@mitrask.com Website : www.mitrask.com



## Address of Branch :

P.O. Barbil Dt Keonjhar Orissa 758 035



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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM) Joda West

AtPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004786

Date :

13/02/2024

Sample No. :

MSKGL/ED/2023-24/0200021

Reference No. &amp; Date :

3000156017/056, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	Joda West Iron & Mns Mines JVMM
4. Date of sampling	01/02/2024
5. Place of sampling	Near Time Office JVMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004786

Sample No. : MSKGL/ED/2023-24/0200021

## RESULT

## Analysis Result of Ambient Air

Sl No.	Parameter	UCM	Method	Limit	Result
1	Ambient (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	15.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 : Part 10 :1999 (Reaff.2014) (NDIR) (D)	2 8HR.	0.40
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 : Part 6 :2006 (Reaff.2012) (D)	80 24 HR.	19.7
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL(DL:20.0)
5	Particulate Matter (<10µm)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012) (D)	100 24 HR.	180
6	Particulate Matter (<2.5µm)	micro gm/m <sup>3</sup>	IS 5182 (PT-24):2019 (D)	60 24 HR.	97
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 : Part 2 :2003 (Reaff.2012) (D)	80 24 HR.	8.0

— END —

Report Verified By



For Mitra S. K. Private Limited



Authorised Signatory



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044038120  
Email: udayanlab@mitrask.com



TC-8950



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URL: TC-695024000002284F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM), Joda West

Rd/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/512AAK

Date :

12/02/2024

Sample No. :

MSKNB/ED/2023-24/02/E7517D

Date of receipt of sample:

03/02/2024

Date(s) of performance:

03/02/2024 - 12/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/096, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/02/2024
5. Place of sampling	Near D-Quarry Sorting Yard JWMM
6. Environmental conditions during sampling & Transport	1) Temperature : 10-28 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Aakash Kumar Setty
9. Field Equipments Used	MSK/BBU/FIELD/RDS-6

Report No. : MSKPL/ED/2023-24/512AAK

Sample No. : MSKNB/ED/2023-24/02/E7517D

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ug/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.05
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 15th November 2008, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name

Designation

A. P. Gogoi

Executive Officer

Submitted Signature:

Signature

Name

Designation : Lab in charge

Dr. Soumenjit Bhattacharya

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non-perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Sol. Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non-perishable sample(s) Food, Sewage Water, Borewell Water) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Share Centre (9th Floor), T48, A.J.C. Bose Road, Kolkata - 700015, West Bengal, India

Tel : 91-33-40140000 / 22550007 Fax : 33-33-22550008

Email : info@mitrask.com Website : www.mitrask.com



Address of Branch :

P.O. : Barbil Di Kaonjhar Orissa 758 035



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**TEST REPORT**

Name &amp; Address of Customer :

Tata Steel Ltd.(MGM) Joda West

At/ Po. - Joda, Dist. - Kaonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004789

Date :

13/02/2024

Sample No. :

MSKGL/ED/2023-24/0200022

Reference No. &amp; Date :

JIKO156017/058, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	Joda West Iron & Mn. Mines JWHMM
4. Date of sampling	01/02/2024
5. Place of sampling	Near D-Quarry Sorting Yard JWHMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004789

Sample No. : MSKGL/ED/2023-24/0200022

**RESULT****Analysis Result of Ambient Air**

Sl No.	Parameter	UOM	Method	Limit	Result
1	Amonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	14.3
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 - Part 16 :1989 (Reaff.2014) (NIR) (O)	2 8HR.	0.56
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 : Part 6 : 2006 (Reaff.2012) (O)	80 24 HR.	20.6
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL(DL-20.0)
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012) (O)	100 24 HR.	174
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (PT-24):2019 (O)	60 24 HR.	81
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 : Part 2 : 2001 (Reaff.2012) (O)	80 24 HR.	7.6

— END —

Report Verified By



For Mitra S. K. Private Limited



Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6960



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URL: TC-695024000002265F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM) Joda West.

A/Po. - Joda, Dist. - Keonjhar, Odisha - 756034 India

Report No. :

MSKPL/ED/2023-24/112AA0

Date :

12/02/2024

Sample No. :

MSKNB/ED/2023-24/02/K7F157

Date of receipt of sample:

03/02/2024

Date(s) of performance:

03/02/2024 - 12/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 15/03/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	NA
4. Date of sampling	01/02/2024
5. Place of sampling	Near D-Quarry Screen JWMIM
6. Environmental conditions during sampling & Transport	1) Temperature :10-28 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Aakash Kumar Setty
9. Field Equipments Used	MSK/BBU/FIELD/RDS-8

Report No. : MSKPL/ED/2023-24/112AA0

Sample No. : MSKNB/ED/2023-24/02/K7F157

## RESULT

Chemical					
Sl No.	Parameter	UDM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.04
5	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	0.18
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 16th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

Name:

Ms. Prat Gargya

Designation:

Executive Chemist

Authorized Signature:

Signature:

Name:

Dr. Subhrajit Mukherjee

Designation:

Lab in charge

This report is valid only to the items tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Directly Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
Tel.: 91 33 40143000 / 22660007 Fax: 91 33 22650030  
Email: info@mitrask.com Website: www.mitrask.com



## Address of Branch :

P.O. Barbi Dt Kesorjar Orissa 756 035



Scan the QR Code

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM) Joda West

A/Po. - Joda, Dist. - Kesorjar, Odisha - 756034 India Pin

Report No. :

MSKGL/ED/2023-24/004790

Date :

13/02/2024

Sample No. :

MSKGL/ED/2023-24/0250023

Reference No. &amp; Date :

3000156017/056, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines JWMM
4. Date of sampling	01/02/2024
5. Place of sampling	Near D-Quarry Screen JWMM
6. Environmental conditions during sampling & transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004790

Sample No. : MSKGL/ED/2023-24/0250023

## RESULT

## Analysis Result of Ambient Air

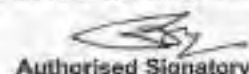
Sl No.	Parameter	DOM	Method	Limit	Result
1	Amonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	17.2
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 : Part 10 : 1999 (Reaff. 2014) (NDIR) (O)	2 8HR.	0.44
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 : Part 6 : 2006 (Reaff. 2012) (O)	80 24 HR.	18.5
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BOL (DL 20.0)
5	Particulate Matter (<10µm)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012) (O)	100 24 HR.	135
6	Particulate Matter (<2.5µm)	micro gm/m <sup>3</sup>	IS 5182 (PT-24), 2019 (O)	60 24 HR.	64
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 : Part 2 : 2001 (Reaff. 2012) (O)	80 24 HR.	5.6

— END —

Report Verified By



For Mitra S. K. Private Limited


 Authorized Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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URL: TC-695024000002266F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda Wael

At/Po: - Joda, Dist - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/N12AB1

Date :

12/02/2024

Sample No. :

MSKNB/ED/2023-24/02/LD319W

Date of receipt of sample:

03/02/2024

Date(s) of performance:

03/02/2024 - 12/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 15/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/02/2024
5. Place of sampling	Near H-Quarry Rest Shelter JMM
6. Environmental conditions during sampling & Transport	1) Temperature: 10-28 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Akash Kumar Setty
9. Field Equipments Used	MSK/BBL/FIELD/ROS-1

Report No. : MSKPL/ED/2023-24/N12AB1

Sample No. : MSKNB/ED/2023-24/02/LD319W

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-ID 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-ID 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-ID 3.4, June	Not Specified	0.36
6	Nickel as Ni	ng/m3	USEPA-ID 3.4, June	20 (Annual)	6.9

Opinion : Limit as per GPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

———— END ————

Reviewed By:

Signature

Name

Designation

P. Garguhy

Mr. P. Garguhy

Executive Chemist

Authorized Signatory:

Signature

Name

Designation

 (Signature)  
100 in 1000

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The reserved part of sample(s) for microbiological analysis (Soil, Solid &amp; Liquid/Water) shall be retained for 15 days as per GPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Branch Centre (Bt Pinar), 74B, A.J.C. Street Road, Kolkata - 700016, West Bengal, India.

Tel : 91 3545140000 / 22650007 Fax : 91 35 22650005

Email : info@mitrask.com Website : www.mitrask.com



## Address of Branch :

P.O. Barbil Dt. Keonjhar Orissa 758 035



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**TEST REPORT**

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM) Joda West

At/Po, Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGLIED/2023-24/004793

Date :

13/02/2024

Sample No. :

MSKGLIED/2023-24/02/00024

Reference No. &amp; Date :

3000156017/016, Date = 12/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn. Mines- JWMM
4. Date of sampling	01/02/2024
5. Place of sampling	Near H-Quarry Road Shelter JWMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGLIED/2023-24/004793

Sample No. : MSKGLIED/2023-24/02/00024

**RESULT**

## Analysis Result of Ambient Air

Sl No.	Parameter	UCM	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	BDL (DL: 10.0)
2	Carbon Monoxide (CO)	mg/m3	IS 5182 : Part 10 : 1999 (Reaff. 2014) (NOR) (O)	2 8HR.	(1.68)
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 : Part 6 : 2006 (Reaff. 2012) (D)	80 24 HR.	21.4
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	BDL (DL: 20.0)
5	Particulate Matter (<10um)	micro gm/m3	IS 5182: Part 23:2008 (Reaff. 2012) (O)	100 24 HR.	201
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24):2019 (O)	60 24 HR.	94
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 : Part 2 : 2001 (Reaff. 2012) (O)	80 24 HR.	1.2

END

Report Verified By

For Mitra S. K. Private Limited

  
 Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-8950



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ULR: TC-695024000002267F



## TEST REPORT

## Name &amp; Address of Customer :

Tara Steel Ltd (MGM), Joda West

At/Po - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/ED/2023-24/Z12ABG

## Date :

12/02/2024

## Sample No. :

MSKNB/ED/2023-24/02/LME16J

## Date of receipt of sample:

03/02/2024

## Date(s) of performance:

03/02/2024 - 12/02/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/055, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	01/02/2024
5. Place of sampling	Near Railway Siding JWMM
6. Environmental conditions during sampling & Transport	1) Temperature:10-26 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Aakash Kumar Sanyal
9. Field Equipments Used	MSK/BBL/FIELD/RDS-3

Report No. : MSKPL/ED/2023-24/Z12ABG

Sample No. : MSKNB/ED/2023-24/02/LME16J

## RESULT

## Chemical

Sl.No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.01
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.60
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	11.0

Option : Limit as per CPCB notification, New Delhi, 16th November 2009, for Ambient air quality.

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

Name:

Mr. P. Ganguly

Designation:

Executive Chemist

Authorized Signatory:

Signature:

Name:

Dr. Subhadra Dasgupta

Designation:

Lab in charge

The results relate only to the item(s) tested.

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s): Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 12 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Sol. Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s): Food, Sealed Water, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shreeji Centre (5th Floor), 7MR, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
Tel. : 91 33 45143000 / 22650007 Fax : 91 33 22650009  
Email : info@mitrask.com Website : www.mitrask.com





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## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd.(MGM) Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

**Report No. :**

MSKGL/ED/2023-24/004788

**Date :**

13/02/2024

**Sample No. :**

MSKGL/ED/2023-24/02/00025

**Reference No. & Date :**

3000156017/056, Date - 16/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	Joda West Iron & Mn. Mines JWMM
4. Date of sampling	01/02/2024
5. Place of sampling	Near Railway Siding JWMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

**Report No. :** MSKGL/ED/2023-24/004788

**Sample No. :** MSKGL/ED/2023-24/02/00025

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Amonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR	16.4
2	Carbon Monoxide (CO)	mg/m3	IS 5182 : Part 16 : 1988 (Reaff.2014) (NDIR) (O)	2 8HR.	0.46
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 : Part 6 : 2005 (Reaff.2012) (O)	80 24 HR.	20.3
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	BDL(DL 20.0)
5	Particulate Matter (<10um)	micro gm/m3	IS 5182: Part 23.2006 (Reaff. 2012) (O)	100 24 HR.	168
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24).2010 (O)	80 24 HR.	78
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 : Part 2 : 2001 (Reaff.2012) (O)	80 24 HR.	8.2

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-8950



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URL: TC-895024000022588

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

At/Po. : Joda, Dist. - Keonjhar, Orisha - 758034 India

Report No. :

MSKPL/ED/2023-24/E12AB3

Date :

12/02/2024

Sample No. :

MSKNB/ED/2023-24/02/M8214Q

Date of receipt of sample:

03/02/2024

Date(s) of performance:

03/02/2024 - 12/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/055, Date : 15/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	NA
4. Date of sampling	01/02/2024
5. Place of sampling	Near Gangeguda P/I, JWMM
6. Environmental conditions during sampling & Transport	1) Temperature : 10-28 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Akash Kumar Sanyal
9. Field Equipments Used	MSK/BBL/FIELD/RDS-4

Report No. : MSKPL/ED/2023-24/E12AB3

Sample No. : MSKNB/ED/2023-24/02/M8214Q

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro g/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro g/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro g/m3	USEPA-IO 3.4, June	Not Specified	0.40
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	9.5

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name

Designation

Mr. P. G. Sanyal

Executive Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Sanyal

Lab in charge

The results relate only to the item(s) tested.

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s)) Food, Veterinary & all bio samples for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 7 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report. The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s)) Food, Sewage Water, Sewage Sludge shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shivoli Centre (5th Floor), 74B, A.J.C. Road, Kolkata - 700016, West Bengal, India.  
Tel : 91 33 40149000 / 22600007 Fax : 91 33 22600008  
Email : info@mitrask.com Website : www.mitrask.com



## Address of Branch :

P. O., Baroda Dt Kachiyar Cressa 758 035



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**TEST REPORT**

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM) Joda West

At Po. : Joda, Dist. : Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGLIED/2023-24/004794

Date :

15/02/2024

Sample No. :

MSKGLIED/2023-24/0200026

Reference No. &amp; Date :

3000158017/056, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	Joda West Iron & Mn. Mines JWMM
4. Date of sampling	01/02/2024
5. Place of sampling	Near Gahgeigurta Pt JWMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGLIED/2023-24/004794

Sample No. : MSKGLIED/2023-24/0200026

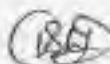
**RESULT**

## Analysis Result of Ambient Air

Sl No	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	BDL(DL:10.0)
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 : Part 10 :1999 (Reaff.2014) (NDIR) (O)	2 8-HR	0.87
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 : Part 8 : 2006 (Reaff.2012) (O)	80 24 HR.	18.3
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 5)	180 1 HR.	BDL(DL:26.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 : Part 23:2006 (Reaff. 2012) (O)	100 24 HR.	140
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (PT-24):2019 (O)	80 24 HR.	64
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 : Part 2 : 2001 (Reaff. 2012) (O)	80 24 HR.	8.6

— END —

Report Verified By



For Mitra S. K. Private Limited

  
 Authorised Signatory



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000003048F



## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM) Joda West

At(P): Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/51311L

Date :

27/02/2024

Sample No. :

MSKNS/ED/2023-24/02/X6105S

Date of receipt of sample:

10/02/2024

Date(s) of performance:

10/02/2024 - 27/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000158017/056, Date - 18/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	08/02/2024
5. Place of sampling	Near Ganapiguda Pt-JWMM
6. Environmental conditions during sampling & Transport	1) Temperature -13-28 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall No & Cold Chain Maintained
7. Sampling Plan & Method used	IS-5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pranab Kumar Sathi
9. Field Equipments Used	MSK/BBL/FIELDVDRS-4

Report No. : MSKPL/ED/2023-24/51311L

Sample No. : MSKNS/ED/2023-24/02/X6105S

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	6 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead as Pb	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.03
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.23
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	7.8

Option : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END

Reviewed By

Signature

Name

Designation

*P. Jyoti*  
Mr. Pankaj Dasgupta

Executive Officer

Authorized Signatory

Signature

Name

Designation

*P. Jyoti*  
Dr. Pankaj Dasgupta  
Lab In charge

The results relate only to the data(s) shown.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Veterinary shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for MSK/Biolab analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Bhadrak Centre (5th Floor), 740, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.

Tel : 91 33 47149000 / 33580607 Fax : 91 33 22650005

Email : info@mitrask.com Website : www.mitrask.com





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**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd. (MGM) Joda West

At/Po : Joda, Dist : Keonjhar, Odisha - 758034 India Pin

**Report No. :**

MSKGLIED/2023-24/004897

**Date :**

19/02/2024

**Sample No. :**

MSKGLIED/2023-24/0200268

**Reference No. & Date :**

3000156017/056, Date - 15/08/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Manganese Mines
4. Date of sampling	09/02/2024
5. Place of sampling	Near Gangaiguda Pn
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

**Report No. :** MSKGLIED/2023-24/004897**Sample No. :** MSKGLIED/2023-24/0200268**RESULT****Analysis Result of Ambient Air**

Sl No.	Parameter	UDM	Method	Limit	Result
1	Ammmonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	100 24 HR.	19.2
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8-hr.	0.66
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	21.4
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	100 1 HR.	BGL(DL 20.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	155
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (PT-24) 2019 (O)	60 24 HR.	68
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	7.3

— END —

Report Verified By



For Mitra S. K. Private Limited

  
 Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel.: +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-69502400003047F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM) Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 756034 India

## Report No. :

MSKPL/ED/2023-24/H1311K

## Date :

27/02/2024

## Sample No. :

MSKNB/ED/2023-24/02/VG-1074

## Date of receipt of sample:

10/02/2024

## Date(s) of performance:

10/02/2024 - 27/02/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	08/02/2024
5. Place of sampling	Near Railway Siding-JWMM
6. Environmental conditions during sampling & Transport	1) Temperature :13-25 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall No & Cold Chain Maintained
7. Sampling Plan & Method used	IS-5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pranab Kumar Sethi
9. Field Equipments Used	MSK/BBL/FIELD/RDS-3

Report No. : MSKPL/ED/2023-24/H1311K

Sample No. : MSKNB/ED/2023-24/02/VG-1074

## RESULT

## Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	8 (Annual)	BOL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BOL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BOL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.37
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	6.1

## Opinion :

Statement of Conformity NA

END

Reviewed By

Signature

Name

Designation : Executive Chemist

Mr. P. G. Gargu

Authorized Signatory

Signature

Name

Designation : Lab in charge

This result is valid only for the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non-perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non-perishable sample(s) Food, Sterile Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office : Service Centre (3rd Floor) T4D, A-2 C, Bow Road, Kolkata - 700016, West Bengal, India.  
Tel.: 31 33 401 4000 / 22550067 Fax: 31 33 20500066  
Email: info@mitrask.com Website: www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

AdPa. - Joda, Dist. - Kanyhar, Odisha - 756034 India Pin

Report No. :

MSKGL/ED/2023-24/004904

Date :

19/02/2024

Sample No. :

MSKGL/ED/2023-24/0200287

Reference No. & Date :

3000156017/055, Date - 15/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Manganese Mines
4. Date of sampling	08/02/2024
5. Place of sampling	Near Railway Siding
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004904

Sample No. : MSKGL/ED/2023-24/0200287

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	15.6
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR.	0.53
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	60 24 HR.	21.1
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	100 1 HR.	BOL/OL-20/0
5	Particulate Matter (<10µm)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	203
6	Particulate Matter (<2.5µm)	micro gm/m <sup>3</sup>	IS 5182 (PT-24) 2018 (O)	60 24 HR.	80
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	60 24 HR.	7.9

— END —

Report Verified By

For Mitra S. K. Private Limited

  
 Authorised Signatory



## Address of Laboratory :

Building No. P-49, Udayan Industrial Estate,  
3, Pajladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044005120  
Email: Udayanlab@mitrask.com



TC-6950



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ULR: TC-685024000003046F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGIM) Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/E1311E

Date :

27/02/2024

Sample No. :

MSKNB/ED/2023-24/02/Q8108T

Date of receipt of sample:

10/02/2024

Date(s) of performance:

10/02/2024 - 27/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000158017/056, Date : 16/03/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	08/02/2024
5. Place of sampling	Near H-Quarry Rest Shelter-JVMM
6. Environmental conditions during sampling & Transport	1) Temperature :13-28 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(F-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pranab Kumar Sengupta
9. Field Equipments Used	MSK/BBL/FIELD/RDS-1

Report No. : MSKPL/ED/2023-24/E1311E

Sample No. : MSKNB/ED/2023-24/02/Q8108T

## RESULT

### Chemical

Sl No.	Parameter	LOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.13
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	6.2

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

END

Reviewed By:

Signature

Name:

Mr. P. Ganguly

Designation:

Executive Chemist

Authorized Signatory:

Signature

Name:

Designation:

Mr. V. Ganguly

The results relate only to the item(s) tested.

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The retained part of sample(s) for chemical analysis (Non - portable samples) Food, Water) shall be retained for 15 days from the date of issue of this Test Report. Periodic samples shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline 9. (A) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Non - portable samples) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

 Head Office:   
 Shop No. 15th Floor, T-16, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
 Tel. : 91 35 40343000 / 22850007 Fax : 91 33 22850008  
 Email : info@mitrask.com Website : www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

AirPo. : Joda, Dist - Keonjhar, Odisha - 758034 India Pvt

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/004903

19/02/2024

MSKGL/ED/2023-24/02/00266

3000156017/056, Date - 18/09/2023

We hereby certify that the following sample Drawn by us has been analysed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Inp & Manganese Mines
4. Date of sampling	08/02/2024
5. Place of sampling	Near H-Quarry Rest Shelter
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004903

Sample No. : MSKGL/ED/2023-24/02/00266

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	15.3
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR	0.51
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR	21.6
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR	80L (DL-20.0)
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR	198
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (PT-24), 2019 (O)	80 24 HR	98
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR	6.9

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044038120  
Email: udayanlab@mitrask.com



TC-8950



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ULR: TC-89502400003048F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM), Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034, India

### Report No. :

MSKPL/ED/2023-24/V13111

### Date :

27/02/2024

### Sample No. :

MSKNB/ED/2023-24/027F10AA

### Date of receipt of sample:

10/02/2024

### Date(s) of performance:

10/02/2024 - 27/02/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156017/056, Date : 16/09/2023

### Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	08/02/2024
5. Place of sampling	Near O- Quarry Screen Plant-JWMM
6. Environmental conditions during sampling & Transport	1) Temperature: 13-28 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11.12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pranab Kumar Sethi
9. Field Equipments Used	MSK/BRL/FIELD/RDS-8

Report No. : MSKPL/ED/2023-24/V13111

Sample No. : MSKNB/ED/2023-24/027F10AA

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BOL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BOL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BOL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BOL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.37
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BOL(DL:5.0)

Opinion - Limit as per CPCB notification, New Delhi, 16th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name

Mr. Prab Gengul

Designation

Executive Chemist

Authorized Signature

Signature

Name

Dr. Subhasree Mukherjee

Designation

Lab in charge

The results relate only to the device tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The retained part of sample(s) for chemical analysis (Non - perishable sample(s)) Food, Water shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days.

The retained part of sample(s) for chemical analysis (Solid, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline 3. (Part 1) from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s)) Food, Surface Water, Drilled food shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shree/Ganga (5th Floor), 748, A-10, Sode Road, Kolkata - 700016, West Bengal, India  
Tel : +91 30 40143091 / 22050007 Fax : +91 30 22050056  
Email : info@mitrask.com Website : www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGMT) Joda West

AirPo. - Joda, Dist. - Kharajpur, Odisha - 758034 India Pin

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/004902

19/02/2024

MSKGL/ED/2023-24/0200265

3000156017/056, Date - 15/05/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Manganese Mines
4. Date of sampling	05/02/2024
5. Place of sampling	Near D-Dumy Screen
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004902

Sample No. : MSKGL/ED/2023-24/0200265

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Unit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	15.1
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR.	0.48
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	20.2
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL(DL-20.0)
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	163
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (PT-24), 2018 (O)	80 24 HR.	80
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	8.4

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P-46, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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URL: TC-69502400003044F

## TEST REPORT

## Name &amp; Address of Customer :

Yata Steel Ltd.(MGM), Joda Weel

AYPn - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/R13112

Date :

27/02/2024

Sample No. :

MSKNB/ED/2023-24/02/6A106P

Date of receipt of sample:

10/02/2024

Date(s) of performance:

10/02/2024 - 27/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/066, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	09/02/2024
5. Place of sampling	Near D-Quarry Shoring Yard-JWMM
6. Environmental conditions during sampling & Transport	1) Temperature :13-28 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pranab Kumar Sethi
9. Field Equipments Used	MSK/BBL/FIELD/VRDS-6

Report No. : MSKPL/ED/2023-24/R13112

Sample No. : MSKNB/ED/2023-24/02/6A106P

## RESULT

## Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	3 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.13
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.6)

Option : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name:

Designation

Mr. Paul George

Executive Chemist

Authorized Signatory:

Signature

Name:

Designation

Dr. Soumyajit Mukherjee

Lab in Charge

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 7 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for microbiological analysis (Non - perishable sample(s) Food, Sewage Water, Sewage Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shree Chakra (5th Floor), 74B, A. J. C. Bose Road, Kolkata - 700016, West Bengal, India.  
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## Address of Branch :

P.O. Barbil Di Keonjhar Orissa 758 035



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## TEST REPORT

### Name & Address of Customer :

Fate Steel Ltd.(MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004906

Date :

19/02/2024

Sample No. :

MSKGL/ED/2023-24/02/00284

Reference No. & Date :

3000156017/056, Date - 18/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	Joda West Iron & Mangnese Mines
4. Date of sampling	08/02/2024
5. Place of sampling	Near D-Quarry Sorting Yard,
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004906

Sample No. : MSKGL/ED/2023-24/02/00284

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	mgm. gm/m3	IS 5182 (Part 25)	400 24 HR.	14.9
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (O)	2 8HR.	0.61
3	Nitrogen Dioxide (NO2)	micro. gm/m3	IS: 5182 (Part 6) (O)	80 24 HR.	18.9
4	Ozone (O3)	micro. gm/m3	IS 5182 (Part 9)	180 1 HR.	BOL(DL-20) U)
5	Particulate Matter (<10um)	micro. gm/m3	IS: 5182 (Part 23) (O)	100 24 HR.	179
6	Particulate Matter (<2.5um)	micro. gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HR.	88
7	Sulphur Dioxide (SO2)	micro. gm/m3	IS: 5182 (Part 2) (O)	80 24 HR.	5.3

— END —

Report Verified By



For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-8950



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URL: TC-695024000003043F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/F1311L

Date :

27/02/2024

Sample No. :

MSKNB/ED/2023-24/024M1091

Date of receipt of sample:

10/02/2024

Date(s) of performance:

10/02/2024 - 27/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/058, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following result:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	08/02/2024
5. Place of sampling	Near Tata Office - JMM
6. Environmental conditions during sampling & Transport	1) Temperature : 13-28 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pranab Kumar Behera
9. Field Equipments Used	MSK/SBL/FIELD/RDS-2

Report No. : MSKPL/ED/2023-24/F1311L

Sample No. : MSKNB/ED/2023-24/024M1091

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead as Pb	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.30
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2008, for Ambient air quality.

Statement of Conformity NA

— END —

Reviewed By

Signature

Name: Mr. Poojit Ganguly

Designation: Executive Chemist

Authorized Signatory

Signature

Name: Dr. Sanyukta Mukherjee

Designation: Lab In charge

The results relate only to the sample(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 year from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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Email : info@mitrask.com Website : www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (NLM) Joda West

AtPo. - Joda, Dist. - Koorjar, Orissa - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004896

Date :

19/02/2024

Sample No. :

MSKGL/ED/2023-24/02/00263

Reference No. & Date :

3000156017/056, Date - 15/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	Joda West Iron & Manganese Mines
4. Date of sampling	08/02/2024
5. Place of sampling	Near Tata Office
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004896

Sample No. : MSKGL/ED/2023-24/02/00263

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	14.7
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR	0.52
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	21.5
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL(BL:20.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	201
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (PT-24),2019 (O)	60 24 HR.	99
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	8.2

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

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3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044038120  
Email: udayanlab@mitrask.com



TC-8950



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ULR: TC-895024000003054F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGML) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/21311D

Date :

27/02/2024

Sample No. :

MSKNB/ED/2023-24/02/NB106E

Date of receipt of sample:

12/02/2024

Date(s) of performance:

12/02/2024 - 27/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000158017/055, Date : 16/05/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	09/02/2024
5. Place of sampling	Near H-Quarry Rest Shelter-JVMM
6. Environmental conditions during sampling & Transport	1) Temperature : 13-24 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Lalit Kumar Nask, Pratik Kumar mantri
9. Field Equipments Used	MSK/BBL/FIELD/RDS-1

Report No. : MSKPL/ED/2023-24/21311D

Sample No. : MSKNB/ED/2023-24/02/NB106E

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro g/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro g/m3	USEPA-IO 3.4, June	1 (24-Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro g/m3	USEPA-IO 3.4, June	Not Specified	0.14
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Option : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Received By:

Signature

Name

Designation

*P. Sanyal*  
Mr. P. Sanyal

Executive Chemist

Authorized Signatory

Signature

Name

Designation

*Dr. Subir Kumar Dasgupta*  
Dr. Subir Kumar Dasgupta  
Lab in charge

The results relate only to the item(s) tested

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The retained part of sample(s) for chemical analysis (non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Wastes) shall be retained for 15 days as per CPCB guidelines & (Air) 1 month from the date of issue of the Test Report. The retained part of sample(s) for Microbiological analysis (non - perishable sample(s) Food, Stated Water, Sewage) shall be retained for 15 days from the date of issue of the Test Report.

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Address of Branch :

P.O. Barbil Dt Keonjhar Orissa 758 035



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**TEST REPORT**

Name &amp; Address of Customer :

Tata Steel Ltd.(MOM) ,Joda West

AbPa. - Joda, Dist - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004900

Date :

19/02/2024

Sample No. :

MSKGL/ED/2023-24/02/00272

Reference No. &amp; Date :

3000158017/056, Date - 15/03/2021

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	Joda West Iron & Manganese Mines
4. Date of sampling	09/02/2024
5. Place of sampling	Road H-Quarry Road Shellar
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004900

Sample No. : MSKGL/ED/2023-24/02/00272

**RESULT****Analysis Result of Ambient Air**

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	15.6
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR.	0.47
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	20.8
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL(DL/20.0)
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	212
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (PT-24),2019 (O)	60 24 HR.	104
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	7.3

— END —

Report Verified By

For Mitra S. K. Private Limited

  
 Authorised Signatory









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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004898

Date :

19/02/2024

Sample No. :

MSKGL/ED/2023-24/02/00270

Reference No. & Date :

3000156017/056, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	Joda West Iron & Manganees Mines
4. Date of sampling	09/02/2024
5. Place of sampling	Near D-Quarry Sorting Yard
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004898

Sample No. : MSKGL/ED/2023-24/02/00270

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	15.1
2	Carbon Monoxide (CO)	mg/m3	IS 5182 (Part 10) (O)	2 8HR.	0.68
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 (Part 6) (O)	80 24 HR.	20.1
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	BDL(DL-20.1)
5	Particulate Matter (<10um)	micro gm/m3	IS 5182 (Part 23) (O)	100 24 HR.	182
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)	80 24 HR.	87
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 (Part 2) (O)	80 24 HR.	7.3

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000003053F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

A/Pd. Joda, Dist. - Keonjhar, Odisha - 756034 India

Report No. :

MSKPL/ED/2023-24/613110

Date :

27/02/2024

Sample No. :

MSKNB/ED/2023-24/02/LV106V

Date of receipt of sample:

12/02/2024

Date(s) of performance:

12/02/2024 - 27/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000158017/056, Date - 18/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	09/02/2024
5. Place of sampling	Near D-Quarry Screen Plant-JWMM
6. Environmental conditions during sampling & Transport	1) Temperature :13-24 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Lalit Kumar Naik, Pratik Kumar mantri
9. Field Equipments Used	MSK/SBL/FIELD/RDS-6

Report No. : MSKPL/ED/2023-24/613110

Sample No. : MSKNB/ED/2023-24/02/LV106V

## RESULT

Chemical					
Sl No.	Parameter	UDM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL 1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL 4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL 0.5)
4	Lead as (Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.03
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.26
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	8.6

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2008, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

Name: Mr. Pratik Ganguly

Designation: Environmental Chemist

Authorized Signatory:

Signature:

Name:

Designation: Lab in charge

The results relate only to the sample(s) tested.

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) (Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guidelines &amp; (Air) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for microbiological analysis (Non - perishable sample(s) (Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shree Chandra (28th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.

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Email : info@mitrask.com Website : www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGMT) Joda West

Air Pb. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004899

Date :

15/02/2024

Sample No. :

MSKGL/ED/2023-24/02/00271

Reference No. & Date :

3000160017066, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mangnese Mines
4. Date of sampling	09/02/2024
5. Place of sampling	Near D-Quarry Screen
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004899

Sample No. : MSKGL/ED/2023-24/02/00271

## RESULT

### Analysis Result of Ambient Air

Sl No	Parameter	UCM	Method	Limit	Result
1	Ammonia (NH3)	micro g/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	15.3
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (C)	2 8HR.	0.47
3	Nitrogen Dioxide (NO2)	micro g/m <sup>3</sup>	IS: 5182 (Part 6) (C)	80 24 HR.	19.7
4	Ozone (O3)	micro g/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL(DL-20.0)
5	Particulate Matter (<10um)	micro g/m <sup>3</sup>	IS: 5182 (Part 23) (D)	100 24 HR.	149
6	Particulate Matter (<2.5um)	micro g/m <sup>3</sup>	IS 5182 (PT-24), 2019, (D)	80 24 HR.	71
7	Sulphur Dioxide (SO2)	micro g/m <sup>3</sup>	IS: 5182 (Part 2) (C)	80 24 HR.	7.1

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Paglaferga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044038120  
Email: udayanlab@mitrask.com



TC-8950



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM) Joda West

A/Po. : Joda, Dist. : Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/R13115

Date :

27/02/2024

Sample No. :

MSKNB/ED/2023-24/02/0V1095

Date of receipt of sample:

12/02/2024

Date(s) of performance:

12/02/2024 - 27/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date = 15/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	NA
4. Date of sampling	09/02/2024
5. Place of sampling	Near Time Office-JWMM
6. Environmental conditions during sampling & Transport.	1) Temperature :13-24 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Lalit Kumar Naik, Pratik Kumar mantri
9. Field Equipments Used	MSKBBL/FIELD/RDS-2

Report No. : MSKPL/ED/2023-24/R13115

Sample No. : MSKNB/ED/2023-24/02/0V1095

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead as Pb	micro gram/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	0.30
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Option : Limit as per CPCB notification: New Delhi: 18th November 2009, for Ambient air quality

Statement of Conformity : NA

END

Reviewed By:

Signature:

Name:

Designation:

Ms. Poo Genguly

Executive Chemist

Authorized Signatory:

Signature:

Name:

Designation:

Dr. Sanjib Kumar Mukherjee

Lab In-charge

This report is valid only for the test(s) listed.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. For perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guidelines &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sterile Water, Bacterial Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Branch Office (5th Floor), 74B, A.C. Bose Road, Kolkata - 700016, West Bengal, India.

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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

AMPO - Joda, Dist. - Keonjhar, Orissa - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004905

Date :

18/02/2024

Sample No. :

MSKGLUE/D/2023-24/02/00269

Reference No. & Date :

0000156017/056, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	Joda West Iron & Mangalore Mines
4. Date of sampling	09/02/2024
5. Place of sampling	Near Time Office
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004905

Sample No. : MSKGLUE/D/2023-24/02/00269

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UDM	Method	Level	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	15.1
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR.	0.43
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	60 24 HR.	16.6
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 8)	180 1 HR.	BOL(DL-20.0)
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	196
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (PT-24).2019 (O)	60 24 HR.	96
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	7.9

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@msk.com



TC-6550



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URL: TC-695024000003055F

## TEST REPORT

### Name & Address of Customer :

Take Steel Ltd. (MGM), Joda West

(MP) - Joda, Dist - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/Y13112

Date :

27/02/2024

Sample No. :

MSKNB/ED/2023-24/02/SY1052

Date of receipt of sample:

12/02/2024

Date(s) of performance:

12/02/2024 - 27/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/006, Date - 16/08/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	09/02/2024
5. Place of sampling	Near Railway Siding-JWMM
6. Environmental conditions during sampling & Transport	1) Temperature : 13-24 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Lalit Kumar Nair, Pratik Kumar Mondal
9. Field Equipments Used	MSK/BBL/FIELD/IDS-3

Report No. : MSKPL/ED/2023-24/Y13112

Sample No. : MSKNB/ED/2023-24/02/SY1052

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL-1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL-4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL-0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.03
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.30
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	30 (Annual)	32.3

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air (quality)

Statement of Conformity : NA

END

Reviewed By

Signature

Name

Designation

Ms. Pooja Ganguly

Executive Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Sumitranandan Mahapatra

JRF in Charge

The results relate only to the item(s) tested

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of this Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report

The reserved part of sample(s) for chemical analysis (Soil, Semi &amp; Liquid Volume) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Soiled Water, Sewerage) shall be retained for 15 days from the date of issue of the Test Report

Head Office: Shreeji Centre 6th Floor, 74B, A.J.C. Bose Road, Kolkata - 700010, West Bengal, India

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Email : info@msk.com Website : www.msk.com



## Address of Branch :

P.O. Barbil Dt. Keonjhar Orissa 758 035



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**TEST REPORT**

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM) Joda West

APPo: - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004901

Date :

19/02/2024

Sample No. :

MSKGL/ED/2023-24/0200273

Reference No. &amp; Date :

3000156017/0156, Date - 15/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	Joda West Iron & Manganeese Mines
4. Date of sampling	09/02/2024
5. Place of sampling	Near Railway Siding.
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004901

Sample No. : MSKGL/ED/2023-24/0200273

**RESULT**

## Analysis Result of Ambient Air

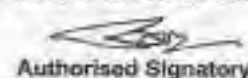
Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 29)	400 24 HR.	18.1
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (O)	2 8HR.	0.51
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6) (O)	80 24 HR.	21.6
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	BOL(DL-20.0)
5	Particulate Matter (<10µm)	micro gm/m3	IS: 5182 (Part 23) (O)	180 24 HR.	212
6	Particulate Matter (<2.5µm)	micro gm/m3	IS 5182 (PT-24), 2019 (O)	60 24 HR.	102
7	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2) (O)	80 24 HR.	6.1

— END —

Report Verified By



For Mitra S. K. Private Limited


 Authorised Signatory



## Address of Laboratory :

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3, Pagledanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: Udayanlab@mitrask.com



TC-8850



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM) Joda West

AMPa - Joda, Dist - Keonjhar, Odisha - 758034 India

### Report No. :

MSKPL/ED/2023-24/D13110

### Date :

27/02/2024

### Sample No. :

MSKNB/ED/2023-24/02/T91079

### Date of receipt of sample:

12/02/2024

### Date(s) of performance:

12/02/2024 - 27/02/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000158017/056, Date - 16/09/2023

### Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	NA
4. Date of sampling	09/02/2024
5. Place of sampling	Near Sangeeguda Pij-JW/MM
6. Environmental conditions during sampling & Transport	1) Temperature - 13-24 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall No & Cold Chain Maintained
7. Sampling Plan & Method used	IS-5182(P-11.12) & USEPA
8. Identification of the personnel performing sampling by MSK	Lalin Kumar Naik, Pratik Kumar Mantri
9. Field Equipments Used	MSK/BBU/FIELD/RDS-4

Report No. : MSKPL/ED/2023-24/D13110

Sample No. : MSKNB/ED/2023-24/02/T91079

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.20
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per GPCB notification, New Delhi: 18th November 2009, for Ambient air quality

Statement of Conformity : NA

END

Reviewed by:

Signature

Name

Designation: Fresh Air Chemist

P. Ganguly

Mr. P. Ganguly

Authorized Signatory

Signature

Name

Designation

Dr. Subinjoy Mukherjee

Lab in charge

The results relate only to the items tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non-perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per GPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non-perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Bhadrak Canton (5th Floor), 748, A.J.C. Road Road, Kolkata - 700016, West Bengal, India.  
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Email: info@mitrask.com Website: www.mitrask.com





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**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd (MGM) Joda West

AdPo. - Joda, Dist. - Keonjhar, Odisha - 756034 India Pin

**Report No. :**

MSKGLIED/2023-24/004881

**Date :**

15/02/2024

**Sample No. :**

MSKGLIED/2023-24/02/00274

**Reference No. & Date :**

3000158017/0256, Date - 15/08/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	Joda West Iron & Manganese Mines (JWIMM)
4. Date of sampling	09/02/2024
5. Place of sampling	Near Congeguda Pit
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

**Report No. :** MSKGLIED/2023-24/004881**Sample No. :** MSKGLIED/2023-24/02/00274**RESULT****Analysis Result of Ambient Air**

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	14.6
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 18) (O)	2 8HR.	0.57
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	21.1
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL(DL-20.0)
5	Particulate Matter (<10µm)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	180 24 HR.	142
6	Particulate Matter (<2.5µm)	micro gm/m <sup>3</sup>	IS 5182 (PT-24), 2019 (O)	60 24 HR.	59
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	50 24 HR.	7.6

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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URL: TC-695024000003079F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd, (MGM), Joda West

AVP/O. - Joda, Dist. - Keonjhar, Odisha - 758034 - India

Report No. :

MSKPLIED/2023-24/11338B

Date :

27/02/2024

Sample No. :

MSKNB/ED/2023-24/02/N82EAH

Date of receipt of sample:

17/02/2024

Date(s) of performance:

17/02/2024 - 27/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000158017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	NA
4. Date of sampling	15/02/2024
5. Place of sampling	Near Railway Siding
6. Environmental conditions during sampling & Transport	1) Temperature :18-25 deg C 2) Barometric Pressure: 714 mm of Hg 3) Rain fall No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Mukesh Hibaru, Latih Nask
9. Field Equipments Used	MSK/BSL/FIELD/RDS-3

Report No. : MSKPLIED/2023-24/11338B

Sample No. : MSKNB/ED/2023-24/02/N82EAH

## RESULT

### Chemical

Sl No.	Parameter	UCM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	8 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.40
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

END

Reviewed By:

Signature

Name

Designation

*P. Ganguly*  
Ms. Priti Ganguly

Executive Chemist

Authorized Signature:

Signature

Name

Designation

*J. Ganguly*  
Dr. Joydip Ganguly  
Lab Incharge

The results relate only to the items tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of this Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of this Test Report.

The reserved part of sample(s) for chemical analysis (Sol. Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (As) & (Hs) & (Hs) from the date of issue of this Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of this Test Report.

Head Office: 3rd/4th Floor (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
Tel. : +91 33 40143030 / 33060007 Fax : 91 33 22699008  
Email : info@mitrask.com Website : www.mitrask.com





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## Name & Address of Customer :

Tata Steel Ltd. (NOC) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

## TEST REPORT

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/004943

25/02/2024

MSKGL/ED/2023-24/02/00751

3000156017/056, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	15/02/2024
5. Place of sampling	Near Railway Siding
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004943

Sample No. : MSKGL/ED/2023-24/02/00751

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UCM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	15.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR.	0.55
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	21.5
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 8)	180 1 HR.	BOL/CL-20 (O)
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	220
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (PT-24), 2019 (O)	60 24 HR.	106
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	30 24 HR.	8.0

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagledanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044038120  
Email: udayanlab@mitrasrk.com



TC-6850



Scan for Portal

URL: TC-685024000003080F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM) Joda West

A/Po. - Jhida, Dist. - Keonjhar, Orissa - 758034 India

## Report No. :

MSKPL/ED/2023-24/R13383

## Date :

27/02/2024

## Sample No. :

MSKNB/ED/2023-24/02/XQ2ED2

## Date of receipt of sample:

17/02/2024

## Date(s) of performance:

17/02/2024 - 27/02/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 19/09/2023

## Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	15/02/2024
5. Place of sampling	Near Gangeiguda Pit
6. Environmental conditions during sampling & Transport	1) Temperature : 18-26 deg C 2) Barometric Pressure: 714 mm of Hg 3) Rain (fall) No & Cold Chain Maintained
7. Sampling Plan & Method used	IS-5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Mukesh Hibara, Lalin Nask
9. Field Equipments Used	MSK/BBL/FIELD/ROB-4

Report No. : MSKPL/ED/2023-24/R13383

Sample No. : MSKNB/ED/2023-24/02/XQ2ED2

## RESULT

## Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.17
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

## Opinion :

Limit as per CPCB notification, New Delhi, 16th November 2009, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name

Designation

*P. Ganguly*  
Mr. P. Ganguly  
Executive Chemist

Authorized Signatory

Signature

Name

Designation

*Dr. Soumyajit Das*  
Dr. Soumyajit Das  
Lab in charge

This notice refers only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s)) Food, Water shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 7 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report. The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s)) Food, Sewer Waste, Sealed food shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shree Center (9th Floor), 748, A.J.C. Bose Road, Kolkata - 700019, West Bengal, India  
Tel. : 81 83 40143390 / 22600007 Fax : 81 83 22600000  
Email : info@mitrasrk.com Website : www.mitrarsk.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MSM) Joda West

At/Po - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004939

Date :

26/02/2024

Sample No. :

MSKGL/ED/2023-24/02/00752

Reference No. & Date :

3000158017/058, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	15/02/2024
5. Place of sampling	Near Gangeguda Pit
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004939

Sample No. : MSKGL/ED/2023-24/02/00752

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ambient Air (NH3)	micro gram/m3	IS 5182 (Part 25)	400 24 HR.	15.7
2	Carbon Monoxide (CO)	mg/m3	IS 5182 (Part 10) (O)	2 8HR.	0.54
3	Nitrogen Dioxide (NO2)	micro gram/m3	IS 5182 (Part 6) (O)	80 24 HR.	20.7
4	Ozone (O3)	micro gram/m3	IS 5182 (Part 9)	180 1 HR.	BDL (DL:20.0)
5	Particulate Matter (<10um)	micro gram/m3	IS 5182 (Part 25) (O)	100 24 HR.	187
6	Particulate Matter (<2.5um)	micro gram/m3	IS 5182 (Part 24) 2018 (O)	80 24 HR.	90
7	Sulphur Dioxide (SO2)	micro gram/m3	IS 5182 (Part 7) (O)	80 24 HR.	7.4

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044035120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000003075E

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

### Report No. :

MSKPL/ED/2023-24/913145

### Date :

27/02/2024

### Sample No. :

MSKNB/ED/2023-24/02/0B2E9F

### Date of receipt of sample:

17/02/2024

### Date(s) of performance:

17/02/2024 - 27/02/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156017/056, Date - 16/09/2023

### Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results.

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	15/02/2024
5. Place of sampling	Near Time Office
6. Environmental conditions during sampling & Transport	1) Temperature: 18-25 deg C 2) Barometric Pressure: 714 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Mukesh Hibaru, Lalin Naik
9. Field Equipments Used	MSK/BBL/FIELD/RDS-2

Report No. : MSKPL/ED/2023-24/913145

Sample No. : MSKNB/ED/2023-24/02/0B2E9F

## RESULT

### Chemical

Sl.No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m <sup>3</sup>	USEPA-IO 3.4, June	8 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m <sup>3</sup>	IS 5182 (Part 11)	8 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m <sup>3</sup>	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m <sup>3</sup>	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m <sup>3</sup>	USEPA-IO 3.4, June	Not Specified	0.31
6	Nickel as Ni	ng/m <sup>3</sup>	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

END

Received By:

Signature

Name

Designation

P. Ganguly  
Mr. P. Ganguly

Executive Chemist

Authorized Signatory:

Signature

Name

Designation

Dr. Soumitra Ghosh, Mukund Ghosh  
Lab In Charge

The results relate only to the sample(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of this Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Food, Solid &amp; Liquid (Water) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of this Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Street's Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
Tel. : 91 33 40143000 / 22650007 Fax : 91 33 22650008  
Email : info@mitrask.com Website : www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MSM) Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 756034, India Pin

Report No. :

MSKGL/ED/2023-24/004938

Date :

26/02/2024

Sample No. :

MSKGL/ED/2023-24/0200747

Reference No. & Date :

3000158017/056, Date - 15/08/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	Joda West Iron & Mn Mines
4. Date of sampling	15/02/2024
5. Place of sampling	Near Time Office.
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004938

Sample No. : MSKGL/ED/2023-24/0200747

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Aeromonas (HFC)	micro g/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	15.2
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (C)	2 8HR.	0.55
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro g/m <sup>3</sup>	IS: 5182 (Part 6) (C)	80 24 HR.	22.7
4	Ozone (O <sub>3</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL <20.11
5	Particulate Matter (<10µm)	micro g/m <sup>3</sup>	IS: 5182 (Part 23) (C)	100 24 HR.	224
6	Particulate Matter (<2.5µm)	micro g/m <sup>3</sup>	IS 5182 (PT-24), 2019 (C)	60 24 HR.	106
7	Sulphur Dioxide (SO <sub>2</sub> )	micro g/m <sup>3</sup>	IS: 5182 (Part 2) (C)	80 24 HR.	8.4

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6960



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ULR: TC-696024000003076F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West

APPO. : Joda, Dist. : Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/E1338Q

Date :

27/02/2024

Sample No. :

MSKNB/ED/2023-24/02/DG2EBR

Date of receipt of sample:

17/02/2024

Date(s) of performance:

17/02/2024 - 27/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000196017/056, Date - 16/08/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	NA
4. Date of sampling	16/02/2024
5. Place of sampling	Near D-Quarry Sorting Yard
6. Environmental conditions during sampling & Transport	1) Temperature :16-26 deg C 2) Barometric Pressure: 714 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Mukesh Hibaru, Lalit Naik
9. Field Equipments Used	MSK/GBL/FIELD/RDS-3

Report No. : MSKPL/ED/2023-24/E1338Q

Sample No. : MSKNB/ED/2023-24/02/DG2EBR

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.8)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.36
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	21.5

Opinion: Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed By:

Signature:

Name:

Designation:

P. Ganguly  
Mr. Pankaj Ganguly

Executive Chemist

Authorized Signatory:

Signature:

Name:

Designation:

Dr. Soumyadeep Mukherjee  
Lab in charge

The results relate only to the sample tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

The preserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Sealed Water) shall be retained for 15 days from the date of issue of this Test Report. (Perishable sample(s)) shall be retained 2 days from the date of issue of the Test Report.

The preserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (As) 1 month from the date of issue of the Test Report.

The preserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shreeji Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700012 (West Bengal), India

Tel : 91 33 40143000 / 22650017 Fax : 91 33 22650036

Email : info@mitrask.com Website : www.mitrask.com



## Address of Branch :

P.O. Barhi (t Keonjhar Orissa 756 035



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## Name &amp; Address of Customer :

Tata Steel Ltd (MSM) Joda West

AtPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

**TEST REPORT**

Report No. :

MSKGL/ED/2023-24/004945

Date :

28/02/2024

Sample No. :

MSKGL/ED/2023-24/0200748

Reference No. &amp; Date :

3000156/17068, Date - 15/08/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	Joda West Iron & Mn Mine
4. Date of sampling	15/02/2024
5. Place of sampling	Near D-Quarry Sorting Yard
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004945

Sample No. : MSKGL/ED/2023-24/0200748

**RESULT**

## Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 25)	400 24 HR.	14.5
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 16) (O)	2 8HR.	0.54
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	21.1
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 9)	180 1 HR.	BDL <28.0
5	Particulate Matter (<10µm)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	204
6	Particulate Matter (<2.5µm)	micro gm/m <sup>3</sup>	IS: 5182 (Part 24) 2019 (O)	60 24 HR.	98
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	7.4

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044035120  
Email: udayanlab@mitrask.com



TC-8960



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URL: TC-89502400003877F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd. (MGML), Joda Wesi

At/Po. : Joda, Dist. : Keonjhar, Orissa - 758034 India

## Report No. :

MSKPLIED/2023-24/1338K

## Date :

27/02/2024

## Sample No. :

MSKNB/ED/2023-24/02/FD2EEP

## Date of receipt of sample:

17/02/2024

## Date(s) of performance:

17/02/2024 - 27/02/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results.

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	15/02/2024
5. Place of sampling	Near D-Quarry Screen
6. Environmental conditions during sampling & Transport	1) Temperature :18-26 deg C 2) Barometric Pressure: 714 mm of Hg 3) Rain: fall : No. & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Mukesh Hiburu, Lalin Nask
9. Field Equipments Used	MSK/BBL/FIELD/ROS-8

Report No. : MSKPLIED/2023-24/1338K

Sample No. : MSKNB/ED/2023-24/02/FD2EEP

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	0.13
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Option : Limit as per CPCB notification, 'New Delhi' 16th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature

P. Ganguly

Name

Mr. P. Ganguly

Designation

Executive Chemist

Authorized Signatory:

Signature

Name

Dr. Soumyajit Mahapatra

Designation

Lab in charge

This report is valid only for the item(s) listed.

This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

The retained part of sample(s) for chemical analysis (Air - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of this Test Report. (Perishable sample(s) shall be retained 7 days from the date of issue of the Test Report).

The retained part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Air - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Strata Capital 25th Floor, 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.

Tel : 91 33 40143000 / 22650007 Fax : 91 33 22650006

Email : info@mitrask.com info@trife - www.mitrask.com





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## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd (MGM) Joda West

AtPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

**Report No. :**

MSKGL/ED/2023-24/004942

**Date :**

26/02/2024

**Sample No. :**

MSKGL/ED/2023-24/02/00749

**Reference No. & Date :**

0000156017/056, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	15/02/2024
5. Place of sampling	Near D-Quarry Screen
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

**Report No. :** MSKGL/ED/2023-24/004942

**Sample No. :** MSKGL/ED/2023-24/02/00749

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	14.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10), (O)	2 6HR.	0.61
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6), (O)	80 24 HR.	20.1
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	100 1 HR.	BOL (DL:20.0)
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23), (O)	100 24 HR.	152
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (PT-24), 2019, (O)	60 24 HR.	73
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 2), (O)	80 24 HR.	6.3

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-5550



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URL: TC-695024000003078F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM), Joda West

A&amp;Pb. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/ED/2023-24/Z1336H

## Date :

27/02/2024

## Sample No. :

MSKNB/ED/2023-24/02/MQ2EC4

## Date of receipt of sample:

17/02/2024

## Date(s) of performance:

17/02/2024 - 27/02/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	15/02/2024
5. Place of sampling	Near H-Quarry Rest Shafter
6. Environmental conditions during sampling & Transport	1) Temperature :18-25 deg C 2) Barometric Pressure: 714 mm of Hg 3) Rain fall :No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Mukesh Haldar, Lalin Nask
9. Field Equipments Used	MSK/BBLFIELDRDS-1

Report No. : MSKPL/ED/2023-24/Z1336H

Sample No. : MSKNB/ED/2023-24/02/MQ2EC4

## RESULT

## Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.04
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.27
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:6.0)

Opinion : Until as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : N/A

— END —

Reviewed By:

Signature:

Name:

Mr. Prit Ganguly

Designation:

Executive Chemist

Authorized Signatory:

Signature:

Name:

Dr. Soumendra Nath Dasgupta

Designation:

Lab. In-charge

The results relate only to the sample tested.

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The reserved part of sample(s) for chemical analysis (Air - particulate sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Particulate sample(s) shall be retained 7 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (W) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Air - particulate sample(s) Food, Sealed Water, Sterile fluid) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Bhadrak Centre (5th Floor), 74B, A J C, Bore Road, Kolkata - 700045, West Bengal, India  
Tel : 91-33-40143000/22550007 Fax : 91-33-22050033  
Email : info@mitrask.com Website: www.mitrask.com



Address of Branch :  
P.O. Baran De Koonjhar Orissa 758 035



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MSM) Joda West

APD. - Joda, Dist. - Keonjhar, Orissa - 758034 India Ph

Report No. :

MSKGL/ED/2023-24/004946

Date :

26/02/2024

Sample No. :

MSKGL/ED/2023-24/02/00750

Reference No. & Date :

3000159017055, Date - 19/09/2023

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	15/02/2024
5. Place of sampling	Near H-Quarry Reel Shelter
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004946

Sample No. : MSKGL/ED/2023-24/02/00750

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	14.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR.	0.59
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro g/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	21.7
4	Ozone (O <sub>3</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 9)	100 1 HR.	BOL/DL 20.0
5	Particulate Matter (<10µm)	micro g/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	204
6	Particulate Matter (<2.5µm)	micro g/m <sup>3</sup>	IS 5182 (PT-24) 2018 (O)	50 24 HR.	99
7	Sulphur Dioxide (SO <sub>2</sub> )	micro g/m <sup>3</sup>	IS: 5182 (Part 7) (O)	80 24 HR.	7.2

— END —

Report Verified By



For Mitra S. K. Private Limited



Authorised Signatory



## Address of Laboratory :

Building No. P-4E, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrascl.com



TC-8950



Scan for Portal

ULR: TC-695024000003082F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

### Report No. :

MSKPL/ED/2023-24/513383

### Date :

27/02/2024

### Sample No. :

MSKNB/ED/2023-24/026L2EDT

### Date of receipt of sample:

19/02/2024

### Date(s) of performance:

19/02/2024 - 27/02/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156017/056, Date - 16/09/2023

### Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	16/02/2024
5. Place of sampling	Near D-Quarry Sorting Yard
6. Environmental conditions during sampling & Transport	1) Temperature :16-27 deg C 2) Barometric Pressure: 714 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS-5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Mantri Akash Kr. Sethi
9. Field Equipments Used	MSK/BRL/FIELD/RDS-6

Report No. : MSKPL/ED/2023-24/513383

Sample No. : MSKNB/ED/2023-24/026L2EDT

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.03
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.16
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	7.0

Opinion : Limit as per CPCB notification, New Delhi: 18th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Received By:

Signature:

Name:

Designation:

Mr. Pratik Garguly

Executive Chemist

Authorized Signatory:

Signature:

Name:

Designation:

Dr. Soumyajit Mukherjee

ISO In-charge

This result is valid only for the sample(s) tested.

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The reserved part of sample(s) for chemical analysis (Non-perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. For perishable sample(s) and Solid waste 3 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Solid, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Aq) 1 month from the date of issue of the Test Report. The reserved part of sample(s) for Microbiological analysis (Non-perishable sample(s) Food, Solid Waste, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Bhadrak Centre (3rd Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
Tel. : 91 33 40343000 / 22650007 Fax: 91 33 22650008  
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Address of Branch :

P.O. Baria Di Keonjhar Orissa 758 035



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**TEST REPORT**

Name &amp; Address of Customer :

Tata Steel Ltd (MSM), Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 - India Pin

Report No. :

MSKGL/ED/2023-24/004948

Date :

26/02/2024

Sample No. :

MSKGL/ED/2023-24/0200754

Reference No. &amp; Date :

3002159017/030, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	16/02/2024
5. Place of sampling	Near D-Quarry Sorting Yard,
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004948

Sample No. : MSKGL/ED/2023-24/0200754

**RESULT****Analysis Result of Ambient Air**

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	13.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR	0.47
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	20.4
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL <20.0
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	204
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (PT-24), 2019. (O)	60 24 HR.	98
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	7.4

— END —

Report Verified By



For Mitra S. K. Private Limited


  
 Authorised Signatory



## Address of Laboratory :

Building No. F-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayan@mitrask.com



TC-6950



Scan for Portal

URL: TC-695024000003083F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGMI), Joda West

AI/Pd. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/51338T

27/02/2024

MSKNB/ED/2023-24/02/NK2E99

18/02/2024

18/02/2024 - 27/02/2024

Permanant Facility

3000156017/056, Date - 16/09/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	18/02/2024
5. Place of sampling	Near D-Quarry Screen
6. Environmental conditions during sampling & Transport	1) Temperature: 18-27 deg C 2) Barometric Pressure: 714 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS-5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Prabir Mantri Akash Kr. Sengupta
9. Field Equipments Used	MSK/BBU/FIELD/RDS-8

Report No. : MSKPL/ED/2023-24/51338T

Sample No. : MSKNB/ED/2023-24/02/NK2E99

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead as (Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.04
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.26
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	27.2

Opinion : Limit as per CPCB notification, New Delhi, 19th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed by:

Signature

Name

Designation

*P. Ganguly*

Mr. P. Ganguly

Executive Director

Authorized Signatory

Signature

Name

Designation

*Dr. Soumyajit Mukherjee*  
Dr. Soumyajit Mukherjee  
Lab in charge

The results relate only to this item(s) tested.

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The retained part of sample(s) for microbiological analysis (Non-perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (NA) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Non-perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

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Email : info@mitrask.com Website : www.mitrask.com



Address of Branch :

P.O. Barabati Di Keonjhar Odisha 758 035



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## TEST REPORT

Name & Address of Customer :

Tata Steel Ltd. (MGM) Joda West

MPD - Joda, Dist. - Keonjhar, Odisha - 758034 Joda RPI

Report No. :

MSKGLIED/2023-24/004940

Date :

28/02/2024

Sample No. :

MSKGLIED/2023-24/02/00755

Reference No. & Date :

3000156017/055, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	15/02/2024
5. Place of sampling	New D-Quarry Screen
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGLIED/2023-24/004940

Sample No. : MSKGLIED/2023-24/02/00755

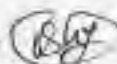
## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m <sup>3</sup>	IS: 5182 (Part 25)	400 24 HR.	14.1
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR.	0.43
3	Nitrogen Dioxide (NO2)	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	20.0
4	Ozone (O3)	micro gm/m <sup>3</sup>	IS: 5182 (Part 9)	180 1 HR.	BDL (DL 20.0)
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	156
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS: 5182 (PT-24) 2019 (O)	90 24 HR.	75
7	Sulphur Dioxide (SO2)	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	8.1

END

Report Verified By



For Mitra S. K. Private Limited

Authorized Signatory

Head Office:

Office: C-101 (1st Floor), 746, A.J.C. Road (Opp. Kofia - 750015), West Bengal India.  
Tel: 91 33 40143597 / 40220687 Fax: 91 33 23060048  
Email: info@mitras.com Website: www.mitrask.com

Page 1 of 1



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel.: +91-7044036120  
Email: udayanlab@mitrask.com



TC-6950



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URL: TC-695024000003084F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. &amp; Date :

Discipline:

MSKPL/ED/2023-24/31338M

27/02/2024

MSKNS/ED/2023-24/02/WF2EE5

19/02/2024

19/02/2024 - 27/02/2024

Permanent Facility

3000156017/056, Date - 16/08/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	16/02/2024
5. Place of sampling	Near H-Quarry Rest Shelter
6. Environmental conditions during sampling & Transport	1) Temperature :18-27 deg C 2) Barometric Pressure: 774 mm of Hg 3) Rain fall No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Mantri Akash Kr. Sethi
9. Field Equipments Used	MSK/GBL/FIELD/RDS-1

Report No.: MSKPL/ED/2023-24/31338M

Sample No. : MSKNS/ED/2023-24/02/WF2EE5

## RESULT

### Chemical

Sl No.	Parameter	Unit	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3,4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:0.3)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3,4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3,4, June	Not Specified	0.13
6	Nickel as Ni	ng/m3	USEPA-IO 3,4, June	20 (Annual)	BDL(DL:5.0)

Opinion: Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity: NA

— END —

Reviewed By:

Signature:

Name:

Designation:

P. Ganguly

Mr. Pratik Mantri

Executive Chemist

Authorized Signatory:

Signature:

Name:

Designation:

Dr. Subrata Kumar Ghosh

Lab In Charge

The results relate only to the sample(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained for 7 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Solid, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Bacteriological Water, Bacteriological Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Strada Centre (3rd Floor), 74B, A/1C, Rowe Road, Kolkata - 700016, West Bengal, India

Tel.: +91 93 40142000 / 22050007 Fax : 91 38 22250006

E-mail: info@mitrask.com Website: www.mitrask.com



Address of Branch :  
P.O. Barbil Di Keonjhar Orissa 758 035



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM) Joda West

At/Pos. - Joda, Dist. - Keonjhar, Orissa - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004941

Date :

26/02/2024

Sample No. :

MSKGL/ED/2023-24/0200756

Reference No. & Date :

3000156017/056, Date - 15/02/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	Joda West Iron & Mn Mines
4. Date of sampling	16/02/2024
5. Place of sampling	Nagar H-Quarry Rest Shelter
6. Environmental conditions during sampling & transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004941

Sample No. : MSKGL/ED/2023-24/0200756

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	15.7
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR.	0.56
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 8) (O)	60 24 HR.	21.6
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL(DL 20.0)
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	211
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (PT-24), 2019 (O)	60 24 HR.	102
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	60 24 HR.	7.5

— END —

Report Verified By



For Mitra S. K. Private Limited

Authorized Signatory



Head Office:

Shreeji Centre 05th Floor, 74B, A.J.C. Boye Road, Kolkata - 700015, West Bengal, India  
Tel. : 03 33 45140016 / 23250007 Fax : 03 33 23250008  
Email : info@msk.co.in Website : www.msk.co.in

Page 1 of 1



## Address of Laboratory :

Building No. F-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6980



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URL: TC-695024000003061F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

A/Po. -Joda Dist. - Keonjhar, Odisha - 759034, India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. &amp; Date :

Discipline:

MSKPL/ED/2023-24/81538H

27/02/2024

MSKNB/ED/2023-24/02/3A2EAN

19/02/2024

19/02/2024 - 27/02/2024

Permanent Facility

3000158017/056, Date - 16/09/2023

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	16/02/2024
5. Place of sampling	Near Time Office
6. Environmental conditions during sampling & Transport	1) Temperature :18-27 deg C 2) Barometric Pressure: 714 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Mantri Akash Kr. Sethi
9. Field Equipments Used	MSK/BSL/FIELDVDS-2

Report No. : MSKPL/ED/2023-24/81338H

Sample No. : MSKNB/ED/2023-24/02/3A2EAN

## RESULT

## Chemical

Sl No.	Parameter	UDM	Method	Limit	Result
1	Arsenic as (As)	ng/m <sup>3</sup>	USEPA-IO 3.4, June	6 (Annual)	BDL(DL 1.0)
2	Benzene	micro gm/m <sup>3</sup>	IS 5182 (Part 11)	6 (Annual)	BDL(DL 4.2)
3	Benzo(a)Pyrene	ng/m <sup>3</sup>	IS 5182 (Part 12)	1 (Annual)	BDL(DL 0.5)
4	Lead (as Pb)	micro gm/m <sup>3</sup>	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m <sup>3</sup>	USEPA-IO 3.4, June	Not Specified	0.20
6	Nickel as Ni	ng/m <sup>3</sup>	USEPA-IO 3.4, June	20 (Annual)	6.9

Opinion : Limit as per CPCB notification, New Delhi, 19th November 2009, for Ambient air quality.

Statement of Conformity: NA

— END —

Reviewed By

Signature

Name

Designation

P. Ganguly

Mr. Pratik Mantri

Executive Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Subrata Kumar Mukhopadhyay  
Lab In-charge

This result is valid only for the sample(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - permeable sample(s)) Food, Water shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 7 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - permeable sample(s)) Food, Sealed Water, Sealed food shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Service Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel : +91 33 40145000 / 22090007 Fax : 01 33 22950009  
Email : info@mitrask.com Website : www.mitrask.com



## Address of Branch :

P.O. Barbel Dt. Keonjhar Orissa 755 035



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**TEST REPORT**

## Name &amp; Address of Customer :

Tres Steel Ltd (MGM) Joda West

At Po. - Joda, Dist. - Keonjhar, Odisha - 755034 India Pin

Report No. :

MSKGL/ED/2023-24/004947

Date :

26/02/2024

Sample No. :

MSKGL/ED/2023-24/02/00753

Reference No. &amp; Date :

3000156017/008, Date - 15/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	16/02/2024
5. Place of sampling	Near Time Office.
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004947

Sample No. : MSKGL/ED/2023-24/02/00753

**RESULT**

## Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1.	Ammonia (NH3)	micro gram/m3	IS 5182 (Part 25)	400 24 HR.	17.5
2.	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (O)	2 8HR.	0.51
3.	Nitrogen Dioxide (NO2)	micro gram/m3	IS: 5182 (Part 6) (O)	80 24 HR.	23.8
4.	Ozone (O3)	micro gram/m3	IS 5182 (Part 9)	180 1 HR.	BDL <20.0
5.	Particulate Matter (<10um)	micro gram/m3	IS: 5182 (Part 23) (O)	100 24 HR.	231
6.	Periculate Matter (<2.5um)	micro gram/m3	IS 5182 (PT-24), 2019, (O)	80 24 HR.	113
7.	Sulphur Dioxide (SO2)	micro gram/m3	IS: 5182 (Part 2) (O)	80 24 HR.	8.5

—END—

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-46, Udayan Industrial Estate,  
3, Pajladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-8860



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ULR: TC-895024000003086F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West  
A/Po - Joda, Dist - Keshubpur, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/S13380

Date :

27/02/2024

Sample No. :

MSKNB/ED/2023-24/02/ZV2ECJ

Date of receipt of sample:

19/02/2024

Date(s) of performance:

19/02/2024 - 27/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/058, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	16/02/2024
5. Place of sampling	Near Gangeguda Pii
6. Environmental conditions during sampling & Transport	1) Temperature: 18-27 deg C 2) Barometric Pressure: 714 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182 (P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Mantri Akash Kr. Sethi
9. Field Equipments Used	MSK/BBL/FIELDVROS-4

Report No. : MSKPL/ED/2023-24/S13380

Sample No. : MSKNB/ED/2023-24/02/ZV2ECJ

## RESULT

### Chemical

Sr No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.17
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Option : Limit as per CPCB notification, New Delhi, 16th November 2009, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name

Designation

P. Ganguly  
Mr. Pankaj Ganguly

Executive Chemist

Authorized Signatory:

Signature

Name

Designation

Dr. Sougandha Mukherjee  
Lab in charge

The results are valid only to the test(s) listed.

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The retention period of sample(s) for chemical analysis (Non-perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retention period of sample(s) for chemical analysis (Solid, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (for 1 month from the date of issue of the Test Report. The retention period of sample(s) for Microbiological analysis (Non-perishable sample(s) Food, Sewage Water, Sewage food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Regional Centre (Bh. Floor), 74B, A.J.C. Bose Road, Kolkata-700016, West Bengal, India  
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Email: info@mitrask.com Website: www.mitrask.com



## Address of Branch :

P.O. Barbi De Kuanjhar Orissa 758 035



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**TEST REPORT**

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM) Joda West

At/ Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004944

Date :

26/02/2024

Sample No. :

MSKGL/ED/2023-24/0200758

Reference No. &amp; Date :

3000166017/356, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West iron & Mn Mines
4. Date of sampling	18/02/2024
5. Place of sampling	Near Gangajuda Pt
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004944

Sample No. : MSKGL/ED/2023-24/0200758

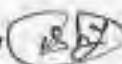
**RESULT**

## Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	14.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 BHR.	0.51
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 61) (O)	80 24 HR.	20.4
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BOL(DL 20.0)
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HRL	169
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (PT-24) 2019 (O)	60 24 HR.	77
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	7.1

— END —

Report Verified By



For Mitra S. K. Private Limited

  
 Authorised Signatory



## Address of Laboratory :

Building No. P- 46, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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URL: TC-505024000003085F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

W.Pu. - Joda, Dist. - Keonjhar, Odisha - 756034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/213381

27/02/2024

MSKNB/ED/2023-24/02/ZT2EBT

19/02/2024

19/02/2024 - 27/02/2024

Permanent Facility

3000156017/166, Date - 15/09/2023

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	16/02/2024
5. Place of sampling	Near Railway Siding,
6. Environmental conditions during sampling & Transport	1) Temperature :16-27 deg C 2) Barometric Pressure: 714 mm of Hg 3) Rain fall No & Clouds Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Mantri Akash Kr. Selli
9. Field Equipments Used	MSK/SBL/FIELD/RDS-3

Report No. : MSKPL/ED/2023-24/213381

Sample No. : MSKNB/ED/2023-24/02/ZT2EBT

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.22
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion :

Limit as per CPCB notification, New Delhi, 18th November 2006, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed By

Signature

Name

Designation

*P. Ganguly*  
Mr. Pratik Ganguly

Executive Chemist

Authorized Signatory

Signature

Name

Designation

*P. Ganguly*  
Mr. Pratik Ganguly  
Lab In-charge

The results made only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s)) Food, Water shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for microbiological analysis (Non - perishable sample(s)) Food, Sewer Water, Sewage effluent shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Special Carlin (5th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel. : 91 33 40143000 / 23550007 Fax : 91 33 23550006  
Email : info@mitrask.com Website : www.mitrask.com



Address of Branch :

P.O. Barbi Di Koriyhar Cross 758 035



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## TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(NGL) Joda West

AsPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004949

Date :

28/02/2024

Sample No. :

MSKGL/ED/2023-24/02/00757

Reference No. & Date :

3000156017/056; Date - 15/02/2023

We hereby certify that the following sample Driven by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (any)	Joda West Iron & Mn Mines Environment Clear & Sunny
4. Date of sampling	16/02/2024
5. Place of sampling	Near Railway Siding
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004949

Sample No. : MSKGL/ED/2023-24/02/00757

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	15.5
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (O)	2 8HR.	0.60
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6) (O)	80 24 HR.	22.1
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	BDL(DL 20.0)
5	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	100 24 HR.	236
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24), 2019 (O)	60 24 HR.	114
7	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2) (O)	60 24 HR.	6.2

END

Report Verified By



For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-46, Udayan Industrial Estate  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@msk.com



TC-6980



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ULR: TC-695024000003519F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

APPC - Joda, Dist. : Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. &amp; Date :

Discipline:

MSKPL/ED/2023-24/1138BC

08/03/2024

MSKNB/ED/2023-24/02/59405E

26/02/2024

26/02/2024 - 08/03/2024

Permanent Facility

3000156017/055, Date - 15/09/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	22/02/2024
5. Place of sampling	Near Time Office-JWMM
6. Environmental conditions during sampling & Transport	1) Temperature :15-27 deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain fall : No & Cold Clean Maintained
7. Sampling Plan & Method used	IS 5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Prash Kumer Mantri
9. Field Equipments Used	MSK/BLFIELDIRD5-2

Report No. : MSKPL/ED/2023-24/1138BC

Sample No. : MSKNB/ED/2023-24/02/59405E

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	8 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.03
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.33
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	6.3

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2008, for Ambient air quality

Statement of Conformity : NA

END

Reviewed By:

Signature

Name : Dr. Devdatta Banerjee

Designation : Technical In charge

Authorized Signatory:

Signature

Name : Dr. Devdatta Banerjee

Designation : Technical In charge

The results relate only to the item(s) tested.

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s)) Food, Water shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 7 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guidelines &amp; (Air) 1 month from the date of issue of the Test Report. The retained part of sample(s) for Microbiology analysis (Non - perishable sample(s)) Food, Sealed Water, Sealed food shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Shree Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel : +91 33 4014000 / 22650007 Fax : 91 33 22650099  
Email : info@skltd.com Website : www.skpltd.com



## Address of Branch :

P.O. Baroli Gt Koorhar Orissa 758 035



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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM) Joda West

A/Ro. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004986

Date :

28/02/2024

Sample No. :

MSKGL/ED/2023-24/0001026

Reference No. &amp; Date :

3000168017, Date - 26/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Minia
4. Date of sampling	22/02/2024
5. Place of sampling	Near Time Office - WMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004986

Sample No. : MSKGL/ED/2023-24/0001026

## RESULT

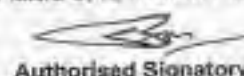
Analysis Result of Ambient Air					
Sl No.	Parameter	UDM	Method	Limit	Result
1	Amonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR	15.3
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (C)	2 8HR.	0.58
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 8) (C)	80 24 HR.	18.1
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 8)	180 1 HR.	BOL(DL-20.0)
5	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23) (C)	160 24 HR.	235
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24), 2019 (C)	60 24 HR.	112
7	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2) (C)	80 24 HR.	5.8

— END —

Report Verified By



For Mitra S. K. Private Limited


  
 Authorised Signatory

## Head Office:

 Ghosh Centre (5th Floor) 74B, A.J.C. Road Road, Odisha - 700016 - West Bengal, India.  
 Tel. : 91-31-4244000 / 22550957 Fax : 91-31-22550005  
 Email : msk@mitras.com Website : www.msk.com



## Address of Laboratory :

Building No. F-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mskrsk.com



TC-6950



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGNI) Joda West

At/Po - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/W13BC6

06/03/2024

MSKNB/ED/2023-24/02/5C407L

26/02/2024

26/02/2024 - 06/03/2024

Permanent Facility

3000156017/056, Date : 18/09/2023

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	22/02/2024
5. Place of sampling	Near H-Quarry Rest Shelter, JWM
6. Environmental conditions during sampling & Transport	1) Temperature : 15-27 deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11.12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Kumar Mantri
9. Field Equipments Used	MSK/BDUFIELDRDS-1

Report No. : MSKPL/ED/2023-24/W13BC6

Sample No. : MSKNB/ED/2023-24/02/5C407L

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.10
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

—END—

Reviewed By:

Signature:

Name : Dr. Divyanshu Bhowmik

Designation : Technical In charge

Authorized Signatory:

Signature:

Name:

Designation : Technical In charge

The results relate only to the item(s) tested.

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The retained part of sample(s) for chemical analysis (Solid, liquid & liquid waste) shall be retained for 15 days as per CPCB guideline 5. (4) 1 month from the date of issue of this Test Report. The retained part of sample(s) for microbiological analysis (Non-perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of this Test Report.

Head Office: Ground Floor (5th Floor), 740, A.L.D. Road Road, Kolkata - 700016, West Bengal, India  
Tel. : 91 33 40143000 / 22650007 Fax : 91 33 23690008  
Email : info@mskrsk.com Website : www.mskrsk.com







## Address of Laboratory :-

Building No. P- 48, Udayan Industrial Estate,  
 3, Pagladanga Road, Kolkata 700015  
 West Bengal  
 Tel : +91 7044038120  
 Email: udayanlab@mitrask.com



TC-8950



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## TEST REPORT

## Name &amp; Address of Customer :-

Tara Steel Ltd (WGL), Joda West

At/Po. - Joda, Dist - Kanchhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/Q136C0

Date :

06/03/2024

Sample No. :

MSKNB/ED/2023-24/Q28Z4084

Date of receipt of sample :

26/02/2024

Date(s) of performance :

26/02/2024 - 06/03/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/055, Date - 16/09/2023

Discipline :

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results.

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	22/02/2024
5. Place of sampling	Near O-Quarry Shoring Yard - WMM
6. Environmental conditions during sampling & Transport	1) Temperature : 15-27 deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS-5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Kumar Marthi
9. Field Equipments Used	MSK/BBL/FIELD/RDS-6

Report No. : MSKPL/ED/2023-24/Q136C0

Sample No. : MSKNB/ED/2023-24/Q28Z4084

## RESULT

## Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead as (Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.08
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

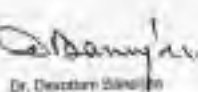
— END —

Reviewed By:

Signature:

Name:

Designation:



Dr. Debashis Banerjee

Technical in charge

Witnessed Signature:

Signature:

Name:

Designation:



Dr. Debashis Banerjee

Technical in charge

This result is valid only for the item(s) tested.

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The retained part of sample(s) for chemical analysis (Non - portable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Retainable sample(s) shall be retained 15 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Water) shall be retained for 15 days as per CPCB guideline 5 (Air) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Non - portable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Bhadrak Centre (3rd Floor), 7-40, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India

Tel.: 03 40143000 / 22650007 Fax: 03 23 22650009

Email: info@mitrask.com Website: www.mitrask.com



## Address of Branch :

P.O. Barbil DI Roorhjar Orissa 758 035



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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM) Joda West

At/ Po. - Joda, Dist. - Roorhjar, Orissa - 758034 India Pin

Report No. :

MSKGLIED/2023-24/004880

Date :

28/02/2024

Sample No. :

MSKGLIED/2023-24/02/01025

Reference No. &amp; Date :

3000156017, Date - 28/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following result:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	Joda West Iron & Mn Mines
4. Date of sampling	22/02/2024
5. Place of sampling	Near D-Quarry Shoring Yanti-JinMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGLIED/2023-24/004880

Sample No. : MSKGLIED/2023-24/02/01025

## RESULT

Analysis Result of Ambient Air					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m <sup>3</sup>	IS: 5182 (Part 25)	400 24 HR.	BDL (DL: 10.0)
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR.	0.47
3	Nitrogen Dioxide (NO2)	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	22.6
4	Ozone (O3)	micro gm/m <sup>3</sup>	IS: 5182 (Part 9)	180 1 HR.	BDL (DL: 20.0)
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	180 24 HR.	800
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS: 5182 (PT-24), 2019 (O)	60 24 HR.	96
7	Sulphur Dioxide (SO2)	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	8.4

— END —

Report Verified By

For Mitra S. K. Private Limited

  
 Authorised Signatory



**Address of Laboratory :**

Building No. P- 45, Udayan Industrial Estate,  
 3, Pajalanga Road, Kolkata 700015  
 West Bengal  
 Tel : +91 7044036120  
 Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

URL: TC-695024000003522F

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd.(MGM)\_Joda (West)

A/Po. - Joda, Dist - Keonjhar, Odisha - 758004 India

**Report No. :**

MSKPLUED/2023-24/613BC4

**Date :**

08/03/2024

**Sample No. :**

MSKNB/ED/2023-24/02/9G404L

**Date of receipt of sample:**

26/02/2024

**Date(s) of performance:**

26/02/2024 - 06/03/2024

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/086, Date : 16/09/2023

**Discipline:**

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	22/02/2024
5. Place of sampling	Near D-Quarry Screen Plant~NWMM
6. Environmental conditions during sampling & Transport	1) Temperature :15-27 deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS-5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Kumar Mantri
9. Field Equipments Used	MSK/BBL/FIELD/IRDS-8

**Report No. :** MSKPLUED/2023-24/613BC4**Sample No. :** MSKNB/ED/2023-24/02/9G404L**RESULT****Chemical**

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BOL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BOL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BOL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BOL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.26
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BOL(DL:5.0)

**Opinion :** Limit as per CPCB notification, New Delhi, 16th November 2009, for Ambient air quality**Statement of Conformity :** NA

— END —

Reviewed by:

Signature:

Name: Dr. Devinder Banerjee

Designation: Technician in charge

Authorized Signatory:

Signature:

Name: Dr. Devinder Banerjee

Designation: Technician in charge

The results relate only to the sample tested.

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The reserved part of sample(s) for chemical analysis (Non-perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Wastes) shall be retained for 15 days as per CPCB guideline 3 (A) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non-perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

**Head Office:** Shree's Centre (5th Floor), T4B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
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 Email: info@mitrask.com Website: www.mitrask.com



**Address of Branch :**  
P.O. Barbel Of Keonjhar Dist-758035



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West.

At/To, - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

**Report No. :**

MSKGL/ED/2023-24/004990

**Date :**

28/02/2024

**Sample No. :**

MSKGL/ED/2023-24/0201028

**Reference No. & Date :**

3090166017, Date - 28/09/2023

We hereby certify that the following sample Driven by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	Joda West Iron & Mn Mines
4. Date of sampling	22/02/2024
5. Place of sampling	Near D-Quarry Screen Plant-JWMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

**Report No. :** MSKGL/ED/2023-24/004990

**Sample No. :** MSKGL/ED/2023-24/0201028

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	14.0
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR.	0.44
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	21.4
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BOL(DL 20.0)
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS/ 5182 (Part 23) (O)	100 24 HR.	205
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (PT-24),2019 (O)	60 24 HR.	99
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	8.0

— END —

Report Verified By



For Mitra S. K. Private Limited

Authorized Signatory





## Address of Laboratory :

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3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-8850



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URL: TC-896024000003523F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM) Joda West

At/Po: Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/G13BCA

06/03/2024

MSKNB/ED/2023-24/02/FF4027

26/02/2024

26/02/2024 - 06/03/2024

Permanent Facility

3000156017/056, Date : 16/09/2023

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	22/02/2024
5. Place of sampling	Near Gangeiguda FE-IVMM
6. Environmental conditions during sampling & Transport	1) Temperature :15-27 deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain fall No. & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Kumar Menti
9. Field Equipments Used	MSK/BSL/FIELD/RDS-4

Report No. : MSKPL/ED/2023-24/G13BCA

Sample No. : MSKNB/ED/2023-24/02/FF4027

## RESULT

### Chemical

Sl No	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Sulphate	micro gm/m3	IS 5182 (Part 11)	9 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.13
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed by

Signature

Name

Designation

*(Signature)*  
Dr. Devendra Banerjee  
Technical in Charge

Authorized Signatory

Signature

Name

Designation

*(Signature)*  
Dr. Devendra Banerjee  
Technical in Charge

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sewer Water, Soiled food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

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Tel. : +91 33 40143990 / 22650007 Fax: 01 33 22650009  
Email : [info@mitrask.com](mailto:info@mitrask.com) Website: [www.mitrask.com](http://www.mitrask.com)



Address of Branch :

P.O. Barbil Dt. Keonjhar Orissa 758 035



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## TEST REPORT

Name & Address of Customer :

Tata Steel Ltd. (MGN) Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004982

Date :

28/02/2024

Sample No. :

MSKGL/ED/2023-24/02/1030

Reference No. & Date :

3000156017, Date - 28/02/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	Joda West Iron & Mn Mines
4. Date of sampling	28/02/2024
5. Place of sampling	Near Gangajyoti Pit-JWMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	

Report No. : MSKGL/ED/2023-24/004982

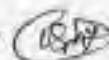
Sample No. : MSKGL/ED/2023-24/02/1030

## RESULT

Analysis Result of Ambient Air					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Amonia (NH3)	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	BDL (DL 10.0)
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (O)	2 8HR.	0.41
3	Nitrogen Dioxide (NO2)	micro gm/m <sup>3</sup>	IS 5182 (Part 6) (O)	80 24 HR.	25.1
4	Ozone (O3)	micro gm/m <sup>3</sup>	IS 5182 (Part 8)	180 1 HR.	BDL (DL 20.0)
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS 5182 (Part 23) (O)	100 24 HR.	218
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (PT-24), 2019, (O)	60 24 HR.	102
7	Sulphur Dioxide (SO2)	micro gm/m <sup>3</sup>	IS 5182 (Part 7) (O)	80 24 HR.	3.5

— END —

Report Verified By



For Mitra S. K. Private Limited

Authorized Signatory





## Address of Laboratory :

Building No. F-4B, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6660



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URL: TC-695024000003524F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/Z13BCC

06/03/2024

MSKNB/ED/2023-24/02/MK4038

26/02/2024

26/02/2024 - 06/03/2024

Permanent Facility

3000156017/056, Dura - 16/06/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following result:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	22/02/2024
5. Place of sampling	Near Railway Siding JWMM
6. Environmental conditions during sampling & Transport	1) Temperature -15-27 deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS-5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Kumar Mantri
9. Field Equipments Used	MSKB8U/FIELD/RDS-3

Report No. : MSKPL/ED/2023-24/Z13BCC

Sample No. : MSKNB/ED/2023-24/02/MK4038

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	8 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.03
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.37
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By

Signed by

Name

Designation

Dr. Debajyoti Banerjee

Technical in charge

Authorized Signatory

Signature

Name

Designation

Dr. Debajyoti Banerjee

Technical in charge

This report (Hides only to the client) issued

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Solid, Solid & Liquid Wastes) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report. The reserved part of sample(s) for microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Branch Centre (9th floor), 74B, A J C, Bow Road, Kolkata - 700016, West Bengal, India  
Tel. : 91 33 40440000 / 22030007 Fax : 91 33 22650008  
Email: info@mitrask.com Website : www.mitrask.com



**Address of Branch :**  
P.O. Barhi Or. Kargarh Orissa 755 605



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

Aj(Po. - Joda, Dist. - Kargarh, Orissa - 758034) India (In)

**Report No. :**

MSKGL/ED/2023-24/04983

**Date :**

28/02/2024

**Sample No. :**

MSKGL/ED/2023-24/0201031

**Reference No. & Date :**

3000158017, Date - 28/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	Joda West Iron & Mn Mine
4. Date of sampling	22/02/2024
5. Place of sampling	Near Railway Siding (WIM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

**Report No. :** MSKGL/ED/2023-24/04983

**Sample No. :** MSKGL/ED/2023-24/0201031

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	10.2
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR	0.58
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 8) (O)	80 24 HR.	23.2
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL(DL:20.0)
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	195
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (PT-24), 2019 (O)	60 24 HR.	93
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	7.2

END

Report Verified By



For Mitra S. K. Private Limited

Authorised Signatory

Head Office:

Shikhi Garden (3rd Floor) 14B, A.C.C. Road, Khandwa - 490016, Madhya Pradesh, India  
Tel: 91-23-4914300 / 2346082 Fax: 91-23-2394404  
Email: info@mitras.com Website: www.mitrask.com

Page 1 of 1



## Address of Laboratory :

Building No. P-4B, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000003525F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

As/To. : Joda, Dist. : Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/H138D0

06/03/2024

MSKNB/ED/2023-24/02/864023

26/02/2024

26/02/2024 - 08/03/2024

Permanent Facility

3000198017/096, Date - 16/09/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	23/02/2024
5. Place of sampling	Near Time Office-JWIMM
6. Environmental conditions during sampling & Transport	1) Temperature :16-27 deg C 2) Barometric Pressure: 706 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Lalit Kumar Nask
9. Field Equipments Used	MSK/BBU/FIELD/ROS-2

Report No. : MSKPL/ED/2023-24/H138D0

Sample No. : MSKNB/ED/2023-24/02/864023

## RESULT

### Chemical

Sl.No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro g/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro g/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro g/m3	USEPA-IO 3.4, June	Not Specified	0.28
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	41.9

Opinion : Limit as per CPCB notification, New Delhi, 16th November 2009, for Ambient air quality.

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name

Designation

Dr. Devdatta Bhowmik  
Technical In charge

Authorized Signatory:

Signature

Name

Designation

Dr. Devdatta Bhowmik  
Technical In charge

This result relates only to the sample(s) tested.

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 7 days.

The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guidelines & (N/A) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guidelines & (N/A) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guidelines & (N/A) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guidelines & (N/A) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guidelines & (N/A) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guidelines & (N/A) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guidelines & (N/A) 1 month from the date of issue of the Test Report.

Head Office: Shree Centre (5th Floor) T-4B, A.J.C. Bose Road, Kolkata - 700016, West Bengal. India.

Tel. : 91-33-40143000 / 22850000 Fax : 91-33-22850000

Email : info@mitrask.com Website : www.mitrask.com

The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guidelines & (N/A) 1 month from the date of issue of the Test Report.



**Address of Branch :**  
P.O. Barbil Di Keonjhar Orissa 758 035



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

AtPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

**Report No. :**

MSKGL/ED/2023-24/004967

**Date :**

29/02/2024

**Sample No. :**

MSKGL/ED/2023-24/02/01032

**Reference No. & Date :**

3000156017, Date - 28/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	Joda West Iron & Mn Mines
4. Date of sampling	29/02/2024
5. Place of sampling	Near Time Office-JWMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

**Report No. :** MSKGL/ED/2023-24/004967

**Sample No. :** MSKGL/ED/2023-24/02/01032

## RESULT

### Analysts Result of Ambient Air

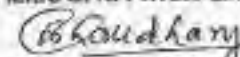
Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	12.5
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (O)	2 8H-8L	0.55
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6) (O)	80 24 HR.	10.7
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 8)	180 1 HR.	BDL(DL:20.0)
5	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	100 24 HR.	217
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24):2019 (O)	60 24 HR.	106
7	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2) (O)	80 24 HR.	6.0

END

Report Verified By



For Mitra S. K. Private Limited

  
Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044038120  
Email: udayanlab@mitrask.com



TC-6850



Scan for Portal

URL: TC-695024000003527F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/J13BED

06/03/2024

MSKNB/ED/2023-24/G2405E

26/02/2024

26/02/2024 - 03/03/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	23/02/2024
5. Place of sampling	Near D-Quarry Shoring Yard-JWMM
6. Environmental conditions during sampling & Transport	1) Temperature :16-27 deg C 2) Barometric Pressure: 706 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	LeIn Kumar Nask
9. Field Equipments Used	MSK/BL/FIELD/RDS-6

Report No. : MSKPL/ED/2023-24/J13BED

Sample No. : MSKNB/ED/2023-24/G2405E

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.3)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	0.33
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed By

Signature

Name

Description

Dr. Devdutt Banerjee

Technical in Charge

Authorized Signatory:

Signature

Name

Description

Dr. Devdutt Banerjee

Technical in Charge

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The retained part of sample(s) for chemical analysis (Non - pollutable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. (Pollutable sample(s) shall be retained 7 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Solid & Liquid Waste) shall be retained for 15 days as per (CPCB guideline & (AA) ) except from the date of issue of the Test Report.

Head Office:

Ground Floor (5th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel : 91 33 40168000/22650007 Fax : 91 33 32650008  
Email : info@mitrask.com Website : www.mitrask.com



Address of Branch :  
P.O. Barbi Di Kanyhar Orissa 758 035



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## TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

At/Pl. - Joda, Dist. - Keonjhar, Orissa - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004981

Date :

28/02/2024

Sample No. :

MSKGL/ED/2023-24/0201034

Reference No. & Date :

3000156017, Date - 28/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	Joda West Iron & Mn Mines
4. Date of sampling	23/02/2024
5. Place of sampling	Near D-Quarry Shunting Yard-JWMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004981

Sample No. : MSKGL/ED/2023-24/0201034

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	DOM	Method	Limit	Result
1	Aerosols (TSS)	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	15.0
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 15) (O)	2 8HR.	0.54
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	21.7
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL(DL 20.0)
5	Particulate Matter (<10µm)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	210
6	Particulate Matter (<2.5µm)	micro gm/m <sup>3</sup>	IS 5182 (PT-34), 2019 (O)	60 24 HR.	109
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 21) (O)	80 24 HR.	7.4

— END —

Report Verified By



For Mitra S. K. Private Limited



Authorised Signatory

Page 1 of 1



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagledanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-8950



Scan for Portal

ULR: TC-895024000003526F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

At/Po : Joda, Dist. : Keonjhar, Odisha - 759034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. &amp; Date :

Discipline:

MSKPL/ED/2023-24/Y13BED

06/03/2024

MSKNB/ED/2023-24/02/DO406K

26/02/2024

26/02/2024 - 06/03/2024

Permanent Facility

3000156017/066, Date - 16/08/2023

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	23/02/2024
5. Place of sampling	Near H-Quarry Road Shober JWMM
6. Environmental conditions during sampling & Transport	1) Temperature :18-27 deg C 2) Barometric Pressure: 706 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Lalit Kumar Naik
9. Field Equipments Used	MSK/BBL/FIELD/IDS-1

Report No. : MSKPL/ED/2023-24/Y13BED

Sample No. : MSKNB/ED/2023-24/02/DO406K

## RESULT

### Chemical

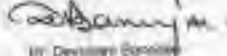
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.17
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality.

Statement of Conformity : NA

— END —

Reviewed By:

Signature:   
Name: Dr. Divyanshu Bhatnagar  
Designation: Technical in Charge

Authorized Signatory:

Signature:   
Name: Dr. Divyanshu Bhatnagar  
Designation: Technical in Charge

The results relate only to the item(s) tested.

This Test Report shall not be reproduced without the written permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 3 month from the date of issue of the Test Report.

Head Office:

Shree Ganga (5th Floor), 74B, A.J.C. Road Third, Kolkata - 700015, West Bengal, India.  
Tel.: 91 33 40149000 / 2260007 Fax.: 91 33 23650000  
Email: info@mitrask.com Website: www.mitrask.com



Address of Branch :  
P.O. Barabati Keonjhar Orissa 756 035



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## TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MGML) Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 756034 India Pin

Report No. :

MSKGLIED/2023-24/004889

Date :

29/02/2024

Sample No. :

MSKGLIED/2023-24/0201033

Reference No. & Date :

3000156017, Date - 28/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	23/02/2024
5. Place of sampling	Near H-Quarry Road Shelter-JWMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGLIED/2023-24/004889

Sample No. : MSKGLIED/2023-24/0201033

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	17.3
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR.	0.47
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	21.6
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	80L(DL:20.0)
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	192
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (Part 24) 2019 (O)	60 24 HR.	94
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	60 24 HR.	8.4

END

Report Verified By



For Mitra S. K. Private Limited



Authorized Signatory



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000003528F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPUED/2023-24/513BE4

Date :

06/03/2024

Sample No. :

MSKNB/ED/2023-24/02/GB404F

Date of receipt of sample:

26/02/2024

Date(s) of performance:

26/02/2024 - 06/03/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	23/02/2024
5. Place of sampling	Near D-Quarry Screen Plant-JVMNM
6. Environmental conditions during sampling & Transport	1) Temperature :18-27 deg C 2) Barometric Pressure: 706 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Latit Kumar Naik
9. Field Equipments Used	MSK/BBL/FIELD RDS-8

Report No. : MSKPL/ED/2023-24/513BE4

Sample No. : MSKNB/ED/2023-24/02/GB404F

## RESULT

Chemical					
Sl No.	Parameter	UCM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL-1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL-4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL-0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL-0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June	Not Specified	0.23
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL-5.9)

Option : Limit as per CPCB notification, New Delhi, 16th November 2009, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name Dr. Devkanta Banerjee

Designation Technical in Charge

Authorized Signatory:

Signature

Name Dr. Devkanta Banerjee

Designation Technical in Charge

The results relate only to the sample(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Water) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.



Address of Branch :

P.O. Barbil Dt. Keonjhar Orissa 756 035



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**TEST REPORT**

Name &amp; Address of Customer :

Tata Steel Ltd. (MSM) - Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 756034 India Pin

Report No. :

MSKGL/ED/2023-24/004984

Date :

28/02/2024

Sample No. :

MSKGL/ED/2023-24/02/01035

Reference No. &amp; Date :

3000166017, Date - 28/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	23/02/2024
5. Place of sampling	Near D-Quarry Screen Plant-W/WM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004984

Sample No. : MSKGL/ED/2023-24/02/01035

**RESULT****Analysis Result of Ambient Air**

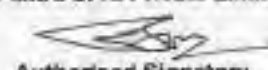
Sl No.	Parameter	UDM	Method	Limit	Result
1	Ambient (MnS)	micro g/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	15.1
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 16) (O)	2 8HR.	0.54
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro g/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	22.6
4	Ozone (O <sub>3</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BOL(DL-20.0)
5	Particulate Matter (<10um)	micro g/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	209
6	Particulate Matter (<2.5um)	micro g/m <sup>3</sup>	IS 5182 (PT-24), 2019 (O)	60 24 HR.	95
7	Sulphur Dioxide (SO <sub>2</sub> )	micro g/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	0.9

— END —

Report Verified By



For Mitra S. K. Private Limited



Authorised Signatory



## Address of Laboratory :

Building No. P- 4B, Udayan Industrial Estate,  
3, Paschimanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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URL: TC-695024000003530F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

At/Po. : Joda, Dist. : Keonjhar, Orissa - 756004 India Pin

Report No. :

Date :

Sample No. :

Date of receipt of sample :

Date(s) of performance :

Location of performance of

Reference No. & Date :

Discipline :

MSKPL/ED/2023-24/H138EQ

06/03/2024

MSKNB/ED/2023-24/02/S0403Q

26/02/2024

26/02/2024 - 06/03/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(s) if any	NA
4. Date of sampling	23/02/2024
5. Place of sampling	Near Railway Siding-JWMM
6. Environmental conditions during sampling & Transport	1) Temperature : 15-27 deg C 2) Barometric Pressure: 708 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Lalit Kumar Nait
9. Field Equipments Used	MSK/GBL/FIELD/RDS-3

Report No. : MSKPL/ED/2023-24/H138EQ

Sample No. : MSKNB/ED/2023-24/02/S0403Q

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	8 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.36
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Option : Limit as per CPCB notification, New Delhi, 18th November 2005; for Ambient air quality

Statement of Conformity : NA

— END —

Received By

Signature

Name

Designation

*Dr. Devdutta Banerjee*  
Dr. Devdutta Banerjee  
Technical In Charge

Authorized Signature

Signature

Name

Designation

*Dr. Devdutta Banerjee*  
Dr. Devdutta Banerjee  
Technical In Charge

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The retained test of sample(s) for chemical analysis (Non - persistent sample(s) Food, Water) shall be retained for 10 days from the date of issue of the Test Report. Persistently sample(s) shall be retained 2 years.

from the date of issue of the Test Report.

The retained test of sample(s) for chemical analysis (Solid, Soil & Liquid Sample) shall be retained for 10 days as per CPCB guideline & (A) 1 month from the date of issue of the Test Report.

Head Office:

Shree Centre (2nd Floor), 74B, A.J.C. Road, Kolkata - 700015, West Bengal, India.  
Tel. : 91 33 4014 8000 / 22550007 Fax : 91 33 22650039  
Email: info@mitrask.com Website : www.mitrask.com



## Address of Branch :

P.O. Barik Di Keonjhar Orissa 756 035



Scan for Portal

**TEST REPORT**

## Name &amp; Address of Customer :

Tata Steel Ltd. (MGML) Joda West

At Po. : Joda, Dist. : Keonjhar, Odisha - 756034 India Pin

Report No. :

MSKGL/ED/2023-24/004985

Date :

29/02/2024

Sample No. :

MSKGL/ED/2023-24/02/01037

Reference No. &amp; Date :

3000156017, Date - 28/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	23/02/2024
5. Place of sampling	Near Railway Siding-JWMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004985

Sample No. : MSKGL/ED/2023-24/02/01037

**RESULT**

## Analysis Result of Ambient Air

Sr No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	15.3
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR.	0.53
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	19.5
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BOL(DL-20.0)
5	Particulate Matter (<10µm)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	222
6	Particulate Matter (<2.5µm)	micro gm/m <sup>3</sup>	IS 5182 (PT-24), 2019 (O)	80 24 HR.	108
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	0.9

— END —

Report Verified By

For Mitra S. K. Private Limited

  
 Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044038120  
Email: udayanlab@mitrask.com



TC-8950



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URL: TC-895024000003529F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West

A/Po, Joda, Dist. - Keonjhar, Odisha - 755034, India Pin

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. &amp; Date :

Discipline:

MSKPL/ED/2023-24/K13BEG

06/03/2024

MSKNB/ED/2023-24/02/HQ407Z

26/02/2024

26/02/2024 - 06/03/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

We hereby certify that the following samples Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	23/02/2024
5. Place of sampling	Near Gangaguda Pit-JWMM
6. Environmental conditions during sampling & Transport	1) Temperature : 16-27 deg C 2) Barometric Pressure: 708 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	San Kumar Naik
9. Field Equipments Used	MSK/BBL/FIELD/DRDS-4

Report No. : MSKPL/ED/2023-24/K13BEG

Sample No. : MSKNB/ED/2023-24/02/HQ407Z

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	8 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.17
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 19th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

Name: Dr. Devdatta Banerjee

Designation: Technical in Charge

Authorized Signatory:

Signature:

Name: Dr. Devdatta Banerjee

Designation: Technical in Charge

The results relate only to the sample(s) tested

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The retained part of sample(s) for chemical analysis (Solid - perishable sample(s)) Food, Water shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Sol., Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (A4) 1 month from the date of issue of the Test Report.

Head Office:

Shree Chandra (2nd Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
Tel : 91 33 40143000 / 22600007 Fax : 91 33 22600008  
Email : info@mitrask.com info@mitrask.com www.mitrask.com



## Address of Branch :

P.O. Barfi Di Kanhari Gissa 758 035



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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd. (MSM) Joda West

AWPa. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGLIED/2023-24/004991

Date :

28/02/2024

Sample No. :

MSKGLIED/2023-24/02/01036

Reference No. &amp; Date :

3000156017, Date - 28/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	23/02/2024
5. Place of sampling	Near Gangaiguda Pt. JWMML
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGLIED/2023-24/004991

Sample No. : MSKGLIED/2023-24/02/01036

## RESULT

Analysis Result of Ambient Air					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Amonia (NH3)	micro g/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	15.3
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR.	0.37
3	Nitrogen Dioxide (NO2)	micro g/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	22.4
4	Ozone (O3)	micro g/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BOL(OL:20.0)
5	Particulate Matter (<10um)	micro g/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	208
6	Particulate Matter (<2.5um)	micro g/m <sup>3</sup>	IS 5182 (PT.24),2019 (O)	80 24 HR.	98
7	Sulphur Dioxide (SO2)	micro g/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	7.0

END

Report Verified By

For Mitra S. K. Private Limited

  
 Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel.: +91 7044035120  
Email: udayanlab@mitrask.com



TC-6950



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URL: TC-695024000003058F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd. (MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/ED/2023-24/51311D

## Date :

27/02/2024

## Sample No. :

MSKNB/ED/2023-24/02/PJ115X

## Date of receipt of sample :

12/02/2024

## Date(s) of performance :

12/02/2024 - 27/02/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 15/09/2023

## Discipline :

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	10/02/2024
5. Place of sampling	Joda West Camp
6. Environmental conditions during sampling & Transport	1) Temperature : 14-25 deg C 2) Barometric Pressure: 714 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182 (P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Damarudhar Das
9. Field Equipments Used	MSK/BBU/FIELD/RDS-16

Report No. : MSKPL/ED/2023-24/51311D

Sample No. : MSKNB/ED/2023-24/02/PJ115X

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m <sup>3</sup>	USEPA-IO 3.4, June	6 (Annual)	BDL (DL:1.0)
2	Benzene	micro gm/m <sup>3</sup>	IS 5182 (Part 11)	5 (Annual)	BDL (DL:4.2)
3	Benzo(a)Pyrene	ng/m <sup>3</sup>	IS 5182 (Part 12)	1 (Annual)	BDL (DL:0.5)
4	Lead as (Pb)	micro gm/m <sup>3</sup>	USEPA-IO 3.4, June	1 (24 Hours)	BDL (DL:0.01)
5	Manganese as Mn	micro gm/m <sup>3</sup>	USEPA-IO 3.4, June	Not Specified	0.17
6	Nickel as Ni	ng/m <sup>3</sup>	USEPA-IO 3.4, June	20 (Annual)	BDL (DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Received By

Signature

Name

Designation

Mr. Pal Ganguly

Executive Chemist

Authorized Signature

Signature

Name

Designation

Dr. Subhrajit Mukherjee

Lab in charge

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The retained part of sample(s) for chemical analysis (Non-perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Non-perishable sample(s) Food, Sewer/Water, Sewer Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Shreeji Centre (2nd Floor), 749, A. J. C. Road Road, Kolkata - 700015, West Bengal, India.  
Tel.: 91-33-4014000 / 32650007 Fax: 01-302085008  
Email: info@mitrask.com Website: www.mitrask.com



Address of Branch :

P.O. Barabati Keonjhar Dist. 758 035



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**TEST REPORT**

Name &amp; Address of Customer :

Tata Steel Ltd.(MGM) Joda West

At/Po - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004883

Date :

19/02/2024

Sample No. :

MSKGL/ED/2023-24/02/00276

Reference No. &amp; Date :

3000160017/056, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	Joda West Iron & Manganese Mines (JWIMM)
4. Date of sampling	19/02/2024
5. Place of sampling	Joda West Camp
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004883

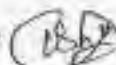
Sample No. : MSKGL/ED/2023-24/02/00276

**RESULT****Analysis Result of Ambient Air**

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	16.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR.	0.43
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	23.1
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	<20.0
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	179
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (PT-24), 2018 (O)	60 24 HR.	86
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	7.2

— END —

Report Verified By



For Mitra S. K. Private Limited



Authorised Signatory



Address of Branch :

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**TEST REPORT**

Name &amp; Address of Customer :

Tab Steel Ltd.(MGM) Joda West

AtPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004882

Date :

19/02/2024

Sample No. :

MSKGL/ED/2023-24/02/00275

Reference No. &amp; Date :

3000165017/056, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Manganese Mines (JWIMM)
4. Date of sampling	10/02/2024
5. Place of sampling	Lab Bunking - Joda.
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004882

Sample No. : MSKGL/ED/2023-24/02/00275

**RESULT****Analysis Result of Ambient Air**

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	17.2
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR.	0.39
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	22.7
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 8)	180 1 HR.	<20.0
5	Particulate Matter (<10µm)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	112
6	Particulate Matter (<2.5µm)	micro gm/m <sup>3</sup>	IS 5182 (PT-24) 2019 (O)	60 24 HR.	55
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	6.9

— END —

Report Verified By

For Mitra S. K. Private Limited

  
 Authorised Signatory



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Padmanga Road, Kolkata 700016  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-8950



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(NGL) Joda West

At/Po. : Joda, Dist. : Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/813380

Date :

27/02/2024

Sample No. :

MSKNB/ED/2023-24/02/UC312F

Date of receipt of sample:

19/02/2024

Date(s) of performance:

19/02/2024 - 27/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056, Date : 16/08/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	17/02/2024
5. Place of sampling	Near General Office Khanbandh
6. Environmental conditions during sampling & Transport	1) Temperature :18-27 deg C 2) Barometric Pressure: 714 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Mukesh Hibaru
9. Field Equipments Used	MSK/BSL/FIELD/ROD-18

Report No. : MSKPL/ED/2023-24/813380

Sample No. : MSKNB/ED/2023-24/02/UC312F

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL 1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	3 (Annual)	BDL(DL 4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL 0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.09
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June	Not Specified	4.21
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	23.0

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name: Ms. Poojit Ghosh

Designation: Executive Chemist

Authorized Signatory:

Signature

Name: Dr. Soupradip Mukherjee

Designation: Lab in charge

The results relate only to the sample(s) tested.

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of this Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Sreehari Centre (5th Floor), 74B, A.Z.C. Bore Road, Kolkata - 700016, West Bengal, India  
Tel : 91 33 48143080 / 28890097 Fax : 91 33 23000039  
Email : info@mitrask.com (Telnet) : www.mitrask.com



Address of Branch :  
P.O. Barabadi Keonjhar Odisha 758 035



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGML) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004951

Date :

26/02/2024

Sample No. :

MSKGL/ED/2023-24/0201020

Reference No. & Date :

3000156017/056, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	17/02/2024
5. Place of sampling	New General Office Kharibandi
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004951

Sample No. : MSKGL/ED/2023-24/0201020

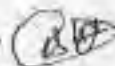
## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 26)	400 24 HR.	<10.0
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (O)	2 8HR.	0.40
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 6) (O)	80 24 HR.	19.4
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	<20.0
5	Particulate Matter (<10µm)	micro gm/m <sup>3</sup>	IS 5182 (Part 23) (O)	100 24 HR.	122
6	Particulate Matter (<2.5µm)	micro gm/m <sup>3</sup>	IS 5182 (PT-24), 2018 (O)	80 24 HR.	58
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 2) (O)	80 24 HR.	6.9

END

Report Verified By



For Mitra S. K. Private Limited

Authorised Signatory





## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700016  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/ Po : Joda, Dist. : Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/913385

27/02/2024

MSKNB/ED/2023-24/02/5A313V

19/02/2024

19/02/2024 - 27/02/2024

Permanent Facility

0000158017/056, Date - 16/09/2023

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Gripp	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	17/02/2024
5. Place of sampling	Keth hutting Pump House
6. Environmental conditions during sampling & Transport	1) Temperature :18-27 deg C 2) Barometric Pressure: 714 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Mukesh Hibaru
9. Field Equipments Used	MSK/SBU/FIELD/DRDS-18

Report No. : MSKPL/ED/2023-24/913385

Sample No. : MSKNB/ED/2023-24/02/5A313V

## RESULT

### Chemical

Sl No.	Parameter	DOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.10
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion :

Limit as per CPCB notification, New Delhi, 18th November-2009, for Ambient air quality.

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name

Designation

Ms. P. Ganguly

Ms. P. Ganguly

Executive Director

Authorized Signatory:

Signature

Name

Designation

Dr. Subhankar Majumdar

Lab In charge

The results relate only to the sample(s) tested.

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s)) Food, Water shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained for 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Solid, Semi Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s)) Food, Spiced Water, Boiled food shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Shree Chitra (3rd Floor), 14B, A-2/O, Bose Road, Kolkata - 700016, West Bengal, India.  
Tel : +91 22 40143000 / 22690007 Fax : 91 33 22690008  
Email: info@mitrask.com Website: www.mitrask.com



**Address of Branch :**  
P.O. Baral Di Kanchhar Gissa 758 035



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(NLM) - Joda West

AtPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

**Report No. :**

MSKGL/ED/2023-24/004950

**Date :**

26/02/2024

**Sample No. :**

MSKGL/ED/2023-24/02/01019

**Reference No. & Date :**

3000156017/035, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	Joda West Iron & Mn Mines
4. Date of sampling	17/02/2024
5. Place of sampling	Kali hutting Pump House
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

**Report No. :** MSKGL/ED/2023-24/004950

**Sample No. :** MSKGL/ED/2023-24/02/01019

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Amonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 25)	400 24 HR.	<10.0
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR.	0.38
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	16.4
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 9)	180 1 HR.	<20.0
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	147
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS: 5182 (PT-24).2019 (O)	60 24 HR.	62
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	7.3

— END —

Report Verified By



For Mitra S. K. Private Limited



Authorised Signatory

Page 1 of 1



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pajladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044038120  
Email: udayanlab@mitrask.com



TC-8950



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URL: TC-895024000003211F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM), Joda West

AWP, - Joda, Dist. - Kanihar, Odisha - 758034 India

## Report No. :

MSKPL/ED/2023-24/E13A9T

## Date :

02/03/2024

## Sample No. :

MSKNB/ED/2023-24/02/H23F95

## Date of receipt of sample:

23/02/2024

## Date(s) of performance:

23/02/2024 - 02/03/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/086, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	NA
4. Date of sampling	21/02/2024
5. Place of sampling	Administrative office, Bichalungji
6. Environmental conditions during sampling & Transport	1) Temperature : 19-29 deg C 2) Barometric Pressure: 708 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5152(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Mondal
9. Field Equipments Used	MSK/BBU/FIELD/RDS-18

Report No. : MSKPL/ED/2023-24/E13A9T

Sample No. : MSKNB/ED/2023-24/02/H23F95

## RESULT

Chemical					
Sl No	Parameter	Unit	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.13
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	0.99

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2008, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name

Dr. Devdatta Banerjee

Designation:

Technical In-charge

Authorized Signatory

Signature

Name:

Dr. Devdatta Banerjee

Designation:

Technical In-charge

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report; Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Foccy Soiled Water, Soiled food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Seventh Floor (8th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel. : 91 33 40143000 / 22550007 Fax. : 91 33 22550000  
Email : info@mitrask.com Website : www.mitrask.com



Address of Branch :  
P.O. Barbil Dt Keonjhar Odisha 758 038



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## TEST REPORT

Name & Address of Customer :

Tata Steel Ltd (MSM) Joda West

A/Po. : Joda, Dist : Keonjhar, Odisha - 758034 India Pin

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/004967

27/02/2024

MSKGL/ED/2023-24/0201017

30/01/2017/006, Date - 15/08/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	21/02/2024
5. Place of sampling	Administrative office Bachaundi
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004967

Sample No. : MSKGL/ED/2023-24/0201017

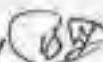
## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 25)	400 24 HR	BOL (DL 10.0)
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR	0.24
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 6) (O)	60 24 HR.	15.0
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 9)	180 1 HRL	BOL (DL 20.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	143
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS: 5182 (PT-24) 2018 (O)	60 24 HR.	63
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HRL	8.0

— END —

Report Verified By



For Mitra S. K. Private Limited



Authorised Signatory



**Address of Laboratory :**

Building No. P- 48, Udayan Industrial Estate,  
 3, Pagladanga Road, Kolkata 700015  
 West Bengal  
 Tel. : +91 7044036120  
 Email: udayanlab@mitrask.com



TC-8980



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## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd (MSM), Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPLIED/2023-24/C13A9V

**Date :**

02/03/2024

**Sample No. :**

MSKNB/ED/2023-24/02/0R3F8L

**Date of receipt of sample:**

23/02/2024

**Date(s) of performance:**

23/02/2024 - 02/03/2024

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000156017/056, Date - 16/09/2023

**Discipline:**

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/02/2024
5. Place of sampling	Bichakundi Basti Area Anganbaji Centre
6. Environmental conditions during sampling & Transport	1) Temperature :18-27 deg C 2) Barometric Pressure: 709 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS-5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Mantri
9. Field Equipments Used	MSK/BBL/FIELD/IRDS-16

**Report No. :** MSKPLIED/2023-24/C13A9V

**Sample No. :** MSKNB/ED/2023-24/02/0R3F8L

## RESULT

**Chemical**

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BOLD(L:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BOLD(L:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BOLD(L:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BOLD(L:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.13
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BOLD(L:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

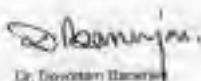
— END —

Reviewed by:

Signature:

Name:

Designation:



Dr. Devdatta Banerjee

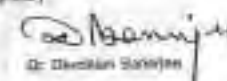
Technical in charge

Authorized Signatory:

Signature:

Name:

Designation:



Dr. Devdatta Banerjee

Technical in charge

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid S.Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Sirsoni Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
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 Email : info@mitrask.com Website : www.mitrask.com



Address of Branch :  
P.O. Barta Di Keonjhar Odisha 758 035



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## TEST REPORT

Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

AsPa, - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004966

Date :

27/02/2024

Sample No. :

MSKGL/ED/2023-24/02/01016

Reference No. & Date :

3000155017/056, Date - 15/08/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	Joda West Iron & Mn Mines
4. Date of sampling	21/02/2024
5. Place of sampling	Richakunda Back Area Anganbani Centre
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004966

Sample No. : MSKGL/ED/2023-24/02/01016

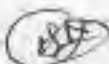
## RESULT

### Analysis Result of Ambient Air

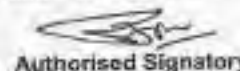
Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	BOL (CL- 10.0)
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS: 5182 (Part 10) (O)	2 8HR.	0.32
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	17.9
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	100 1 HR.	BOL(DL 20.0)
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	140
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (PT-24)2019 (O)	80 24 HR.	56
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 2) (O)	80 24 HR.	<5.0

— END —

Report Verified By



For Mitra S. K. Private Limited



Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pasladanga Road, Kolkata 700019  
West Bengal  
Tel. : +91 7044038120  
Email: udayanlab@mitrask.com



TC-2550



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West

As Per : Joda, Dist. Keonjhar, Odisha - 755034 India

Report No. :

MSKPL/ED/2023-24/311485

Date :

03/02/2024

Sample No. :

MSKNB/ED/2023-24/01/DZP9FT

Date of receipt of sample:

05/01/2024

Date(s) of performance:

05/01/2024 - 02/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date

3000158017/058 Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	02/01/2024
5. Place of sampling	Time Office
6. Environmental conditions during sampling & transport	1) Temperature: 18-32 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain (fall): No & Cold/Clouds Maintained
7. Sampling Plan & Method used	IS 5182 (Part 11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pranab Sethi, Chembudhar Das, Lata Naskar
9. Field Equipments Used	MSK/MSL/FIELD/ROD-4

Report No. : MSKPL/ED/2023-24/311485

Sample No. : MSKNB/ED/2023-24/01/DZP9FT

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-10 3.4, June	5 (Annual)	BDL (DL: 1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	5 (Annual)	BDL (DL: 4.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL (DL: 0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-10 3.4, June	1 (24 hours)	0.02
5	Manganese as Mn	micro gram/m3	USEPA-10 3.4, June	Not Specified	0.42
6	Nickel as Ni	ng/m3	USEPA-10 3.4, June	20 (Annual)	BDL (DL: 5.0)

Option : Limit as per CPCB notification, New Delhi, 18th November 2009, for ambient air quality

Statement of Conformity : NA

END

Received By:

Signature:

Dr. Divyanshu Senapati

Name:

Dr. Divyanshu Senapati

Designation:

Technical in charge

Authorized Signatory:

Signature:

Name:

Dr. Divyanshu Senapati

Designation:

Lab in charge

This certificate is valid only for the item(s) tested

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The retained part of sample(s) for chemical analysis (Micro-organism sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. (Perishable sample(s) shall be retained 2 days over the date of issue of the Test Report)

The retained part of sample(s) for chemical analysis (Dry Solid &amp; Liquid Waste(s) shall be retained for 15 days as per CPCB guideline &amp; (a/c) if issued from the date of issue of the Test Report

The retained part of sample(s) for Microbiological analysis (Micro-organism sample(s) Food, Solid Waste, Sewage) shall be retained for 15 days from the date of issue of the Test Report

Head Office: Sankar Centre (3rd Floor), 745, A J C Road Road, Kolkata - 700019, West Bengal, India.  
Tel: 03-26-4014300/702800007 Fax: 03-26-2293000  
Email: info@mitrask.com Website: www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Joda Steel Ltd (MGM) Joda West

AdP.O. : Joda, Dist. : Keonjhar, Odisha - 758034 Joda P.O.

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/004432

11/02/2024

MSKGL/ED/2023-24/V/00159

1990159017/056, Date : 15/02/2024

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	02/01/2024
5. Place of sampling	Terna Office
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004432

Sample No. : MSKGL/ED/2023-24/0100159

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Amonia (NH3)	micro gram/m3	IS 5182 (Part 25)	400 24 HR	13.3
2	Carbon Monoxide (CO)	mg/m3	IS 5182, Part 10:1989 (Reaff.2014) (NOR) (C)	2 8HR	0.03
3	Nitrogen Dioxide (NO2)	micro gram/m3	IS 5182, Part 6:2006 (Reaff.2012) (D)	80 24 HR	19.8
4	Ozone (O3)	micro gram/m3	IS 5182 (Part 9)	160 1 HR	ROL (DL 20/0)
5	Particulate Matter (<10um)	micro gram/m3	IS 5182, Part 21:2006 (Reaff. 2012) (Q)	150 24 HR	221
6	Particulate Matter (<2.5um)	micro gram/m3	IS 5182 (PT-24) 2019 (D)	60 24 HR	110
7	Sulphur Dioxide (SO2)	micro gram/m3	IS 5182, Part 2:2009 (Reaff.2012) (D)	80 24 HR	7.5

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P. 45, Udayan Industrial Estate  
3, Pagarbanga Road, Kolkata 700015  
West Bengal  
Tel.: +91 7044038120  
Email: udayan@mitras.com



TC-6800



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URL: TC-69602400001837

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West

Attn: Joda, Dist. - Kanchipuram, Odisha - 756004 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/N1147T

03/02/2024

MSKNB/ED/2023-24/01/U5G022

06/01/2024

06/01/2024 - 02/02/2024

Permanent Facility

3000156017/055, Date : 16/09/2023

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Ambient Air Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	NA
4. Date of sampling	03/01/2024
5. Place of sampling	Time Office Bichakundi
6. Environmental conditions during sampling & Transport	1) Temperature: 14-30 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain: fall
7. Sampling Plan & Method used	IS 5182 (Part 11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Kr Mishra, Mukesh Halburu, Pranab Sethi.
9. Field Equipments Used	MSK/BBL/FIELD/RUS-0

Report No. : MSKPL/ED/2023-24/N1147T

Sample No. : MSKNB/ED/2023-24/01/U5G022

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-10 3.4, June	6 (Annual)	BDL (DL: 1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	5 (Annual)	BDL (DL: 4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL (DL: 0.5)
4	Lead as (Pb)	micro gram/m3	USEPA-10 3.4, June	1 (24 hours)	0.02
5	Manganese as Mn	micro gram/m3	USEPA-10 3.4, June	Not Specified	0.78
6	Nickel as Ni	ng/m3	USEPA-10 3.4, June	20 (Annual)	6.6

Option : Limit as per CPCB notification, New Delhi, 18th November 2005, for Ambient air quality

Statement of Conformity : NA

— END —

Received by

Signature:

Name: Dr. Devottan Banerjee

Designation: Technical In charge

Authorized Signatory:

Signature

Name

Designation: Lab In charge

The results relate only to the item(s) tested.

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The material part of sample(s) for chemical analysis (Water - ground/surface water(s), Food, Water) shall be retained for 15 days from the date of issue of the Test Report. (Remainder sample(s) shall be retained 7 days from the date of issue of the Test Report)

The material part of sample(s) for chemical analysis (Soil, Sludge & Liquid/Waste) shall be retained for 15 days as per CPCB guidelines (MS) 1 from the date of issue of the Test Report.

The material part of sample(s) for Microbiological analysis (Water - ground/surface water(s), Food, Sewage/Water, Sewage food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Gopalpur Centre (Bh. Pore), 746 A/C, New Bazar, Kolkata - 700015 West Bengal India  
Tel.: 91 33 4010800/2280007 Fax: 91 33 2251009  
Email: info@mitras.com Website: www.mitrask.com



P.O. Box 101, Kenton, Ohio 45021-0101



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AtPc = datta, Diet. - Kumbhar, Odisha - 758034, India (H)

Reference No. &amp; Date :

903215601/056; Date = 15/03/2012

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. (Unique Identification of sample if any)	
4. Date of sampling	July West Iron & Mn Mines
5. Place of sampling	09/01/2024
6. Environmental conditions during sampling & Transport	Time Office Birtakandi
7. Sampling Plan & Method used	Class II Survey
	NA

Sample No. : MSKGL/ED/2023-24/01/00239

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/l	IS 3182 (Part 25)	400 24 HR.	14.3
2	Cadmium (Cadmium) (Cd)	mg/l	IS 3182 - Part 19 (1999 (Reaff.2014) (NDIR) (C)	2 8HR.	0.66
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/l	IS 3182 - Part 6 (2006 (Reaff.2012) (C)	90 24 HR.	16.5
4	Ozone (O <sub>3</sub> )	micro gram/l	IS 3182 (Part 9)	180 1 HR.	SOL (OL-26.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 3182-Part 21(2006 (Reaff. 2012) (C)	100 24 HR.	252
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 3182 (Pt-24),2019 (C)	60 24 HR.	122
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/l	IS 3182 - Part 2 (2001 (Reaff. 2012) (C)	90 24 HR.	9.7

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pigeonhole Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044038120  
Email : udayanlab@mitras.com



TC-0500



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

ADPb - Inds. Dist. - Keonjhar, Odisha - 750034 India

### Report No. :

MSKPL/ED/2023-24/T1147U

### Date :

09/02/2024

### Sample No. :

MSKNB/ED/2023-24/01/PM13CD

### Date of receipt of sample:

09/01/2024

### Date(s) of performance:

09/01/2024 - 02/02/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156017/095, Date - 16/09/2023

### Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/01/2024
5. Place of sampling	Near Gangabada Pli
6. Environmental conditions during sampling & Transport	1) Temperature: 13-25 deg C 2) Barometric Pressure: 733 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182 (Part 11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Latin Nask
9. Field Equipments Used	MSKBBU/FIELD/ROSC

Report No. : MSKPL/ED/2023-24/T1147U

Sample No. : MSKNB/ED/2023-24/01/PM13CD

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-ID 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro g/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:0.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro g/m3	USEPA-ID 3.4, June	1 (24 hours)	0.02
5	Manganese as Mn	micro g/m3	USEPA-ID 3.4, June	Not Specified	0.14
6	Nickel as Ni	ng/m3	USEPA-ID 3.4, June	20 (Annual)	BDL(DL:5.0)

Option : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity: NA

— END —

Reviewed By:

Signature

Name

D. Dwibeni Banerjee

Designation

Technical in charge

Authorized Signatory

Signature

Name

Dr. Soumitra Banerjee

Designation

Lab in charge

The results relate only to the sample tested

The Test Report shall not be reproduced except in full without the permission of Mitra S.K. Private Limited.

The retained part of sample(s) for chemical analysis (Non - volatile sample(s) Food, Veterinary shall be retained for 15 days from the date of issue of the Test Report. Periodic sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Bulk, Soap & Liquid Material) shall be retained for 15 days as per CPCB guidelines (Air) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for microbiological analysis (Food - perishable sample(s) Food, Cosmetic, Veterinary, Building (food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Sreech Choudhury (Gin Flax), 74B, R.C.O. Bazar Road, Kolkata-700016, West Bengal, India  
Tel. : 91-33-49142209 / 22900057 Fax: 91-33-27809008  
Email : info@msklab.com Website : www.msklab.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MDM), Joda West

AsPa - Joda, Dist - Keonjhar, Odisha - 758034 India Pin

Report No.

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/004446

10/12/2024

MSKGL/ED/2023-24/0100318

2000162017/056, Date - 16/09/2023

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn. Mines
4. Date of sampling	09/01/2024
5. Place of sampling	Area: Gangajoda PLYWASH
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004446

Sample No. : MSKGL/ED/2023-24/0100318

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	100 24 HR.	14.2
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 11) : 1999 (Reaff. 2014) (IDN) (D)	2 8HR.	0.01
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 Part 6 : 2005 (Reaff. 2012) (D)	60 24 HR.	24.1
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	100 1 HR.	BDL (DL 20.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 Part 23 : 2006 (Reaff. 2012) (D)	100 24 HR.	166
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (PT 24) 2010 (D)	60 24 HR.	73
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 Part 2 : 2005 (Reaff. 2012) (D)	80 24 HR.	7.3

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. 14-46, Udayan Industrial Estate,  
3, Pajedanga Road, Kolkata-700015,  
West Bengal  
Tel.: +91 7054036120  
Email: udayanlab@oilinsk.com



TC-8850



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

Alipor - Joda, Dist - Keshpur, Odisha - 756004 India

Report No. :

MSKPL/ED/2023-24/311473

Date :

03/02/2024

Sample No. :

MSKNB/ED/2023-24/01/1T1400

Date of receipt of sample:

08/01/2024

Date(s) of performance:

08/01/2024 - 02/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000166017/086, Date - 16/06/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results.

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/01/2024
5. Place of sampling	Near D-Quarry Screen Plant
6. Environmental conditions during sampling & transport	1) Temperature: 13-29 deg C; 2) Barometric Pressure: 733 mm of Hg; 3) Rain fall No. & Cold Chain Monitored
7. Sampling Plan & Method used	IS: 5182 (Part 11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Latin Naitik
9. Field Equipments Used	MSK/BBU/FIELD/DRDS-8

Report No. : MSKPL/ED/2023-24/311473

Sample No. : MSKNB/ED/2023-24/01/1T1400

## RESULT

### Chemical

Sl No.	Parameter	UCM	Method	Limit	Result
1	Arsenic as (As)	ng/m <sup>3</sup>	USEPA-IO 3.4, June	5 (Annual)	BDL (DL:1.0)
2	Benzene	micro gm/m <sup>3</sup>	IS 5182 (Part 11)	5 (Annual)	BDL (DL:4.2)
3	Benzo(a)Pyrene	ng/m <sup>3</sup>	IS 5182 (Part 12)	1 (Annual)	BDL (DL:0.5)
4	Lead (as Pb)	micro gm/m <sup>3</sup>	USEPA-IO 3.4, June	1 (24 hours)	0.01
5	Manganese as Mn	micro gm/m <sup>3</sup>	USEPA-IO 3.4, June	Not Specified	0.09
6	Nickel as Ni	ng/m <sup>3</sup>	USEPA-IO 3.4, June	20 (Annual)	BDL (DL:5.0)

Options:

Limit as per CPCB notification, New Delhi, 15th November 2009; for Ambient air quality

Statement of Conformity: NA

— END —

Witnessed By:

Signature:

Name: Dr. Devitay Banerjee

Designation: Technical in charge

Authorized Signatory

Signature:

Name: Dr. Bhupendra Kumar Banerjee

Designation: Lab in charge

The results relate only to the test(s) stated.

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The retained part of sample(s) for chemical analysis (MSK - perishable sample(s) First Waste) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (MSK - Solid & Liquid Waste) shall be retained for 15 days from the date of issue of the Test Report. Solid waste shall be retained for 15 days from the date of issue of the Test Report. Solid waste shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Service Centre (5th Floor), Fall A, J.C. Bose Road, Kolkata - 700008, West Bengal, India  
Tel.: +91 30-4043000 / 2000007 Fax: 91 33 23803038  
Email: info@msk.com Website: www.msk.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGN) Joda West

MPo, - Joda, Dist. - Kanker, Orissa - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004453

Date :

18/02/2024

Sample No. :

MSKGL/ED/2023-24/01/00317

Reference No. & Date :

3000156077/095, Date - 15/08/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(s) (if any)	Joda West Iron & Mn Mines
4. Date of sampling	25/01/2024
5. Place of sampling	Near De-Gassing System, RMPM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Point & Method used	NA

Report No. : MSKGL/ED/2023-24/004453

Sample No. : MSKGL/ED/2023-24/01/00317

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Aerosols (MSD)	micro g/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	20.5
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182: Part 30 :1999 (Reaff 2014) (NDIR) (C)	2 8HR	0.75
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro g/m <sup>3</sup>	IS 5182 : Part 6 :2006 (Reaff 2012) (C)	80 24 HR	25.0
4	Ozone (O <sub>3</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 9)	190 1 HR	606 (D:16.1)
5	Particulate Matter (<10um)	micro g/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff 2012) (C)	100 24 HR	168
6	Particulate Matter (<2.5um)	micro g/m <sup>3</sup>	IS 5182 (PT-24),2018 (C)	60 24 HR	73
7	Sulphur Dioxide (SO <sub>2</sub> )	micro g/m <sup>3</sup>	IS 5182: Part 2 :2001 (Reaff 2012) (C)	60 24 HR	7.3

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P-46, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700010,  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@msk.co.in



TC-0950



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

WFO: Jaisa, Dist. : Koochpet, Odisha - 756034, India

Report No. :

MSKPL/ED/2023-24/51147E

Date :

03/02/2024

Sample No. :

MSKNB/ED/2023-24/01/5913EU

Date of receipt of sample:

08/01/2024

Date(s) of performance:

08/01/2024 - 02/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

900155017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analysed with the following condition:

1. Group	Atmospheric Pollutants
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/01/2024
5. Place of sampling	Near D-Quarry Setling Yard
6. Environmental conditions during sampling & Transport:	1) Temperature: 13-25 deg C 2) Barometric Pressure: 733 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Lalit Naitik
9. Field Equipments Used	MSK/BBU/FIELD/RDS-6

Report No. : MSKPL/ED/2023-24/51147E

Sample No. : MSKNB/ED/2023-24/01/5913EU

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-IO 3.4, June	5 (24-Hour)	0.01
5	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	0.11
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Conclusion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By

Signature

Name : Dr. Devdatta Banerjee

Designation : Technical Director

Authorized Signatory

Signature

Name

Designation

Dr. Subrata Kumar Banerjee  
Lab in charge

The results relate only to the item(s) tested

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The retained part of sample(s) for chemical analysis (Non - perishable sample(s)) Food, Water shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days.

For the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Non - Solid & Liquid) Water shall be retained for 15 days as per CPCB guideline & (W) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for microbiological analysis (Non - perishable sample(s)) Food, Sealed Water, Sealed Food shall be retained for 15 days from the date of issue of the Test Report.

Head Office: 3/3, Durga (M) Flats, T-40, R.K.D. Bora Road, Kolkata - 700010, West Bengal, India

Tel: 91 30 40143000 / 2260007 Fax: 91 33 2260008

Email: info@msk.co.in Website: www.msk.co.in



Address of Branch :

P.O. Baital Di Koorjhar Odisha 758 606



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## TEST REPORT

Name & Address of Customer :

Tata Steel Ltd (MCA), India West

Al/Pl. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004454

Date :

11/06/2024

Sample No. :

MSKGL/ED/2023-24/01/00318

Reference No. & Date :

3000150017/050, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following result:-

1. Group	Air
2. Description of sample	Ambient Air
3. Unique Identification of sample(s)	Joda West loc & Mr. Minus
4. Date of sampling	05/01/2024
5. Place of sampling	Near D-4 Quarry Soring Yard JNMH
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004454

Sample No. : MSKGL/ED/2023-24/01/00318

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Amonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 2)	400 24 HR.	18.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 : Part 40 : 1999 (Reaff. 2014) (HCL) (O)	2 8HR.	0.44
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 : Part 6 : 2006 (Reaff. 2012) (O)	80 24 HR.	23.8
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 8)	180 1 HR.	30.10L:20.3
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2008 (Reaff. 2012) (O)	100 24 HR.	164
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (PT-24):2019 (O)	60 24 HR.	67
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 : Part 2 : 2001 (Reaff. 2012) (O)	80 24 HR.	8.3

— END —

Report Verified By



For Mitra S. K. Private Limited



Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagadanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@gmail.com



TC-6800



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

N/PA. - Joda, Dist. - Paschim, Odisha - 756034 - 1908

### Report No. :

MSKPL/ED/2023-24/B11478

### Date :

03/02/2024

### Sample No. :

MSKNB/ED/2023-24/01/Q01301

### Date of receipt of sample:

08/01/2024

### Date(s) of performance:

08/01/2024 - 02/02/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156017/X86, Date - 18/09/2023

### Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	05/01/2024
5. Place of sampling	Near H- Clubby Rest Shelter
6. Environmental conditions during sampling & Transport	1) Temperature :13-25 deg C 2) Barometric Pressure: 733 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182 (Part 11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Lalit Nask
9. Field Equipments Used	MSK/88LFI/ELT/DO5-2

Report No. : MSKPL/ED/2023-24/B11478

Sample No. : MSKNB/ED/2023-24/01/Q01301

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m <sup>3</sup>	USEPA-10.3.4, June	6 (Annual)	BDL(DL:1.5)
2	Benzene	micro gram/m <sup>3</sup>	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m <sup>3</sup>	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gram/m <sup>3</sup>	USEPA-10.3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gram/m <sup>3</sup>	USEPA-10.3.4, June	Not Specified	0.05
6	Nickel as Ni	ng/m <sup>3</sup>	USEPA-10.3.4, June	20 (Annual)	BDL(DL:5.0)

**Opinion :** Limit as per CPCB notification, New Delhi, 18th November 2005, for Ambient air quality

**Statement of Conformity :** NA

— END —

Reviewed By:

Signature:

Name: Dr. Debdutta Dasgupta

Designation: Technical in charge

Authorized Signatory:

Signature:

Name: Dr. Soumyadeep Mukherjee

Designation: In-charge

This result is valid only in the scope of tested

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The retained part of sample(s) for chemical analysis (Air - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Soiled Water, Soiled food) shall be retained for 15 days from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Soiled Water, Soiled food) shall be retained for 15 days from the date of issue of the Test Report.

**Head Office:** 199, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
Tel : 91 33 40143000 / 2550007 Fax : 91 33 2026030  
Email : info@mitras.com / Website : www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MSM), Joda West

AirPo : Joda, Dist : Boudhar, Odisha - 751034 Joda Pih

Report No. :

MSKGL/ED/2023-24/004460

Date :

10/05/2024

Sample No. :

MSKGL/ED/2023-24/01/00320

Reference No. & Date :

1000196017/056, Date : 15/05/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Air
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	05/05/2024
5. Place of sampling	North H-Quarry Road, Boudhar, Joda Pih
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004460

Sample No. : MSKGL/ED/2023-24/01/00320

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	10.0
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) (1986) (Reaff. 2016) (NDR) (I)	2 3HR.	0.34
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 6) 2006 (Reaff. 2012) (I)	80 24 HR.	21.3
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL (DL: 26.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 (Part 23) 2016 (Reaff. 2012) (I)	100 24 HR.	125
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) 2016 (I)	60 24 HR.	66
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2) 2001 (Reaff. 2013) (I)	80 24 HR.	9.2

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-46, Udayan Industrial Estate  
3, Pagarjanga Road, Kolkata 700015  
West Bengal  
Tel : +91 704038120  
Email: udayanlab@mitrask.com



TC-0900



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West

AMPs : Joda, Dist. - Asansol, Odisha - 750034 India

Report No. :

MSKPL/ED/2023-24/111470

Date :

03/02/2024

Sample No. :

MSKNB/ED/2023-24/01/0E13F7

Date of receipt of sample:

08/01/2024

Date(s) of performance:

08/01/2024 - 02/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/058, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Ambient Air Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/01/2024
5. Place of sampling	Railway Siding
6. Environmental conditions during sampling & transport	1) Temperature: -3.20 deg C 2) Barometric Pressure: 733 mm of Hg 3) Rain fall No & Cold Chait Maintained
7. Sampling Plan & Method used	IS-5182 (Part 1, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Lalit Nish
9. Field Equipments Used	MSK/BSU/FIELD/DS-3

Report No. : MSKPL/ED/2023-24/111470

Sample No. : MSKNB/ED/2023-24/01/0E13F7

## RESULT

Chemical					
Sl No.	Parameter	UCM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS-5182 (Part 11)	6 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS-5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.01
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.08
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	0.2

Opinion: Limit as per CPCB notification, New Delhi, 18th November 2006, for ambient air quality

Statement of Conformity NA

— END —

Reviewed By:

Signature: [Signature]

Name: Dr. Davinder Bhatnagar

Designation: Technical in charge

Authorized Signatory:

Signature: [Signature]

Name: Dr. Sourav Kumar Das

Designation: Lab in charge

This report shall only be for the use(s) stated.

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The retained part of sample(s) for chemical analysis (Non-perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Non-perishable sample(s) Food, Water) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Non-perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Bhabha Centre (3rd Floor) T48, P.O. Bhabha Centre, Kolkata - 700016, West Bengal, India.

Tel.: 033 244014300 / 24403007 Fax: 033 24425003

Email: info@mitrask.com Website: www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGML) Joda West

At/Po. - Joda, Dist. - Konyhar, Orissa - 756035 India/Pin

Report No. :

MSKGLIED/2023-24/004449

Date :

10/02/2024

Sample No. :

MSKGLIED/2023-24/01/00316

Reference No. & Date :

3020196017/COB, Date - 15/08/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	05/05/01/2024
3. Unique Identification of sample (if any)	Joda West Iron & Mn. Mines
4. Date of sampling	05/01/2024
5. Place of sampling	Near Railway Station, Joda West
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	N/A

Report No. : MSKGLIED/2023-24/004449

Sample No. : MSKGLIED/2023-24/01/00316

## RESULT

### Analysis Result of Ambient Air

Sl. No.	Parameter	Unit	Method	Limit	Result
1	Ambient (NH3)	micro gram/m3	IS 5182 (Part 25)	400 24 HR	18.5
2	Carbon Monoxide (CO)	mg/m3	IS 5182: Part 10: 1999 (Reaff. 2014) (NDIR) (D)	2 8HR	0.34
3	Nitrogen Dioxide (NO2)	micro gram/m3	IS 5182: Part 6: 2006 (Reaff. 2012) (D)	80 24 HR	25.6
4	Ozone (O3)	micro gram/m3	IS 5182 (Part 9)	180 1 HR	BDL (DL 20.0)
5	Particulate Matter (<10um)	micro gram/m3	IS 5182: Part 21: 2008 (Reaff. 2012) (D)	100 24 HR	25
6	Particulate Matter (<2.5um)	micro gram/m3	IS 5182 (PT-24) 2018 (D)	80 24 HR	117
7	Sulphur Dioxide (SO2)	micro gram/m3	IS 5182: Part 2: 2001 (Reaff. 2012) (D)	80 24 HR	8.2

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P- 40, Udayan Industrial Estate,  
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West Bengal  
Tel : +91 7044035120  
Email: udayanlab@mitrask.com



10-0900



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West

Addr. - Joda, Dist. - Raenjhata, Odisha - 755034 - 1009

Report No. :

MSKPL/ED/2023-24/11479

Date :

05/02/2024

Sample No. :

MSKNB/ED/2023-24/01XR13EV

Date of receipt of sample :

09/01/2024

Date(s) of performance :

09/01/2024 - 02/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000196017/046, Date - 16/09/2023

Discipline :

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results.

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/01/2024
5. Place of sampling	Near H- Quarry Rest Shelter
6. Environmental conditions during sampling & Transfer	1) Temperature: 15-25 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain fall No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5162 (Part 11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Latin Nalk Chandraudha Das
9. Field Equipments Used	MSKBBLFIELD/RO5-2

Report No. : MSKPL/ED/2023-24/X11479

Sample No. : MSKNB/ED/2023-24/01XR13EV

## RESULT

Chemical					
Sl No	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5162 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benz(a)Pyrene	ng/m3	IS 5162 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.30
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	6.5

Option : Limit as per CPCB notification, New Delhi, 18th November 2008 for ambient air quality

Statement of Conformity : NA

END

Reviewed by:

Signature:   
Name: Dr. Devan Banerjee

Designation: Technical in charge

Authorized Signatory:

Signature:   
Name: Dr. Sankar Kumar Mukherjee  
Designation: Lab in charge

The results were used in the test(s) listed.

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The retained part of sample(s) for chemical analysis (Non-packable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. (Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report).

The retained part of sample(s) for chemical analysis (Soil, River & Ground Water) shall be retained for 15 days as per CPCB notification (2013) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for microbiological analysis (Non-perishable sample(s) Food, Surface Water, Biotic food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Office 40, 4th Floor, P.H.E. & J.C. Road, Kolkata - 700015, West Bengal, India.  
Tel: 91 35 44143020 / 2260000 Fax: 91 35 22650000  
Email: info@mitrask.com Website: www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

A/Po. - Joda Dist. - Keonjhar, Orissa - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/00447

Date :

19/02/2024

Sample No. :

MSKGL/ED/2023-24/01/00325

Reference No. & Date :

3000156017/050, Date - 15/06/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:-

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	Joda West Iron & Mn Mines
4. Date of sampling	26/01/2024
5. Place of sampling	Near H/O Mining Road Station, JNMMA
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/00447

Sample No. : MSKGL/ED/2023-24/01/00325

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Amonia (NH3)	mg/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	10.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 - Part 10 -1999 (Reaff.2014) (NOIR) (C)	2 8HR.	0.16
3	Nitrogen Dioxide (NO2)	micro gm/m <sup>3</sup>	IS 5182 - Part 6 :2005 (Reaff.2012) (C)	80 24 HR.	24.5
4	Ozone (O3)	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL (DL<20.0)
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2008 (Reaff. 2012) (C)	100 24 HR.	171
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (PT-24):2019 (C)	80 24 HR.	94
7	Sulphur Dioxide (SO2)	micro gm/m <sup>3</sup>	IS 5182 - Part 2 :2001 (Reaff.2012) (C)	80 24 HR.	7.8

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

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3, Pajaladanga Road, Kolkata 700012,  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

A/Po. - Joda, Dist - Kancher, Odisha - 758034 India

### Report No. :

MSKPL/ED/2023-24/01147H

### Date :

03/02/2024

### Sample No. :

MSKNB/ED/2023-24/011P13D7

### Date of receipt of sample :

09/01/2024

### Date(s) of performance :

09/01/2024 - 02/02/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000158017/056 Date - 16/09/2023

### Discipline :

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Ambient Air Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	NA
4. Date of sampling	08/01/2024
5. Place of sampling	Near Gangaguda Ph
6. Environmental conditions during sampling & Transport	1) Temperature: 12-25 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182 (Part 11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Lalit Nak Chandraudha Das
9. Field Equipments Used	MSK/BBL/FIELD/SPS-4

Report No. : MSKPL/ED/2023-24/01147H

Sample No. : MSKNB/ED/2023-24/011P13D7

## RESULT

Chemical:					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ug/m3	USEPA IO 3.4, June	6 (Annual)	BDL (DL:1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	6 (Annual)	BDL (DL:0.2)
3	Benzo(a)Pyrene	ug/m3	IS 5182 (Part 12)	1 (Annual)	BDL (DL:0.5)
4	Lead (as Pb)	micro gram/m3	USEPA IO 3.4, June	1 (24 Hours)	0.01
5	Manganese as Mn	micro gram/m3	USEPA IO 3.4, June	Not Specified	0.11
6	Nickel as Ni	ug/m3	USEPA IO 3.4, June	20 (Annual)	BDL (DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 16th November 2009, for Ambient air quality

Statement of Conformity NA

END

Received By:

Signature:   
Name: Dr. Oritash Banerjee  
Designation: Technical in charge

Authorized Signatory:

Signature:   
Name: Dr. Oritash Banerjee  
Designation: Lab in charge

This result valid only in the issuing station.

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The retained part of sample(s) for chemical analysis (Aqueous - perishable sample(s) For: Water) shall be retained for 30 days from the date of issue of this Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of this Test Report.

The retained part of sample(s) for chemical analysis (Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline (As) 1 month from the date of issue of this Test Report.

The retained part of sample(s) for microbiological analysis (Non - Perishable sample(s) For: Sewage Water, Seawater, Food) shall be retained for 15 days from the date of issue of this Test Report.

Head Office: 3rd Floor, 748, A-20, Baital, Kolkata - 700016, West Bengal, India  
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Email: info@mitrask.com Web: www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West

M/Po : Joda, Dist. : Keonjhar, Orissa - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004452

Date :

19/02/2024

Sample No. :

MSKGL/ED/2023-24/11/00324

Reference No. & Date :

30X0156017/056, Date - 15/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:-

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(s) only	Joda West Iron & Mn Mines
4. Date of sampling	09/01/2024
5. Place of sampling	Near Gangajhar Pn. JMMML
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling PFen & Method used	NA

Report No. : MSKGL/ED/2023-24/004452

Sample No. : MSKGL/ED/2023-24/01/00324

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	DOM	Method	Limit	Result
1	Ammونيا (NH3)	micro gram/m3	IS 5162 (Part 25)	400 24 HR.	19.8
2	Carbon Monoxide (CO)	mg/m3	IS 5162 (Part 11) (1999 (Revt.2014) (N201) (C)	2 8HR.	0.71
3	Nitrogen Dioxide (NO2)	micro gram/m3	IS 5162 (Part 6) (2008 (Revt.2012) (C)	50 24 HR.	19.5
4	Ozone (O3)	micro gram/m3	IS 5162 (Part 9)	180 1 HR	SOL/DL-2017)
5	Particulate Matter (PM10)	micro gram/m3	IS 5162 (Part 23-2008 (Revt. 2012) (C)	100 24 HR.	186
6	Particulate Matter (PM2.5)	micro gram/m3	IS 5162 (Part 24) (2019) (C)	60 24 HR.	88
7	Sulphur Dioxide (SO2)	micro gram/m3	IS 5162 (Part 2) (2011 (Revt.2012) (C)	80 24 HR.	7.7

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-46, Udayan Industrial Estate,  
3, Pogladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 704036120  
Email: udayanlab@mitrask.com



TC-0990



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM)\_Joda West

Attn: - Joda, Dist. - Keonjhar, Odisha - 756034 India

Report No. :

MSKPL/ED/2023-24/W1147V

Date :

03/02/2024

Sample No. :

MSKNB/ED/2023-24/01/AX13F4

Date of receipt of sample:

09/01/2024

Date(s) of performance:

09/01/2024 - 02/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample submitted by the customer has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	06/01/2024
5. Place of sampling	Near O-Quarry Sorting Yard
6. Environmental conditions during sampling & Transport	1) Temperature: 32-25 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain fall - No 4. Cold Chain Maintained
7. Sampling Plan & Method used	IS 5162(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Late Nilesh Chandra Das
9. Field Equipment Used	MSK/B&L/FIELD/RS-6

Report No. : MSKPL/ED/2023-24/W1147V

Sample No. : MSKNB/ED/2023-24/01/AX13F4

## RESULT

### Chemical:

S/ No	Parameter	UCM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 5.4, June	8 (Annual)	BOL(DL 1.0)
2	Benzene	micro gram/m3	IS 5162 (Part 1-1)	5 (Annual)	BOL(DL 4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5162 (Part 12)	1 (Annual)	BOL(DL 0.5)
4	Lead as (Pb)	micro gram/m3	USEPA-IO 5.4, June	1 (24 hours)	0.02
5	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	1.01
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	7.8

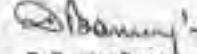
### Conclusion :

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality.

Statement of Conformity : NA

— END —

### Reviewed by

Signature:   
Name: Dr. Devoran Borah  
Designation: Technical In-charge

### Authorized Signatory

Signature:   
Name: Dr. Sharmistha Mukherjee  
Designation: MD in charge

The results apply only to the sample tested.

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The retained part of any report for chemical analysis (Non-destructive analysis) from Water shall be retained for 15 days from the date of issue of the Test Report. For further sampling shall be retained 7 days from the date of issue of the Test Report.

The retained part of any report for chemical analysis (Destructive analysis) shall be retained for 15 days as per CPCB guidelines & (As per) 1 month from the date of issue of the Test Report.

The retained part of any report for chemical analysis (Non-destructive analysis) from Food, Sealed Water, Sealed Food shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shivalik Centre (B-1) Phase, T-10, A-1, B-1, B-2, B-3, B-4, B-5, B-6, B-7, B-8, B-9, B-10, B-11, B-12, B-13, B-14, B-15, B-16, B-17, B-18, B-19, B-20, B-21, B-22, B-23, B-24, B-25, B-26, B-27, B-28, B-29, B-30, B-31, B-32, B-33, B-34, B-35, B-36, B-37, B-38, B-39, B-40, B-41, B-42, B-43, B-44, B-45, B-46, B-47, B-48, B-49, B-50, B-51, B-52, B-53, B-54, B-55, B-56, B-57, B-58, B-59, B-60, B-61, B-62, B-63, B-64, B-65, B-66, B-67, B-68, B-69, B-70, B-71, B-72, B-73, B-74, B-75, B-76, B-77, B-78, B-79, B-80, B-81, B-82, B-83, B-84, B-85, B-86, B-87, B-88, B-89, B-90, B-91, B-92, B-93, B-94, B-95, B-96, B-97, B-98, B-99, B-100, B-101, B-102, B-103, B-104, B-105, B-106, B-107, B-108, B-109, B-110, B-111, B-112, B-113, B-114, B-115, B-116, B-117, B-118, B-119, B-120, B-121, B-122, B-123, B-124, B-125, B-126, B-127, B-128, B-129, B-130, B-131, B-132, B-133, B-134, B-135, B-136, B-137, B-138, B-139, B-140, B-141, B-142, B-143, B-144, B-145, B-146, B-147, B-148, B-149, B-150, 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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (RGM), Joda West

APPO, Joda, Dist. - Keonjhar, Odisha - 756034 India Pin

Report No. :

MSKGL/ED/2023-24/004448

Date :

10/02/2024

Sample No. :

MSKGL/ED/2023-24/0100923

Reference No. & Date :

3000156017/056, Date : 15/08/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West user & Mr. Mines
4. Date of sampling	09/01/2024
5. Place of sampling	Near D-Down, Sorting Yard JWMY
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	N/A

Report No. : MSKGL/ED/2023-24/004448

Sample No. : MSKGL/ED/2023-24/0100923

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	14.5
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182, Part 10:1999 (Reaff 2014) (NORV) (C)	2 8HR	0.52
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182, Part 6:2006 (Reaff 2012) (C)	40 24 HR	21.8
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR	BDL (DL:20/0)
5	Particulate Matter (<10um)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff 2012) (C)	100 24 HR	211
6	Particulate Matter (<2.5um)	micro gm/m <sup>3</sup>	IS 5182 (PT-24), 2016 (C)	60 24 HR	100
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182, Part 2:2001 (Reaff 2012) (C)	80 24 HR	8.8

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagiadanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044035120  
Email: udayanlab@mitrask.com



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ULR: TC-695024000091644F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

Address - Joda, Dist. - Nalbari, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/N1147M

Date :

03/02/2024

Sample No. :

MSKNB/ED/2023-24/01/6B13CF

Date of receipt of sample:

09/01/2024

Date(s) of performance:

09/01/2024 - 02/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	06/01/2024
5. Place of sampling	Near D-Quarry Screen Plant
6. Environmental conditions during sampling & Transport	1) Temperature: 12-28 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain fall: No & 4) Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Lalin Nali Dhaminudha Das
9. Field Equipments Used	MSK/SBL FIELD/PCS-0

Report No. : MSKPL/ED/2023-24/N1147M

Sample No. : MSKNB/ED/2023-24/01/6B13CF

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 hours)	0.05
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.13
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:0.0)

Opinion : Limit as per CPCB notification, New Delhi, 10th November 2009, (a) present as monthly

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

Name: Dr. Devendra Banerjee

Designation: Technical In-charge

Authorized Signatory:

Signature:

Name: Dr. Subir Kumar Mukherjee

Designation: Lab In-charge

This certificate is valid only for the item(s) tested.

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The retained part of sample(s) for chemical analysis (Non-pollutable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Pollutable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for microbiological analysis (Non-pollutable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

The retained part of sample(s) for microbiological analysis (Non-pollutable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Bhowanipore (Bhowanipore), MS, A.J.C. Road, Kolkata - 700015, West Bengal, India.

Tel : 91 33 21443000 / 20650007 Fax : 91 33 22650009

Email : jileg@mitrask.com Website : www.mitrask.com



Address of Branch :

P.O. Barbedi Kuntalar Orissa - 758 035



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**TEST REPORT**

Name &amp; Address of Customer :

Tata Steel Ltd (MSM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004451

Date :

19/09/2024

Sample No. :

MSKGL/ED/2023-24/0106322

Reference No. &amp; Date :

3688156/017/056, 0666 - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn. Mines
4. Date of sampling	09/01/2024
5. Place of sampling	Near P-Factory Screen, BWHM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004451

Sample No. : MSKGL/ED/2023-24/0106322

**RESULT****Analysis Result of Ambient Air**

Sl No.	Parameter	Unit	Method	Limit	Result
1.	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5102 (Part 25)	400 24 HR.	17.0
2.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5102 : Part 10 : 1999 (Reaff 2016) (NDIR) (C)	2 24HR.	0.42
3.	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5102 : Part 6 : 2005 (Reaff 2012) (D)	80 24 HR.	18.4
4.	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5102 (Part 9)	180 1 HR.	BD (DL:20.0)
5.	Particulate Matter (<10µm)	micro gm/m <sup>3</sup>	IS 5102: Part 25:2006 (Reaff. 2012) (D)	100 24 HR.	170
6.	Particulate Matter (<2.5µm)	micro gm/m <sup>3</sup>	IS 5102 (PT-34):2019 (D)	60 24 HR.	77
7.	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5102 : Part 2 : 2001 (Reaff 2012) (D)	80 24 HR.	6.5

— END —

Report Verified By



For Mitra S. K. Private Limited

  
 Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Padmalanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrasik.com



TC-0000



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

WFO: Joda, Dist. : Kankerpur, Odisha - 756034 INDIA

Report No. :

MSKPL/ED/2023-24/11472

Date :

03/02/2024

Sample No. :

MSKNB/ED/2023-24/01/27140V

Date of receipt of sample :

08/01/2024

Date(s) of performance :

08/01/2024 - 02/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056, Date - 15/09/2023

Discipline :

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	06/01/2024
5. Place of sampling	Railway Station
6. Environmental conditions during sampling & Transport	1) Temperature : 13-25 deg C 2) Barometric Pressure : 735 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182 (Part 11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Lalit Nank Dhambraha Das
9. Field Equipments Used	MSKUSL/FIELD/ROD-3

Report No. : MSKPL/ED/2023-24/11472

Sample No. : MSKNB/ED/2023-24/01/27140V

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL (DL-1.8)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL (DL-4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL (DL-0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 hours)	0.01
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.19
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL (DL-2.0)

Optimum : Limit as per CPCB notification, New Delhi, 16th November 2009, for ambient air quality.

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

Name: Dr. Divyanshu Banerjee

Designation: Technical In charge

Authorized Signatory

Signature:

Name:

Designation: Line In charge

(No results relate only to the sample tested)

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The reserved part of sample(s) for chemical analysis (Iron - pyrite/acid sample(s) Feed, Water) shall be retained for 15 days from the date of issue of the Test Report. Retainable sample(s) shall be retained 2 days.

The reserved part of sample(s) for chemical analysis (Lead, Zinc & Liquid/Waste) shall be retained for 15 days as per CPCB guidelines & (Air) 3 weeks from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (MCP - pyrite/acid sample(s) Feed, Sealed Water, Sealed (food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Chandra Bazar (Bh. Flier), 748, A, J.C. Road, Kolkata - 700076, West Bengal, India

Tel. : 91 23 49143600 / 22550077 Fax : 91 23 22550000

E-mail : [info@mitrasik.com](mailto:info@mitrasik.com) Website : [www.msk.com](http://www.msk.com)





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## TEST REPORT

### Name & Address of Customer :

Yash Steel Unit (MGM), Koda West

A/P.O. : Koda, Dist. : Kachhbar, Odisha - 758034 India Pin

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGLUED/2023-24/004455

16/02/2024

MSKGLUED/2023-24/0100321

3000150017X86, Date : 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Jobb West iron & Mn Mines
4. Date of sampling	06/01/2024
5. Place of sampling	Near Railway siding, BMM
6. Environmental conditions during sampling & transport	Clean & Clear
7. Sampling Equip & Method used	NA

Report No. : MSKGLUED/2023-24/004455

Sample No. : MSKGLUED/2023-24/0100321

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	17.2
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 : Part 10 : 1100 (Reaff.2014) (NDIR) (I)	2 8HR	0.58
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 : Part 6 : 2000 (Reaff.2012) (I)	80 24 HR	29.5
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR	BCD (0.120/0.1)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 : Part 23 : 2000 (Reaff. 2012) (I)	100 24 HR	248
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) : 2012 (I)	80 24 HR	127
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 : Part 2 : 2001 (Reaff.2012) (I)	80 24 HR	8.5

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pajalidanga Road, Kolkata 700015,  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-8950



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

Attn: Joda, Dist. -Kanshan, Odisha - 756004 INDIA

### Report No. :

MSKPL/ED/2023-24/111477

### Date :

03/02/2024

### Sample No. :

MSKNB/ED/2023-24/01/BG1A3W

### Date of receipt of sample:

11/01/2024

### Date(s) of performance:

11/01/2024 - 02/02/2024

### Location of performance of

Permitant Facility

### Reference No. & Date :

3000158017/US6, Date : 18/09/2023

### Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	NA
4. Date of sampling	08/01/2024
5. Place of sampling	Near Time Office JWMN
6. Environmental conditions during sampling & Transport	1) Temperature : (2-25 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain fall No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5142 (Part 11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Jo, Manita Nair, Akash Jy Seng
9. Field Equipments Used	MSK/BBL/FIELDROD-3

Report No. : MSKPL/ED/2023-24/111477

Sample No. : MSKNB/ED/2023-24/01/BG1A3W

## RESULT

### Chemical

Sl No.	Parameter	UCM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL (DL 1.0)
2	Benzene	micro g/m3	IS 5142 (Part 11)	5 (Annual)	BDL (DL 1.2)
3	Benzo(a)Pyrene	ng/m3	IS 5142 (Part 12)	1 (Annual)	BDL (DL 0.5)
4	Lead as Pb	micro g/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro g/m3	USEPA-IO 3.4, June	Not Specified	0.41
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL (DL 5.0)

### Opinion :

As per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality.

Statement of Conformity : NA

— END —

### Received By:

Signature:   
Name: Dr. Devendra Sengupta  
Designation: Technical Incharge

### Authorized Signatory:

Signature:   
Name: Dr. Subhendu Kumar Sengupta  
Designation: Lab In Charge

The results relate only to the item(s) tested.

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained lot of sample(s) for chemical analysis (Soil, Sludge & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (As) 5 months from the date of issue of the Test Report. The retained lot of sample(s) for microbiological analysis (Non - perishable sample(s) Food, Sludge, Waste, Sealed lot(s) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:   
Plot No. 20/1, Phase I, A-4, C, Bonga Road, Kolkata - 700010, West Bengal, India  
Tel : 03 40143000 / 22850007 Fax : 03 40 22850005  
Email : info@mitrask.com Website : www.mitrsk.com





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## TEST REPORT

Name & Address of Customer :

Tata Steel Ltd. (HCL), Joda West

APPO - Joda, Dist. - Keonjhar, Orissa - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004461

Date :

10/02/2024

Sample No. :

MSKGL/ED/2023-24/0100424

Reference No. & Date :

MRD156017/055, Date - 15/06/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Air
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West iron & Mn. Mines
4. Date of sampling	09/01/2024
5. Place of sampling	Near Time Office, WYWA
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004461

Sample No. : MSKGL/ED/2023-24/0100424

## RESULT

### Analysis Result of Ambient Air

Sl. No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	15.5
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 - Part 10 : 1999 (Reaff. 2014) (NDIR) (C)	2 8HR.	0.59
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 - Part 6 : 2006 (Reaff. 2017) (C)	80 24 HR.	24.3
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	NDL/NDL (0.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182, Part 20:2003 (Reaff. 2012) (C)	100 24 HR.	224
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (PT-3M), 2013 (C)	60 24 HR.	109
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 - Part 2 : 2001 (Reaff. 2012) (C)	80 24 HR.	8.5

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagodanga Road, Kolkata 700010  
West Bengal  
Tel : +91 7044036120  
Email : msklab@mitras.com



TD-6900



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

Address : Joda, Dist. - Keonjhar, Orissa - 755004, India

Report No. :

MSKPL/ED/2023-24/1147T

Date :

03/02/2024

Sample No. :

MSKNB/ED/2023-24/01/OV1A7N

Date of receipt of sample :

11/01/2024

Date(s) of performance :

11/01/2024 - 02/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000158017/056, Date : 16/04/2023

Discipline :

Chemical

We hereby certify that the following sample Drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	NA
4. Date of sampling	08/01/2024
5. Place of sampling	Near Railway Siding JMMM
6. Environmental conditions during sampling & Transport	1) Temperature : 12-28 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain fall : No & Wind Speed : Moderate
7. Sampling Plan & Method used	IS:5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Prashant Manish Naik, Akash K. Setty
9. Field Equipments Used	MSK/BBL/FIELDS-3

Report No. : MSKPL/ED/2023-24/1147T

Sample No. : MSKNB/ED/2023-24/01/OV1A7N

## RESULT

Chemical					
Sl No.	Parameter	Unit	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA IO 3.4, June	6 (Annual)	NDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	6 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA IO 3.4, June	1 (24 Hours)	0.01
5	Manganese as Mn	micro gm/m3	USEPA IO 3.4, June	Not Specified	0.58
6	Nickel as Ni	ng/m3	USEPA IO 3.4, June	20 (Annual)	12.1

Option : Limit as per CPCB notification, New Delhi, 18th November 2009, for environment quality

Statement of Conformity : NA

END

Received By

Signature:   
Name: Dr. Divakar Banerjee  
Designation: Technical In Charge

Authorized Signatory

Signature:   
Name: Dr. Divakar Banerjee  
Designation: Technical In Charge

The results (data only to the client) shall be

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The retained part of sample(s) for chemical analysis (Air - particulate sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Portable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Gas & Liquid Phase) shall be retained for 15 days as per CPEB guidelines & (Air) 1 month from the date of issue of the Test Report. The retained part of sample(s) for chemical analysis (Food - particulate sample(s) Food, Ground Water, Surface Water) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shree Ganga (2nd Floor), 7th A J C Road Road, Kolkata - 700010, West Bengal, India  
Tel: 91 38 400000 / 380000 Fax: 91 33 2205408  
Email: info@mitras.com Website: www.mitras.com



## Address of Branch :

P.O. Baripada Road, Orissa-750 035



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**TEST REPORT**

## Name &amp; Address of Customer :

Tata Steel Ltd (JMM), Joda West.

At Po. - Joda, Dist - Keonjhar, Orissa - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004464

Date :

16/02/2024

Sample No. :

MSKGL/ED/2023-24/01/00426

Reference No. &amp; Date :

3000158017/066, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn
4. Date of sampling	09/02/2024
5. Place of sampling	Near Railway Station, JMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	N/A

Report No. : MSKGL/ED/2023-24/004464

Sample No. : MSKGL/ED/2023-24/01/00426

**RESULT**

## Analysis Result of Ambient Air

Sl No.	Parameter	UDM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	ug/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	16.5
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182- Part 10, 1999 (Rev'd 2014) (INDIRI (C))	2 8HR.	0.54
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182- Part 6: 2006 (Rev'd 2012) (C)	80 24 HR.	34.5
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BOL(DL 20.8)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182- Part 23: 2006 (Rev'd 2012) (C)	100 24 HR.	242
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (PT-24), 2015 (C)	50 24 HR.	123
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182- Part 2: 2001 (Rev'd 2012) (C)	80 24 HR.	9.9

— END —

Report Verified By

For Mitra S. K. Private Limited

  
 Authorized Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate  
3, Pagladanga Road, Kolkata 700016  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitsak.com



TC-0550



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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM), Joda West.

At/Po : Joda, Dist. / Keonjhar, Odisha - 758034 India

## Report No. :

MSKPLJED/2023-24/71147C

## Date :

03/02/2024

## Sample No. :

MSKNB/ED/2023-24/01JC1A46

## Date of receipt of sample:

11/01/2024

## Date(s) of performance:

11/01/2024 - 03/03/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3600156017/056, Date - 15/09/2023

## Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	05/01/2024
5. Place of sampling	Near D-Quarry Screen /YPMH
6. Environmental conditions during sampling & Transport	1) Temperature -12-36 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain fall No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-1, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Kr Manish Naik, Akash Kr Sanyal
9. Field Equipments Used	MOBILE FIELD PCS-8

Report No. : MSKPLJED/2023-24/71147C

Sample No. : MSKNB/ED/2023-24/01JC1A46

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1.	Arsenic as (As)	ng/m3	USEPA-ID 3.4, June	8 (Annual)	BOL(DL-1.0)
2.	Benzene	micro gram/m3	IS 5182 (Part 11)	5 (Annual)	BOL(DL-4.2)
3.	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BOL(DL-0.5)
4.	Lead (as Pb)	micro gram/m3	USEPA-ID 3.4, June	1 (24 Hours)	BOL(DL-0.11)
5.	Manganese as Mn	micro gram/m3	USEPA-ID 3.4, June	Not Specified	0.21
6.	Nickel as Ni	ng/m3	USEPA-ID 3.4, June	20 (Annual)	BOL(DL-5.0)

Options : Limit as per CPCB notification, New Delhi, 18th November 2006, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed By:

Signature:

Name:

Designation:

Dr. Debprasad Senapati  
Technical in charge

Authorized Signatory:

Signature:

Name:

Designation:

Dr. Sanjay Kumar Mishra  
Jr In charge

The result is valid only for the sample tested.

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The received part (i.e. sample(s)) in original package (Non-permeable Airline(s) Food, Water) shall be returned for 15 days from the date of issue of the Test Report. Perishable samples shall be returned 2 days from the date of issue of the Test Report.

The received part (i.e. sample(s)) for chemical analysis (Non-permeable Airline(s) Food, Water) shall be returned for 15 days from the date of issue of the Test Report.

The received part (i.e. sample(s)) for Microbiological analysis (Non-permeable Airline(s) Food, Water) shall be returned for 15 days from the date of issue of the Test Report.

Head Office: 3/Block Garden (B1-Phase), 7/8, A.J.C. Road, Bhubaneswar - 751015, Odisha  
Tel : +91 674 230001 / 2300027 Fax : +91 674 2300008  
Email : info@mitsak.co.in / info@mitsak.com



## Address of Branch

P.O. (Barabati) Bhubaneswar Odisha 751 005



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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MCM) Joda West

At/ Po. - Joda, Dist. - Keonjhar, Odisha - 751034 India Pin

Report No. :

MSKGL/ED/2023-24/00456

Date :

13/02/2024

Sample No. :

MSKGL/ED/2023-24/01/00426

Reference No. &amp; Date :

3900136017/056, Date - 15/01/2023

We hereby certify that the following sample Driven by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Inn & Mn. Mines
4. Date of sampling	08/01/2024
5. Place of sampling	Near D-Factory, Sector, WdMM
6. Environmental conditions during sampling & transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/00456

Sample No. : MSKGL/ED/2023-24/01/00426

## RESULT

## Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	15.0
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 : Part 16 : 2006 (Reaff. 2016) (NDIR) (D)	3 8HR.	0.67
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro g/m <sup>3</sup>	IS 5182 : Part 5 : 2006 (Reaff. 2012) (D)	80 24 HR.	16.6
4	Ozone (O <sub>3</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 6)	180 1 HR.	90 (DL 20.0)
5	Particulate Matter (<10µm)	micro g/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012) (D)	100 24 HR.	174
6	Particulate Matter (<2.5µm)	micro g/m <sup>3</sup>	IS 5182 (Part 24) 2019 (D)	80 24 HR.	80
7	Sulphur Dioxide (SO <sub>2</sub> )	micro g/m <sup>3</sup>	IS 5182 : Part 2 : 2001 (Reaff. 2012) (D)	80 24 HR.	7.5

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P-40, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700016  
West Bengal  
Tel: +91 7044035120  
Email: udayanlab@mitrask.com



TC-6980



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URL: TC-885024000031651F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGN) Joda West

WPO - 4008, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/ED/2023-24/W1147G

## Date :

03/02/2024

## Sample No. :

MSKNB/ED/2023-24/01/LH1A6C

## Date of receipt of sample :

11/01/2024

## Date(s) of performance :

11/01/2024 - 02/02/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000158017/056 Date - 18/09/2023

## Discipline :

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	08/01/2024
5. Place of sampling	Near D-Quarry Sorting Yard JMM
6. Environmental conditions during sampling & Transport	1) Temperature: 12-28 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain fall No. & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-1) (2) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Kr. Mariti Naitik Akash Kr. Setty
9. Field Equipments Used	MSK/NPL/FIELD/RODS-E

Report No. : MSKPL/ED/2023-24/W1147G

Sample No. : MSKNB/ED/2023-24/01/LH1A6C

## RESULT

Chemical					
S/ No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3-4, June	6 (Annual)	BDL(BL=1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 1)	5 (Annual)	BDL(BL=2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(BL=0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3-4, June	1 (24 hr) (acute)	0.04
5	Manganese as Mn	micro gm/m3	USEPA-IO 3-4, June	Not Specified	0.39
6	Nickel as Ni	ng/m3	USEPA-IO 3-4, June	20 (Annual)	13.2

Option : Limit as per CPCB notification, New Delhi, 16th November 2009, for Ambient Air quality

Statement of Conformity NA

— END —

Received By:

Signature

Name: Dr. Divyanshu Banerjee

Designation: Technical In-charge

Authorized Signatory:

Signature

Name:

Designation:

In-charge

The report (shall stay to the client's order)

This Test Report shall not be reproduced except in full, without the permission of Mitra S. K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for microbiological analysis (Food - perishable sample(s) Food, Sealed Water - Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

The reserved part of sample(s) for microbiological analysis (Non - perishable sample(s) Food, Sealed Water - Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: B-Block, Ganga (B) I-Block, T-86, A.C.C. Road, Rajahmundry - 760016, West Bengal, India  
Tel: +91 20 4014100 / 2050007 Fax: 01 35 2550009  
Email: info@mitrask.com Website: www.mitrask.com



Address of Branch :

P.O. Barbi Di Kewapari Orissa-758 035



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## TEST REPORT

Name & Address of Customer :

Tata Steel Ltd, INCOIL, Joda West

At Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004457

Date :

15/02/2024

Sample No. :

MSKGL/ED/2023-24/01/00427

Reference No. & Date :

MSKGL/ED/2023-24/01/00427, Date - 15/02/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(s) (any)	Joda West Iron & Mn. Mines
4. Date of sampling	08/01/2024
5. Place of sampling	Near D-Quarry Scoping Yard, INCOIL
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004457

Sample No. : MSKGL/ED/2023-24/01/00427

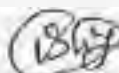
## RESULT

### Analysis Result of Ambient Air

Sr No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	18.3
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 - Part 10 : 1999 (Reaff. 2014) (NOR) (D)	2 8HR.	0.26
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 - Part 8 : 2006 (Reaff. 2012) (D)	80 24 HR.	26.7
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL (DL-20.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 - Part 24:2006 (Reaff. 2012) (D)	140 24 HR.	232
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (PT-24) 2015 (D)	80 24 HR.	168
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 - Part 2 : 2001 (Reaff. 2012) (D)	80 24 HR.	7.1

END

Report Verified By



For Mitra S. K. Private Limited



Authorised Signatory



## Address of Laboratory :

Building No. F-46, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700013  
West Bengal  
Tel.: +91 7644036120  
Email: udayanlab@mitrask.com



TC-0200



Scan for Portal

URL: TC-69502400001552F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West

AtPo: Joda, Dist.: Kooch Bihar, Odisha - 755034 India

### Report No. :

MSKPL/ED/2023-24/F1147D

### Date :

03/02/2024

### Sample No. :

MSKMB/ED/2023-24/D1/W51A2X

### Date of receipt of sample:

11/01/2024

### Date(s) of performance:

11/01/2024 - 02/02/2024

### Location of performance of

Permansel Facility

### Reference No. & Date :

3000158017/056, Date - 16/09/2023

### Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	NA
4. Date of sampling	08/01/2024
5. Place of sampling	Near Gangeguda Pit, JWM
6. Environmental conditions during sampling & transport	1) Temperature (12-26 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182 (Part 11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Kr Mondal Nait, Nishu Kr Setty
9. Field Equipments Used	MSK/IS/USEPA/GRDS-4

Report No. : MSKPL/ED/2023-24/F1147D

Sample No. : MSKMB/ED/2023-24/D1/W51A2X

## RESULT

### Chemical

Sl No.	Parameter	UDM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	8 (Annual)	BDL (DL: 1.0)
2	Benzene	micro g/m3	IS 5182 (Part 11)	8 (Annual)	BDL (DL: 4.2)
3	Benzol(s)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL (DL: 0.5)
4	Lead as (Pb)	micro g/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL (DL: 0.01)
5	Manganese as Mn	micro g/m3	USEPA-IO 3.4, June	Not Specified	0.42
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	10.2

Observation : Limit as per CPCB notification, New Delhi, 18th November 2000, for Ambient air quality

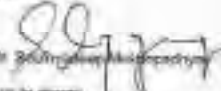
Statement of Conformity : NA

— END —

Reviewed By

Signature:   
Name: Dr. Divyansu Saroj  
Designation: Technical in charge

Authorized Signatory

Signature:   
Name: Dr. Subhankar Mondal  
Designation: Lab in charge

The results relate only to the item(s) tested.

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 10 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 10 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report. The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Baked Water, Baked food) shall be retained for 10 days from the date of issue of the Test Report.

Head Office: Shree Ganga (M) House, 7/18, A.J.D. Road, Bhubaneswar - 751001, West Bengal, India  
Tel.: +91 674140001 / 2263007 Fax: +91 20 2263039  
Email: info@mitrask.com Website: www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MSM) Joda West

At/Pl: Joda Dist: Keonjhar, Orissa-756034 India Pin

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/004463

14/07/2024

MSKGL/ED/2023-24/0100409

100156017/056, Date: 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	DS/0801/2024
3. Unique identification of sample(s) any	Joda West Iron & Mn. Mines
4. Date of sampling	09/01/2024
5. Place of sampling	Near Dapigapada (No. Jhama)
6. Environmental conditions during sampling & transport	Clear & Sunny
7. Sampling Point & Method used	NA

Report No. : MSKGL/ED/2023-24/004463

Sample No. : MSKGL/ED/2023-24/0100428

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	IAQM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	25.2
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 Part 10:1989 (Reaff.2014) (HNI) (C)	2 8HR	0.53
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 Part 6:2006 (Reaff.2017) (C)	80 24 HR.	22.8
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	601(DL2010)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 Part 22:2008 (Reaff. 2012) (C)	450 24 HR.	219
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (PT-24)2013 (C)	60 24 HR.	104
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 Part 3:2001 (Reaff.2012) (C)	80 24 HR.	7.3

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory

Head Office:-

Street Centre (Old Floor), MSK, A.I.C. Road, Baidik, Joda - 756035, West Bengal, India.  
 Tel: +91 91 42 543000 / 0366887 Fax: +91 91 42 543000  
 Email: info@skprivatelimited.com www.skpl.com

Page 1 of 1



## Address of Laboratory :

Building No. P- 46, Udayan Industrial Estate,  
3, Pagaranga Road, Kolkata 700115  
West Bengal  
Tel : +91 7044036120  
Email: udayanlah@mitrask.com



TC-4950



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ULR: TC-69502400001653F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

APCo - Joda, Dist. - Kharagpur, Odisha - 756034 - INDIA

### Report No. :

MSKPL/ED/2023-24/G1147E

### Date :

03/02/2024

### Sample No. :

MSKNB/ED/2023-24/G1/271A5X

### Date of receipt of sample:

11/01/2024

### Date(s) of performance:

11/01/2024 - 02/02/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156017/056, Date : 10/09/2023

### Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results.

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	08/01/2024
5. Place of sampling	Near H-Quarry Rest Shelter, JMM
6. Environment(s) conditions during sampling & Transport	1) Temperature: 12.20 (avg C 2) Barometric Pressure: 734 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(Part 11 & 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Kr Mantri Nair, Akash Kr Setty
9. Field Equipments Used	MSK/BELFIELD/RDS-2

Report No. : MSKPL/ED/2023-24/G1147E

Sample No. : MSKNB/ED/2023-24/G1/271A5X

## RESULT

Chemical					
Sl.No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BOL(DL:1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	5 (Annual)	BOL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BOL(DL:0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.01
5	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	0.32
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	5.1

Observation : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed by:

Signature:

Name: Dr. Devdatta Sarin

Designation: Technical in charge

Authorized Signatory:

Signature:

Name: Dr. Subhankar Mukherjee

Designation: Lab in charge

The results relate only to the sample tested.

The Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The retained part of sample(s) for chemical analysis (from - penetrable sample(s) Ford, Wood) shall be retained for 15 days from the date of issue of the Test Report. Penetrable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Vents) shall be retained for 15 days as per CPCB guidance &amp; (Air) 1 month from the date of issue of the Test Report. The retained part of sample(s) for Microbiology analysis (Water - penetrable sample(s) Ford, Sealed water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Bhuvan Centre (Bhuvan) 746, A.J.C. Road, Kolkata - 700115, West Bengal, India.  
Tel: 91-31-40143007/22580007 Fax: 91-31-22580008  
Email: info@mitrask.com Website: www.mitrask.com



# Mitra S. K. Private Limited

Address of Branch :

P.O. Barhi (Koraput District) 758 035



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## TEST REPORT

Name & Address of Customer :

Tan Steel Ltd (MGM) Joda West

APPO - Joda, Dist. - Nayagarh, Odisha - 758034 India Pin

Report No.

MSKGLIED/2023-24/004459

Date :

03/02/24

Sample No. :

MSKGLIED/2023-24/01/00429

Reference No. & Date :

300015/017/008, Date - 15/06/2021

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Air
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron Mn. Mines
4. Date of sampling	08/01/2024
5. Place of sampling	Near H. Quality Iron Mines, Joda West
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGLIED/2023-24/004459

Sample No. : MSKGLIED/2023-24/01/00429

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Amonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	15.5
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 - Part 10 : 1999 (Reaff. 2014) (NDIR) (C)	7 8HR.	0.49
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 - Part 6 : 2006 (Reaff. 2012) (O)	80 24 HR.	26.6
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 5)	180 1 HR.	NDL (DL-25.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 Part 23:2006 (Reaff. 2012) (O)	100 24 HR.	230
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (PT-24):2015 (O)	60 24 HR.	98
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 - Part 2 : 2001 (Reaff. 2012) (O)	80 24 HR.	8.5

—END—

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pajladanga Road, Kolkata 700016  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-0990



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URL: TC-095024000001658F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

WFO - Joda, Dist. - Keonjhar, Odisha - 751034 India

Report No. :

MSKPLED/2023-24/5114ED

Date :

08/02/2024

Sample No. :

MSKNB/ED/2023-24/01/R61A60

Date of receipt of sample:

12/01/2024

Date(s) of performance:

12/01/2024 - 02/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/055, Date - 19/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	NA
4. Date of sampling	08/01/2024
5. Place of sampling	Near H-Quarry Rest Shelter JWMM
6. Environmental conditions during sampling & Transport	1) Temperature: 31-27 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182 (Part 1 & 2) & USEPA
8. Identification of the personnel performing sampling by MSK	Lalit Mall, Akash Kumar Sanyal, Pratik Kr. Maitra
9. Field Equipments Used	MSK/BBL/FIELD/TEST

Report No. : MSKPLED/2023-24/5114ED

Sample No. : MSKNB/ED/2023-24/01/R61A60

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BOL (DL-1 d)
2	Benzene	micro gm/m3	IS 5182 (Part 1)	5 (Annual)	BOL (DL-1.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 1)	1 (Annual)	BOL (DL-0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	5 (24 Hours)	6.09
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.18
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	20.8

Option : Limit as per GPCB notification, New Delhi, 18th November 2000, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

Name:

Dr. Devendra Banerjee

Designation : Technical In-charge

Authorized Signatory:

Signature:

Name:

Subin Chakraborty

The results relate only to the sample(s) tested.

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The reported sample(s) for chemical analysis (Non - perishable sample(s) Food: Water shall be reported for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be received 2 days from the date of issue of the Test Report.

The reported sample(s) for microbiological analysis (Food, Acidic & Liquid Waste) shall be received for 15 days as per GPCB (as per A-1) 1 month from the date of issue of the Test Report.

The reported sample(s) for Microbiological analysis (Non - perishable sample(s) Food: Sewage Water: Soils) shall be received for 15 days from the date of issue of the Test Report.

Head Office:

Second Level (Hill View) 780, A.I.C. Bank Road, Kolkata - 700016, West Bengal, India

Ph : 91 81 4044070 / 2260007 Fax : 91 81 2850006

Email : mskenquiry@mitrask.com Website : www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MSK) Joda West

APPC - Joda, Dist. - Keonjhar, Odisha - 750034 India Pin

Report No. :

MSKGL/ED/2023-24/004467

Date :

10/02/2024

Sample No. :

MSKGL/ED/2023-24/01/00434

Reference No. & Date :

3/00155017/056, Date - 15/09/2023

We hereby certify that the following samples Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn. Mines
4. Date of sampling	09/01/2024
5. Place of sampling	Near H Quarry (Iron Ore) Joda West
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004467

Sample No. : MSKGL/ED/2023-24/01/00434

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Aerosols (M10)	micro gram/m3	IS 5182 (Part 25)	400 24 HR	16.6
2	Carbon Monoxide (CO)	ppm/3	IS 5182 : Part 10 (1999) (Reaff. 2014) (MMSy) (D)	2 8HR	1.48
3	Nitrogen Dioxide (NO2)	micro gram/m3	IS 5182 : Part 11 : 2006 (Reaff. 2012) (D)	80 24 HR	26.5
4	Ozone (O3)	micro gram/m3	IS 5182 (Part 3)	180 1 HR	BOL (DL-20.8)
5	Particulate Matter (<10um)	micro gram/m3	IS 5182: Part 23:2006 (Reaff. 2012) (D)	100 24 HR	337
6	Particulate Matter (<2.5um)	micro gram/m3	IS 5182 (P1-24), 2010 (D)	60 24 HR	120
7	Sulphur Dioxide (SO2)	micro gram/m3	IS 5182 : Part 2 : 2001 (Reaff. 2012) (D)	80 24 HR	7.5

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagedanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7844038120  
Email: udayanlab@mitrask.com



TC-0900



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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MSM), Joda West.

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSK/PLUEDR2023-24/N114CJ1

## Date :

03/02/2024

## Sample No. :

MSKNB/ED/2023-24/01/PX1A34

## Date of receipt of sample:

12/01/2024

## Date(s) of performance:

12/01/2024 - 02/02/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

30CO156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	NA
4. Date of sampling	09/01/2024
5. Place of sampling	Near Gangaguda Pk JNMW
6. Environmental conditions during sampling & Transport	1) Temperature: 11-27 deg C 2) Barometric Pressure: 736 mm of Hg 3) Rain Fall No & Cold Chain Maintained
7. Sampling Plan & Method used	IS-5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Lalin Nair, Akash Kumar Sanyal, Pratik Kr. Mani
9. Field Equipments Used	MSKGBLFIELD/FDS-4

Report No. : MSK/PLUEDR2023-24/N114CJ1

Sample No. : MSKNB/ED/2023-24/01/PX1A34

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ug/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4 - June	1 (24 Hours)	0.01
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4 - June	Not Specified	0.24
6	Nickel as Ni	ng/m3	USEPA-IO 3.4 - June	20 (Annual)	5.3

Option : Limit as per CPCB notification: New Delhi, 16th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name

Designation

Dr. Debashis Sanyal

Dr. Debashis Sanyal

Technical In-charge

Authorized Signatory:

Signature

Name

Designation

Dr. Debashis Sanyal

Dr. Debashis Sanyal

Lab In-charge

The results relate only to the sample received.

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The retention period of samples for chemical analysis (for non-hazardous samples) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. (Hazardous samples) shall be retained 30 days from the date of issue of the Test Report.

The retention period of samples for microbiological analysis (for food &amp; food related) shall be retained for 15 days as per CPCB guideline &amp; (for 1 month from the date of issue of the Test Report).

The retention period of samples for microbiological analysis (for non-food related) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Office: Centre (B-Block), T4B, J.C.C. West Road, KOLKATA - 700015, West Bengal, India.  
Tel. : 91 35 441 0000/2210007 Fax : 33 2255000  
Email: info@mitrask.com Website: www.mitrask.com

Page 1 of 1



## Address of Branch :

P.O, Balbh Dr Kachhara Gress 755 034



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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd, (MSK) Joda West

AsPu. - Joda, Dist. - Keonjhar, Odisha - 755034 India Pin

Report No. :

MSKGL/ED/2023-24/004458

Date :

15/09/2024

Sample No. :

MSKGL/ED/2023-24/01/00433

Reference No. &amp; Date :

00001500177055, Date : 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West from Ms. Mines
4. Date of sampling	09/01/2024
5. Place of sampling	Near Gangajyoti Pt. WMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	N/A

Report No. : MSKGL/ED/2023-24/004458

Sample No. : MSKGL/ED/2023-24/01/00433

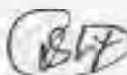
## RESULT

## Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	13.1
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182, Part 10, 1999 (Reaff 2014) (NDIR) (O)	2 24 HR.	0.43
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182, Part 5, 2005 (Reaff 2012) (O)	80 24 HR.	23.7
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL (DL-25.0)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182- Part 23/2505 (Reaff. 2012) (O)	100 24 HR.	158
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (PT-24) 2019 (O)	80 24 HR.	93
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182, Part 2, 2001 (Reaff 2012) (O)	80 24 HR.	1.0

— END —

Report Verified By



For Mitra S. K. Private Limited


  
 Authorised Signatory



## Address of Laboratory :

Building No: P-48, Udayan Industrial Estate,  
3, Pajladanga Road, Kolkata 700015  
West Bengal  
Tel: +91 7744036120  
Email: udayanlab@mitrask.com



TC-9830



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URL: TC-695024000001658F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM), Joda West

AMPO - Joda, Dist. - Koojhar, Orissa - 758034, India

## Report No. :

MSKPL/ED/2023-24/T114AU

## Date :

03/02/2024

## Sample No. :

MSKNB/ED/2023-24/01/NB1A5R

## Date of receipt of sample:

12/01/2024

## Date(s) of performance:

12/01/2024 - 02/02/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

5000158017/056, Date - 16/08/2023

## Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	08/01/2024
5. Place of sampling	Near D-Quarry Spring + 2nd JYMMM
6. Environmental conditions during sampling & transport	1) Temperature : 11-27 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain Fall No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 1152 (P-TT 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Lalit Nair, Akash Kumar Sanyal, Pratik K. Mandal
9. Field Equipments Used	MSK/BBU/FIELD/R05-5

Report No. : MSKPL/ED/2023-24/T114AU

Sample No. : MSKNB/ED/2023-24/01/NB1A5R

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1.	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL/DL 1.0
2.	Benzene	micro gm/m3	IS 5182 (Part 13)	5 (Annual)	BDL/DL 4.2
3.	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	3 (Annual)	BDL/DL 0.5
4.	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	R/N (TL 0.01)
5.	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.08
6.	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL/DL 5.0

Opinion: Limit as per CPCB notification, New Delhi, 18th November 2008, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed by:

Signature:

Name: Dr. Devdatta Banerjee

Designation: Technical In-charge

Authorized Signatory

Signature:

Name: Dr. Sanyukta Banerjee

Designation: Lab in-charge

The results relate only to the item(s) tested.

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The retained part of sample(s) for chemical analysis (both - inorganic &amp; organic compounds) Food, Water shall be retained for 15 days from the date of issue of the Test Report. For stable sample(s) shall be retained 3 days from the date of receipt of the Test Report.

The retained part of sample(s) for microbiological analysis (both - germinable sample(s) food, Sealed water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

The retained part of sample(s) for microbiological analysis (both - germinable sample(s) food, Sealed water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Greenfield Corridor (35 Phase), TMC, A-3-A, New Phase Kolkata - 700016, West Bengal, India.

Tel: 01-33-40143300 / 22650007 Fax: 91-33-22650009

Email: jtr@mitrask.com Website: www.mitrask.com





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## Name & Address of Customer :-

PRV Steel Ltd/MGM, Joda West

ADPs - Joda, Dist - Kanchi, Orissa - 758034 India Pin

## TEST REPORT

Report No. :

MSKQ/ED/2023-24/004460

Date :

09/03/2024

Sample No. :

MSKQ/ED/2023-24/01/00432

Reference No. & Date :

0001060177886, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	09/03/2024
5. Place of sampling	Near D-Quarry Surting Yard Joda West
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKQ/ED/2023-24/004460

Sample No. : MSKQ/ED/2023-24/01/00432

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	14.0
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 Part 10 : 1998 (Reaff. 2014) INDRO (O)	2 9HR.	0.18
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 : Part 5 : 2006 (Reaff. 2012) (O)	80 24 HR.	26.8
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 5)	180 1 HR.	BDL (DL:20.0)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 3182: Part 23:2006 (Reaff. 2012) (O)	100 24 HR.	241
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (PT-24):2019 (O)	60 24 HR.	100
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 : Part 1 : 2001 (Reaff. 2012) (O)	80 24 HR.	7.2

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pajladanga Road, Kolkata 700015  
West Bengal  
Tel: +91 7044036120  
Email: udayanlab@mitraspk.com



TC-0996



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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM), Joda West

At/Po. - Joda, Dist - Khenjer, Odisha - 758034 INDIA

## Report No. :

MSKPL/ELN/2023-24/51147Y

## Date :

03/02/2024

## Sample No. :

MSKMB/ED/2023-24/01/811A43

## Date of receipt of sample:

12/01/2024

## Date(s) of performance:

12/01/2024 - 02/02/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/199, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	09/01/2024
5. Place of sampling	Near Railway Siding JWMM
6. Environmental conditions during sampling & transport	1) Temperature: (1-27 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain (nil) 4) & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182 (A-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Lata Naski, Akaash Kumar Saiti, Pratik Kr. Mantri
9. Field Equipments Used	MSK/SALPHIELD/RTS-2

Report No. : MSKPL/ED/2023-24/51147Y

Sample No. : MSKMB/ED/2023-24/01/811A43

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL (DL: 1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL (DL: 4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL (DL: 0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.01
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.59
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	7.3

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed by:

Signature:

Name:

Dr. Devinder Bhardwaj

Designation:

Technical in charge

Authorized Signatory:

Signature:

Name:

Dr. Soumyadevi Mahapatra

Designation:

In-charge

The results relate only to the items tested.

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The preserved part of samples for chemical analysis (Non - perishable samples) Food, Water shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The preserved part of samples for chemical analysis (Diet, Drink &amp; Liquid Wastes) shall be retained for 10 days as per CPCB guideline (A-11) (1 month from the date of issue of the Test Report).

The preserved part of samples for Microbiological analysis (Non - perishable samples) Food, Sewage Water, Surface water shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Wipro Centre (Mitra Park), T-88, A.I.C. Road, Bhubaneswar - 751005, West Bengal, India.  
TIN - AT 23 40143003 / 22650017 Fax - 91 33 2300000  
Email - info@mitraspk.com Website - www.mitraspk.com

Page 1 of 1





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGMT) Joda West

At Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004485

Date :

10/08/2024

Sample No. :

MSKGL/ED/2023-24/01/00431

Reference No. & Date :

RCO0156017/056, Date - 15/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Steel Mines
4. Date of sampling	09/07/2024
5. Place of sampling	Near Railway Station, JWMMA
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004485

Sample No. : MSKGL/ED/2023-24/01/00431

## RESULT

### Analysis Result of Ambient Air

Sl. No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH3)	micro gram/m <sup>3</sup>	IS 5162 (Part 25)	400 24 HR.	19.9
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5162 - Part 10, 1999 (Reaff. 2014) (NIIR) (D)	2 24 HR.	0.46
3	Nitrogen Dioxide (NO2)	micro gram/m <sup>3</sup>	IS 5162 - Part 6 2006 (Reaff. 2012) (D)	80 24 HR.	30.2
4	Ozone (O3)	micro gram/m <sup>3</sup>	IS 5162 (Part 9)	180 1 HR.	BDL (DL-20.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5162: Part 23/2006 (Reaff. 2012) (D)	100 24 HR.	225
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5132 (Pt. 24) 2019 (D)	80 24 HR.	111
7	Sulfur Dioxide (SO2)	micro gram/m <sup>3</sup>	IS 5162 - Part 2 2001 (Reaff. 2012) (D)	80 24 HR.	7.8

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pajulanga Road, Kolkata 700015,  
West Bengal  
Tel : +91 7044038120  
Email: udayanlab@mitras.com



TC-6598



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URL: TC-65982400001854E

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (NSM) Joda West

At Po. - Joda Dist. - Xanthipur, Odisha - 756034 India

Report No. :

MSKPL/ED/2023-24/J1147E

Date :

03/02/2024

Sample No. :

MSKNB/ED/2023-24/01/2/J1A2H

Date of receipt of sample:

12/01/2024

Date(s) of performance:

12/01/2024 - 02/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000198017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	08/01/2024
5. Place of sampling	Near Time Office, JWMM
6. Environmental conditions during sampling & transport	1) Temperature: 11-27 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain fall: No & Cont. Chain Maintained
7. Sampling Plan & Method used	IS 5182 (Part 11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Latin Nalk, Akash Kumar Serty, Prash Kr. Mondal
9. Field Equipments Used	MSK/BB/FIELD/RCDS-3

Report No. : MSKPL/ED/2023-24/J1147E

Sample No. : MSKNB/ED/2023-24/01/2/J1A2H

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	9 (Annual)	BCL (CL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BCL (CL:4.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BCL (CL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BCL (CL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.29
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BCL (CL:5.0)

Option : Limit as per CPCB notification, New Delhi, 16th November 2000, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature:   
Name: Dr. Devottam Banerjee  
Designation: Technical In charge

Authorized Signatory:

Signature:   
Name: Dr. Subhrajit Mukherjee  
Designation: Lab in charge

The results shown only to the client (s) listed.  
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The retained part of sample(s) for chemical analysis (Solid - particulate sample(s) Road, Water) shall be retained for 15 days from the date of issue of the Test Report. Particulate sample(s) shall be retained 2 days from the date of issue of the Test Report.  
The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid (Nose)) shall be retained for 15 days as per CPCB guideline & (All) it would from the date of issue of the Test Report.  
The retained part of sample(s) for microbiological analysis (Food - particulate sample(s) Food, Drinking Water, Sewage water) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Ground Floor, 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel : 91 33 4014300 / 3365000 Fax: 91 33 2265000  
Email: info@mitras.com Website: www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

As/To : Joda, Dist:- Keonjhar, Odisha - 758034 India Ph

Report No. :

MSKGL/ED/2023-24/004462

Date :

15/03/2024

Sample No. :

MSKGL/ED/2023-24/01/00430

Reference No. & Date :

SRU/156/17/005, Date - 15/03/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	09/01/2024
5. Place of sampling	Near Tata Office JWM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004462

Sample No. : MSKGL/ED/2023-24/01/00430

## RESULT

### Analysis Result of Ambient Air

Sl.No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH3)	micro gram/m3	IS 5182 (Part 26)	400 24 HR.	17.2
2	Carbon Monoxide (CO)	mg/m3	IS 5182 - Part 10 : 1999 (Reaff. 2014) (NDEI) (I)	2 8HR.	0.06
3	Nitrogen Dioxide (NO2)	micro gram/m3	IS 5182 - Part 6 : 2006 (Reaff. 2012) (O)	80 24 HR.	25.5
4	Ozone (O3)	micro gram/m3	IS 5182 (Part 5)	180 1 HR.	BDL (CL. 20.0)
5	Particulate Matter (<10um)	micro gram/m3	IS 5182 - Part 24:2006 (Reaff. 2012) (O)	100 24 HR.	191
6	Particulate Matter (<2.5um)	micro gram/m3	IS 5182 (PT-24) 2019 (O)	60 24 HR.	165
7	Sulphur Dioxide (SO2)	micro gram/m3	IS 5182 - Part 2 : 2001 (Reaff. 2012) (O)	80 24 HR.	7.8

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P-40, Udayan Industrial Estate,  
3, Pajmanga Road, Kolkata 700015,  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-69502400001725F

## TEST REPORT

## Name &amp; Address of Customer :

Tara Steel Ltd.(MGM) Joda West

Address - Joda Dist - Howrah, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/G1207G

Date :

05/02/2024

Sample No. :

MSKNB/ED/2023-24/01/WE24BM

Date of receipt of sample:

15/01/2024

Date(s) of performance:

15/01/2024 - 05/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/058, Date - 15/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	15/01/2024
5. Place of sampling	NEAR TIME OFFICE - JWM
6. Environmental conditions during sampling & Transport	1) Temperature: 10.26 deg C 2) Barometric Pressure: 733 mm of Hg 3) Rain fall: No & Good Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-1,12) & USEPA
8. Identification of the personnel performing sampling by MSK	PRATIK KUMAR MANTRO, LALIN KUMAR NAIK
9. Field Equipments Used	MSKRB/L/FIELD/RDS-3

Report No. : MSKPL/ED/2023-24/G1207G

Sample No. : MSKNB/ED/2023-24/01/WE24BM

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:1.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.05
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.33
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	5.4

Options : Limit as per CPCB notification, New Delhi, 19th November 2008, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

Name: Dr. Debajyoti Banerjee

Designation: Technical in charge

Authorized Signatory

Signature:

Name: Dr. Soumitra Mukherjee

Designation: Lab in charge

This Report valid only to the above named

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Sealed Vessel, Sealed Soil) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) for microbiological analysis (Non - perishable sample(s) Food, Sealed Vessel, Sealed Soil) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: 3rd Floor, 14th Floor, T-16, A J.C. Road Road, Scheme - 7/0015, West Bengal, India.  
Tel : 91 42 40143000 / 22550001 to 91 93 20550008  
Email: info@mitrask.com Website: www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (NSM) Joda West

ANP, Joda, Dist. - Paschim Medinipur - 758034 India Pin

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/04486

15/01/2024

MSKGL/ED/2023-24/0100089

3000156017, Date - 26/01/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn. Mine
4. Date of sampling	15/01/2024
5. Place of sampling	Near Tata Office (NSM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/04486

Sample No. : MSKGL/ED/2023-24/0100089

## RESULT

### Analysis Result of Ambient Air

Sl.No	Parameter	UOM	Method	Limit	Result
1	Ambient (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 15)	400 24 HR.	12.5
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10) 1993 (Reaff 2014) (NO. 1) (C)	2 8HR.	0.55
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 6) 2006 (Reaff 2012) (C)	80 24 HR.	21.2
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL (DL 20.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 (Part 25) 2006 (Reaff 2012) (C)	100 24 HR.	240
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) 2019 (C)	60 24 HR.	123
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 3) 2001 (Reaff 2012) (C)	80 24 HR.	10.2

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :-

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3, Pajladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-8950



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DLR: TC-89502400000170F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM) Joda West

WPO, - Joda, Dist. - Kalanjar, Odisha - 756034 India

## Report No. :

MSKPL/ED/2023-24/W/1205J

## Date :

05/02/2024

## Sample No. :

MSKNB/ED/2023-24/D1/4G348UJ

## Date of receipt of sample:

18/01/2024

## Date(s) of performance:

18/01/2024 - 05/02/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date

3000156017/156, Date - 16/08/2023

## Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	NA
4. Date of sampling	15/01/2024
5. Place of sampling	NEAR RAILWAY SIDING - JMM
6. Environmental conditions during sampling & Transport	1) Temperature: 10-25 (Avg C 2) Barometric Pressure: 733 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182 (P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	PRATIK KUMAR MANDRI, LALIN KUMAR NAIK
9. Field Equipments Used	MSK/BB/FIELD/RDS-3

Report No. : MSKPL/ED/2023-24/W/1205J

Sample No. : MSKNB/ED/2023-24/D1/4G348UJ

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.57
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	10.3

Opinion : Limit as per CPCB notification, New Delhi, 19th November 2009 for ambient air quality.

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name

Designation

P. Jeyaraj  
Mr. P. Jeyaraj  
Executive Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Koushik Dasgupta  
Lab. In charge

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The retained part of sample(s) for chemical analysis (Water - grab/sample(s) Food - Water) shall be retained for 15 days from the date of issue of the Test Report. For chemical sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guidelines (for) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Water - grab/sample(s) Food - Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:   
Sriwata Centre (1st Floor) 248, A. J. C. Road Road, Jodhpur - 705001, West Bengal, India  
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## TEST REPORT

### Name & Address of Customer

Tata Steel Ltd (WGL) Joda West

AMPD - Joda, Dist. - Kanchihar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004493

Date :

10/02/2024

Sample No. :

MSKGL/ED/2023-24/01000044

Reference No. & Date :

3000156017, Date - 20/08/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:-

1. Group	Air
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	15/01/2024
5. Place of sampling	Major Railway Station, Joda West
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Device & Method used	NA

Report No. : MSKGL/ED/2023-24/004493

Sample No. : MSKGL/ED/2023-24/01000044

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR	24.2
2	Carbon Monoxide (CO)	mg/m3	IS 5182: Part 19:1999 (Reaff. 2014) (NIR) (C)	2 8HR	0.56
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182: Part 6:2005 (Reaff. 2012) (C)	80 24 HR	25.8
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	160 1 HR	306.0 (DL 20.0)
5	Particulate Matter (<10um)	micro gm/m3	IS 5182: Part 21:2006 (Reaff. 2012) (C)	100 24 HR	107
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24) 2018 (C)	60 24 HR	105
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182: Part 2:2005 (Reaff. 2012) (C)	80 24 HR	10.2

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

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West Bengal  
Tel.: +91 7044036120  
Email: udayanlab@mitras.com



TC-0950



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

A/Po: Joda, Dist: -Bongaigaon, Odisha -758034, India

### Report No. :

MSKPL/ED/2023-24/H1205M

### Date :

05/02/2024

### Sample No. :

MSKNB/ED/2023-24/01/A6248W

### Date of receipt of sample:

16/01/2024

### Date(s) of performance:

16/01/2024 - 05/02/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156017/058, Date- 16/09/2023

### Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	15/01/2024
5. Place of sampling	NEAR O-QUARRY SORTING YARD - JWMM
6. Environmental conditions during sampling & transport	1) Temperature: 10-25 deg C 2) Barometric Pressure: 733 mm of Hg 3) Rain fall: No & Cold-Chain Maintenance
7. Sampling Plan & Method used	IS 5182(P-1 & 12) & USEPA
8. Identification of the personnel performing sampling by MSK	PRATIK KUMAR MANTRI, LAJIN KUMAR NAIK
9. Field Equipments Used	MSKBDU/FB/DFCS-6

Report No. : MSKPL/ED/2023-24/H1205M

Sample No. : MSKNB/ED/2023-24/01/A6248W

## RESULT

Chemical					
Sl No	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5102 (Part 1)	5 (Annual)	BDL(DL:4.2)
3	Benzole(Pyrene)	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	N/A Specified	0.45
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : (H)

— END —

Reviewed By:

Signed:

Name:

Designation:

Mr. P. Ganguly

Discipline Chief

Authorized Signatory:

Signature:

Name:

Designation:

Dr. P. Ganguly

Lab in charge

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The reserved part of the report for chemical analysis (Iron - permeable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Permeable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of the report for chemical analysis (Soil, Iron &amp; Lead) shall be retained for 15 days as per CPCB guidelines &amp; for 1 month from the date of issue of the Test Report.

The reserved part of the report for chemical analysis (Iron - permeable sample(s) Food, Surface Water, Soiled food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: B-10/1, (Opposite the Kanyasulk Ashram, A.C. Road, Kalyan, Kolkata - 700010, West Bengal, India.

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Email: info@mitras.com Website: www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

At/Po : Joda, Dist : Keonjhar, District - 758034 India Pin

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGLTD/2023-24/004491

15/02/2024

MSKGLTD/2023-24/0100588

2002156017 Date - 28/09/2023

We hereby certify that the following sample given by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	15/01/2024
5. Place of sampling	Nagar D. Quarry, Sising, Yana, WBM
6. Environmental conditions during sampling & transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGLTD/2023-24/004491

Sample No. : MSKGLTD/2023-24/0100588

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ambient (NH3)	micro g/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	14.5
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 Part 16 (1999 Reaff 2014) (NDRL) (C)	2 8HR.	0.44
3	Nitrogen Dioxide (NO2)	micro g/m <sup>3</sup>	IS 5182 Part 6 (2006 Reaff 2012) (C)	30 24 HR.	21.0
4	Ozone (O3)	micro g/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	ND (LOD < 20.0)
5	Particulate Matter (<10um)	micro g/m <sup>3</sup>	IS 5182 Part 25 (2006 Reaff 2012) (C)	100 24 HR.	244
6	Particulate Matter (<2.5um)	micro g/m <sup>3</sup>	IS 5182 (Part 24) 2019 (C)	60 24 HR.	105
7	Sulphur Dioxide (SO2)	micro g/m <sup>3</sup>	IS 5182 Part 11 (2001 Reaff 2012) (C)	80 24 HR.	8.1

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Head Office:

Block Green 30th Floor, 10th A/C, Bala Road, Kolkata - 700016, West Bengal, India.  
Tel : 91 3340142880 / 22842007 Fax : 91 33 22842022  
Email : ksp@msk.com Website : www.msk.com

Page 1 of 1



## Address of Laboratory :

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3, Pagladanga Road, Kolkata 700018  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TL-6050



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ULR: TC-68502400001723F

## TEST REPORT

### Name & Address of Customer :

Tale Steel Ltd. (MSK) Joda West

ALPa - Joda, Dist. - Howrah, Odisha - 755034 India

Report No. :

MSKPL/ED/2023-24/G1206H

Date :

05/02/2024

Sample No. :

MSKNB/ED/2023-24/01/LD24AP

Date of receipt of sample:

18/01/2024

Date(s) of performance:

18/01/2024 - 05/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 18/08/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	15/01/2024
5. Place of sampling	NEAR GANGEICUDA PIT - JWMM
6. Environmental conditions during sampling & transport	1) Temperature: 19-26 (deg C) 2) Barometric Pressure: 733 mm of Hg 3) Rain fall: No. & Cold Chills: Moderate
7. Sampling Plan & Method used	IS:5162(P-1), (2) & USEPA
8. Identification of the personnel performing sampling by MSK	PRATIK KUMAR MANTRI, LALIN KUMAR NAIK
9. Field Equipments Used	MSK/BEL/FIELD DRDS-4

Report No. : MSKPL/ED/2023-24/G1206H

Sample No. : MSKNB/ED/2023-24/01/LD24AP

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ug/m3	USEPA-IO-3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO-3.4, June	1 (24 hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO-3.4, June	Not Specified	0.24
6	Nickel as Ni	ng/m3	USEPA-IO-3.4, June	20 (Annual)	5.8

Opinion : Limit as per CPCB notification: New Delhi, 18th November 2000, for Ambient air quality

Statement of Conformity : NA

END

Reviewed By:

Signature:

Name:

Designation: Technical in charge

Authorized Signatory:

Signature:

Name:

Designation: Lab In Charge

The results state only for the sample(s) tested.

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Water &amp; Liquid sample(s)) shall be retained for 15 days as per CPCB guidelines (every 1 month from the date of issue of the Test Report).

The retained part of sample(s) for microbiological analysis (Non - perishable sample(s) Food, Bacteria Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: 3/5, 4/13, 4/14, 4/15, 4/16, 4/17, 4/18, 4/19, 4/20, 4/21, 4/22, 4/23, 4/24, 4/25, 4/26, 4/27, 4/28, 4/29, 4/30, 4/31, 4/32, 4/33, 4/34, 4/35, 4/36, 4/37, 4/38, 4/39, 4/40, 4/41, 4/42, 4/43, 4/44, 4/45, 4/46, 4/47, 4/48, 4/49, 4/50, 4/51, 4/52, 4/53, 4/54, 4/55, 4/56, 4/57, 4/58, 4/59, 4/60, 4/61, 4/62, 4/63, 4/64, 4/65, 4/66, 4/67, 4/68, 4/69, 4/70, 4/71, 4/72, 4/73, 4/74, 4/75, 4/76, 4/77, 4/78, 4/79, 4/80, 4/81, 4/82, 4/83, 4/84, 4/85, 4/86, 4/87, 4/88, 4/89, 4/90, 4/91, 4/92, 4/93, 4/94, 4/95, 4/96, 4/97, 4/98, 4/99, 4/100, 4/101, 4/102, 4/103, 4/104, 4/105, 4/106, 4/107, 4/108, 4/109, 4/110, 4/111, 4/112, 4/113, 4/114, 4/115, 4/116, 4/117, 4/118, 4/119, 4/120, 4/121, 4/122, 4/123, 4/124, 4/125, 4/126, 4/127, 4/128, 4/129, 4/130, 4/131, 4/132, 4/133, 4/134, 4/135, 4/136, 4/137, 4/138, 4/139, 4/140, 4/141, 4/142, 4/143, 4/144, 4/145, 4/146, 4/147, 4/148, 4/149, 4/150, 4/151, 4/152, 4/153, 4/154, 4/155, 4/156, 4/157, 4/158, 4/159, 4/160, 4/161, 4/162, 4/163, 4/164, 4/165, 4/166, 4/167, 4/168, 4/169, 4/170, 4/171, 4/172, 4/173, 4/174, 4/175, 4/176, 4/177, 4/178, 4/179, 4/180, 4/181, 4/182, 4/183, 4/184, 4/185, 4/186, 4/187, 4/188, 4/189, 4/190, 4/191, 4/192, 4/193, 4/194, 4/195, 4/196, 4/197, 4/198, 4/199, 4/200, 4/201, 4/202, 4/203, 4/204, 4/205, 4/206, 4/207, 4/208, 4/209, 4/210, 4/211, 4/212, 4/213, 4/214, 4/215, 4/216, 4/217, 4/218, 4/219, 4/220, 4/221, 4/222, 4/223, 4/224, 4/225, 4/226, 4/227, 4/228, 4/229, 4/230, 4/231, 4/232, 4/233, 4/234, 4/235, 4/236, 4/237, 4/238, 4/239, 4/240, 4/241, 4/242, 4/243, 4/244, 4/245, 4/246, 4/247, 4/248, 4/249, 4/250, 4/251, 4/252, 4/253, 4/254, 4/255, 4/256, 4/257, 4/258, 4/259, 4/260, 4/261, 4/262, 4/263, 4/264, 4/265, 4/266, 4/267, 4/268, 4/269, 4/270, 4/271, 4/272, 4/273, 4/274, 4/275, 4/276, 4/277, 4/278, 4/279, 4/280, 4/281, 4/282, 4/283, 4/284, 4/285, 4/286, 4/287, 4/288, 4/289, 4/290, 4/291, 4/292, 4/293, 4/294, 4/295, 4/296, 4/297, 4/298, 4/299, 4/300, 4/301, 4/302, 4/303, 4/304, 4/305, 4/306, 4/307, 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5/023, 5/024, 5/025, 5/026, 5/027, 5/028, 5/029, 5/030, 5/031, 5/032, 5/033, 5/034, 5/035, 5/036, 5/037, 5/038, 5/039, 5/040, 5/041, 5/042, 5/043, 5/044, 5/045, 5/046, 5/047, 5/048, 5/049, 5/050, 5/051, 5/052, 5/053, 5/054, 5/055, 5/056, 5/057, 5/058, 5/059, 5/060, 5/061, 5/062, 5/063, 5/064, 5/065, 5/066, 5/067, 5/068, 5/069, 5/070, 5/071, 5/072, 5/073, 5/074, 5/075, 5/076, 5/077, 5/078, 5/079, 5/080, 5/081, 5/082, 5/083, 5/084, 5/085, 5/086, 5/087, 5/088, 5/089, 5/090, 5/091, 5/092, 5/093, 5/094, 5/095, 5/096, 5/097, 5/098, 5/099, 5/100, 5/101, 5/102, 5/103, 5/104, 5/105, 5/106, 5/107, 5/108, 5/109, 5/110, 5/111, 5/112, 5/113, 5/114, 5/115, 5/116, 5/117, 5/118, 5/119, 5/120, 5/121, 5/122, 5/123, 5/124, 5/125, 5/126, 5/127, 5/128, 5/129, 5/130, 5/131, 5/132, 5/133, 5/134, 5/135, 5/136, 5/137, 5/138, 5/139, 5/140, 5/141, 5/142, 5/143, 5/144, 5/145, 5/146, 5/147, 5/148, 5/149, 5/150, 5/151, 5/152, 5/153, 5/154, 5/155, 5/156, 5/157, 5/158, 5/159, 5/160, 5/161, 5/162, 5/163, 5/164, 5/165, 5/166, 5/167, 5/168, 5/169, 5/170, 5/171, 5/172, 5/173, 5/174, 5/175, 5/176, 5/177, 5/178, 5/179, 5/180, 5/181, 5/182, 5/183, 5/184, 5/185, 5/186, 5/187, 5/188, 5/189, 5/190, 5/191, 5/192, 5/193, 5/194, 5/195, 5/196, 5/197, 5/198, 5/199, 5/200, 5/201, 5/202, 5/203, 5/204, 5/205, 5/206, 5/207, 5/208, 5/209, 5/210, 5/211, 5/212, 5/213, 5/214, 5/215, 5/216, 5/217, 5/218, 5/219, 5/220, 5/221, 5/222, 5/223, 5/224, 5/225, 5/226, 5/227, 5/228, 5/229, 5/230, 5/231, 5/232, 5/233, 5/234, 5/235, 5/236, 5/237, 5/238, 5/239, 5/240, 5/241, 5/242, 5/243, 5/244, 5/245, 5/246, 5/247, 5/248, 5/249, 5/250, 5/251, 5/252, 5/253, 5/254, 5/255, 5/256, 5/257, 5/258, 5/259, 5/260, 5/261, 5/262, 5/263, 5/264, 5/265, 5/266, 5/267, 5/268, 5/269, 5/270, 5/271, 5/272, 5/273, 5/274, 5/275, 5/276, 5/277, 5/278, 5/279, 5/280, 5/281, 5/282, 5/283, 5/284, 5/285, 5/286, 5/287, 5/288, 5/289, 5/290, 5/291, 5/292, 5/293, 5/294, 5/295, 5/296, 5/297, 5/298, 5/299, 5/300, 5/301, 5/302, 5/303, 5/304, 5/305, 5/306, 5/307, 5/308, 5/309, 5/310, 5/311, 5/312, 5/313, 5/314, 5/315, 5/316, 5/317, 5/318, 5/319, 5/320, 5/321, 5/322, 5/323, 5/324, 5/325, 5/326, 5/327, 5/328, 5/329, 5/330, 5/331, 5/332, 5/333, 5/334, 5/





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## TEST REPORT

### Name & Address of Customer :

Tera Steel Ltd.(MGML) Joda West

AsPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004489

Date :

19/02/2024

Sample No. :

MSKGL/ED/2023-24/01/00587

Reference No. & Date :

1000156817, Date - 28/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample( if any)	Joda West Iron & Mn Mines
4. Date of sampling	18/01/2024
5. Place of sampling	New Damodarpara Rd, Joda West
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004489

Sample No. : MSKGL/ED/2023-24/01/00587

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	15.5
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 Part 19 (1989 (Reaff 2014) (NDIR) (O)	3 8HR.	0.51
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 Part E-2006 (Reaff 2012) (O)	80 24 HR.	19.4
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL(DL-20/0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 Part 29:2006 (Reaff. 2012) (O)	100 24 HR.	241
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (PT-24) 2019 (O)	60 24 HR.	115
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 Part 7 (2011 (Reaff 2012) (O)	80 24 HR.	6.7

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-46, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitra-sk.com



TC-6950



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ULR: TC-695024000001724F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM), Joda West

AMPs - Joda, Dist. - West Medinipur, Odisha - 756034 (INDIA)

### Report No. :

MSKPL/ED/2023-24/L1207T

### Date :

06/02/2024

### Sample No. :

MSKMB/ED/2023-24/01/PT2475

### Date of receipt of sample:

18/01/2024

### Date(s) of performance:

18/01/2024 - 05/02/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156017/D55, Date - 16/06/2023

### Disciplina:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	NA
4. Date of sampling	15/01/2024
5. Place of sampling	NEAR IR- QUARRY REST SHELTER - JWMM
6. Environmental conditions during sampling & Transport	1) Temperature: 10-25 deg C 2) Barometric Pressure: 733 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5102(P-11-12) & USEPA
8. Identification of the personnel performing sampling by MSK	PRATIK KUMAR MANTRI, LAJIN KUMAR NAIK
9. Field Equipments Used	MSK/BSU/FIELD/IDS-2

Report No. : MSKPL/ED/2023-24/L1207T

Sample No. : MSKMB/ED/2023-24/01/PT2475

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzol(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-IO 3.6, June	1 (24-Hour)	BDL(DL:0.01)
5	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	0.15
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Complies : Limit as per CPCB guideline, New Delhi, 10th November 2008, for Ambient air quality

Statement of Conformity : NA

END

Received By:

Signature

Name

Designation

Dr. Divyanshu Banerjee

Technician in charge

Authorized Signatory

Signature

Name

Designation

Dr. Divyanshu Banerjee

Technician in charge

The results relate only to the sample tested.

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The retained part of the sample for chemical analysis (Non-potable sample(s) Food/Water) shall be retained for 15 days from the date of issue of the Test Report. Residual sample(s) shall be retained 3 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Not Food &amp; Usual Water) shall be retained for 15 days as per CPCB guideline (Part 11) from the date of issue of the Test Report. The retained part of sample(s) for microbiological analysis (Non-potable sample(s) Food - Sealed/Unsealed - Sealed Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: 3/F, 3rd Floor, 74B, A-1, Main Road, Kolkata - 700015, West Bengal, India  
Tel. : +91 7044036120/22600017 Fax : +91 33 22600000  
Email: info@mitra-sk.com Website: www.mitra-sk.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MG) Joda West

APNo. : Joda, Dist. : Keonjhar, Odisha - 758034, India (In)

Report No. :

MSKGL/ED/2023-24/004484

Date :

18/02/2024

Sample No. :

MSKGL/ED/2023-24/0100586

Reference No. & Date :

3000150017, (Day) - 28/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	15/01/2024
5. Place of sampling	Area: P-County Road Showroom, JVMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Place & Method used	NA

Report No. : MSKGL/ED/2023-24/004484

Sample No. : MSKGL/ED/2023-24/0100586

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micro gram/m3	IS 5182 (Part 25)	400 24 HRL	13.5
2	Carbon Monoxide (CO)	mg/m3	IS 5182 : Part 10 : 1999 (Reaff. 2014) (NIRL) (C)	2 8HRL	0.03
3	Nitrogen Dioxide (NO2)	micro gram/m3	IS 5182 : Part 6 : 2006 (Reaff. 2012) (C)	80 24 HR	24.0
4	Ozone (O3)	micro gram/m3	IS 5182 (Part 9)	180 1 HR	BDL (DL 2003)
5	Particulate Matter (<10um)	micro gram/m3	IS 5182 : Part 21 : 2006 (Reaff. 2012) (C)	100 24 HRL	24.0
6	Particulate Matter (<2.5um)	micro gram/m3	IS 5182 (PT.24) 2019 (C)	60 24 HR	115
7	Sulphur Dioxide (SO2)	micro gram/m3	IS 5182 : Part 2 : 2001 (Reaff. 2012) (C)	80 24 HR	6.8

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Golding No. P-45, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mskask.com



TC-8550



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URL: TC-095024000001721F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM), Jodhpur West

At Po. - Joda Dist - Keonjhar, Orissa - 756004 India

Report No. :

MSKPL/ED/2023-24/D1205P

Date :

05/02/2024

Sample No. :

MSKMB/ED/2023-24/D1/902465

Date of receipt of sample :

10/01/2024

Date(s) of performance :

18/01/2024 - 05/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056, Date - 16/09/2023

Discipline :

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results.

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	15/01/2024
5. Place of sampling	NEAR D-QUARRY SCREEN PLANT - JMM
6. Environmental conditions during sampling & transport	1) Temperature: 10-36 deg C, 2) Barometric Pressure: 733 mm of Hg 3) Rain fall No & Cloud Cover: Maintained
7. Sampling Plan & Method used	IS 5182(P-11.12) & USEPA
8. Identification of the personnel performing sampling by MSK	PRATIK KUMAR MANTRI, LALIN KUMAR NASK
9. Field Equipments Used	MSK/BBL/FIELD/DS-6

Report No. : MSKPL/ED/2023-24/D1205P

Sample No. : MSKMB/ED/2023-24/D1/902465

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.27
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

### Opinion :

Limit as per CPCB notification, New Delhi, 16th November 2009, for Ambient air quality.

Statement of Conformity : NA

— END —

### Reviewed By:

Name : P. Ganguly  
Designation : Executive Chemist

### Authorized Signatory:

Signature : [Signature]  
Name : Dr. Subrata Kumar Mukherjee  
Designation : Lab in charge

This report is valid only for the use as stated.

This Test Report shall not be reproduced or used in full, without the permission of Mitra S. K. Private Limited.

The reserved part of specimen for chemical analysis (from - particulate sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Preservable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of specimen for Microbiology analysis (from - liquid sample(s) Food, Water) shall be retained for 15 days as per CPCB guidelines (from - particulate sample(s) Food, Sealed Vessel, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: 3/3, 3/4, 3/5, 3/6, 3/7, 3/8, 3/9, 3/10, 3/11, 3/12, 3/13, 3/14, 3/15, 3/16, 3/17, 3/18, 3/19, 3/20, 3/21, 3/22, 3/23, 3/24, 3/25, 3/26, 3/27, 3/28, 3/29, 3/30, 3/31, 3/32, 3/33, 3/34, 3/35, 3/36, 3/37, 3/38, 3/39, 3/40, 3/41, 3/42, 3/43, 3/44, 3/45, 3/46, 3/47, 3/48, 3/49, 3/50, 3/51, 3/52, 3/53, 3/54, 3/55, 3/56, 3/57, 3/58, 3/59, 3/60, 3/61, 3/62, 3/63, 3/64, 3/65, 3/66, 3/67, 3/68, 3/69, 3/70, 3/71, 3/72, 3/73, 3/74, 3/75, 3/76, 3/77, 3/78, 3/79, 3/80, 3/81, 3/82, 3/83, 3/84, 3/85, 3/86, 3/87, 3/88, 3/89, 3/90, 3/91, 3/92, 3/93, 3/94, 3/95, 3/96, 3/97, 3/98, 3/99, 3/100, 3/101, 3/102, 3/103, 3/104, 3/105, 3/106, 3/107, 3/108, 3/109, 3/110, 3/111, 3/112, 3/113, 3/114, 3/115, 3/116, 3/117, 3/118, 3/119, 3/120, 3/121, 3/122, 3/123, 3/124, 3/125, 3/126, 3/127, 3/128, 3/129, 3/130, 3/131, 3/132, 3/133, 3/134, 3/135, 3/136, 3/137, 3/138, 3/139, 3/140, 3/141, 3/142, 3/143, 3/144, 3/145, 3/146, 3/147, 3/148, 3/149, 3/150, 3/151, 3/152, 3/153, 3/154, 3/155, 3/156, 3/157, 3/158, 3/159, 3/160, 3/161, 3/162, 3/163, 3/164, 3/165, 3/166, 3/167, 3/168, 3/169, 3/170, 3/171, 3/172, 3/173, 3/174, 3/175, 3/176, 3/177, 3/178, 3/179, 3/180, 3/181, 3/182, 3/183, 3/184, 3/185, 3/186, 3/187, 3/188, 3/189, 3/190, 3/191, 3/192, 3/193, 3/194, 3/195, 3/196, 3/197, 3/198, 3/199, 3/200, 3/201, 3/202, 3/203, 3/204, 3/205, 3/206, 3/207, 3/208, 3/209, 3/210, 3/211, 3/212, 3/213, 3/214, 3/215, 3/216, 3/217, 3/218, 3/219, 3/220, 3/221, 3/222, 3/223, 3/224, 3/225, 3/226, 3/227, 3/228, 3/229, 3/230, 3/231, 3/232, 3/233, 3/234, 3/235, 3/236, 3/237, 3/238, 3/239, 3/240, 3/241, 3/242, 3/243, 3/244, 3/245, 3/246, 3/247, 3/248, 3/249, 3/250, 3/251, 3/252, 3/253, 3/254, 3/255, 3/256, 3/257, 3/258, 3/259, 3/260, 3/261, 3/262, 3/263, 3/264, 3/265, 3/266, 3/267, 3/268, 3/269, 3/270, 3/271, 3/272, 3/273, 3/274, 3/275, 3/276, 3/277, 3/278, 3/279, 3/280, 3/281, 3/282, 3/283, 3/284, 3/285, 3/286, 3/287, 3/288, 3/289, 3/290, 3/291, 3/292, 3/293, 3/294, 3/295, 3/296, 3/297, 3/298, 3/299, 3/300, 3/301, 3/302, 3/303, 3/304, 3/305, 3/306, 3/307, 3/308, 3/309, 3/310, 3/311, 3/312, 3/313, 3/314, 3/315, 3/316, 3/317, 3/318, 3/319, 3/320, 3/321, 3/322, 3/323, 3/324, 3/325, 3/326, 3/327, 3/328, 3/329, 3/330, 3/331, 3/332, 3/333, 3/334, 3/335, 3/336, 3/337, 3/338, 3/339, 3/340, 3/341, 3/342, 3/343, 3/344, 3/345, 3/346, 3/347, 3/348, 3/349, 3/350, 3/351, 3/352, 3/353, 3/354, 3/355, 3/356, 3/357, 3/358, 3/359, 3/360, 3/361, 3/362, 3/363, 3/364, 3/365, 3/366, 3/367, 3/368, 3/369, 3/370, 3/371, 3/372, 3/373, 3/374, 3/375, 3/376, 3/377, 3/378, 3/379, 3/380, 3/381, 3/382, 3/383, 3/384, 3/385, 3/386, 3/387, 3/388, 3/389, 3/390, 3/391, 3/392, 3/393, 3/394, 3/395, 3/396, 3/397, 3/398, 3/399, 3/400, 3/401, 3/402, 3/403, 3/404, 3/405, 3/406, 3/407, 3/408, 3/409, 3/410, 3/411, 3/412, 3/413, 3/414, 3/415, 3/416, 3/417, 3/418, 3/419, 3/420, 3/421, 3/422, 3/423, 3/424, 3/425, 3/426, 3/427, 3/428, 3/429, 3/430, 3/431, 3/432, 3/433, 3/434, 3/435, 3/436, 3/437, 3/438, 3/439, 3/440, 3/441, 3/442, 3/443, 3/444, 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3/731, 3/732, 3/733, 3/734, 3/735, 3/736, 3/737, 3/738, 3/739, 3/740, 3/741, 3/742, 3/743, 3/744, 3/745, 3/746, 3/747, 3/748, 3/749, 3/750, 3/751, 3/752, 3/753, 3/754, 3/755, 3/756, 3/757, 3/758, 3/759, 3/760, 3/761, 3/762, 3/763, 3/764, 3/765, 3/766, 3/767, 3/768, 3/769, 3/770, 3/771, 3/772, 3/773, 3/774, 3/775, 3/776, 3/777, 3/778, 3/779, 3/780, 3/781, 3/782, 3/783, 3/784, 3/785, 3/786, 3/787, 3/788, 3/789, 3/790, 3/791, 3/792, 3/793, 3/794, 3/795, 3/796, 3/797, 3/798, 3/799, 3/800, 3/801, 3/802, 3/803, 3/804, 3/805, 3/806, 3/807, 3/808, 3/809, 3/810, 3/811, 3/812, 3/813, 3/814, 3/815, 3/816, 3/817, 3/818, 3/819, 3/820, 3/821, 3/822, 3/823, 3/824, 3/825, 3/826, 3/827, 3/828, 3/829, 3/830, 3/831, 3/832, 3/833, 3/834, 3/835, 3/836, 3/837, 3/838, 3/839, 3/840, 3/841, 3/842, 3/843, 3/844, 3/845, 3/846, 3/847, 3/848, 3/849, 3/850, 3/851, 3/852, 3/853, 3/854, 3/855, 3/856, 3/857, 3/858, 3/859, 3/860, 3/861, 3/862, 3/863, 3/864, 3/865, 3/866, 3/867, 3/868, 3/869, 3/870, 3/871, 3/872, 3/873, 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3/1014, 3/1015, 3/1016, 3/1017, 3/1018, 3/1019, 3/1020, 3/1021, 3/1022, 3/1023, 3/1024, 3/1025, 3/1026, 3/1027, 3/1028, 3/1029, 3/1030, 3/1031, 3/1032, 3/1033, 3/1034, 3/1035, 3/1036, 3/1037, 3/1038, 3/1039, 3/1040, 3/1041, 3/1042, 3/1043, 3/1044, 3/1045, 3/1046, 3/1047, 3/1048, 3/1049, 3/1050, 3/1051, 3/1052, 3/1053, 3/1054, 3/1055, 3/1056, 3/1057, 3/1058, 3/1059, 3/1060, 3/1061, 3/1062, 3/1063, 3/1064, 3/1065, 3/1066, 3/1067, 3/1068, 3/1069, 3/1070, 3/1071, 3/1072, 3/1073, 3/1074, 3/1075, 3/1076, 3/1077, 3/1078, 3/1079, 3/1080, 3/1081, 3/1082, 3/1083, 3/1084, 3/1085, 3/1086, 3/1087, 3/1088, 3/1089, 3/1090, 3/1091, 3/1092, 3/1093, 3/1094, 3/1095, 3/1096, 3/1097, 3/1098, 3/1099, 3/1100, 3/1101, 3/1102, 3/1103, 3/1104, 3/1105, 3/1106, 3/1107, 3/1108, 3/1109, 3/1110, 3/1111, 3/1112, 3/1113, 3/1114, 3/1115, 3/1116, 3/1117, 3/1118, 3/1119, 3/1120, 3/1121, 3/1122, 3/1123, 3/1124, 3/1125, 3/1126, 3/1127, 3/1128, 3/1129, 3/1130, 3/1131, 3/1132, 3/1133, 3/1134, 3/1135, 3/1136, 3/1137, 3/1138, 3/1139, 3/1140, 3/1141, 3/1142, 3/1143, 3/1144, 3/1145, 3/1146, 3/1147, 3/1148, 3/1149, 3/1150, 3/1151, 3/1152, 3/1153, 3/1154, 3/1155, 3/1156, 3/1157, 3/1158, 3/1159, 3/1160, 3/1161, 3/1162, 3/1163, 3/1164, 3/1165, 3/1166, 3/1167, 3/1168, 3/1169, 3/1170, 3/1171, 3/1172, 3/1173, 3/1174, 3/1175, 3/1176, 3/1177, 3/1178, 3/1179, 3/1180, 3/1181, 3/1182, 3/1183, 3/1184, 3/1185, 3/1186, 3/1187, 3/1188, 3/1189, 3/1190, 3/1191, 3/1192, 3/1193, 3/1194, 3/1195, 3/1196, 3/1197, 3/1198, 3/1199, 3/1200, 3/1201, 3/1202, 3/1203, 3/1204, 3/1205, 3/1206, 3/1207, 3/1208, 3/1209, 3/1210, 3/1211, 3/1212, 3/1213, 3/1214, 3/1215, 3/1216, 3/1217, 3/1218, 3/1219, 3/1220, 3/1221, 3/1222, 3/1223, 3/1224, 3/1225, 3/1226, 3/1227, 3/1228, 3/1229, 3/1230, 3/1231, 3/1232, 3/1233, 3/1234, 3/1235, 3/1236, 3/1237, 3/1238, 3/1239, 3/1240, 3/1241, 3/1242, 3/1243, 3/1244, 3/1245, 3/1246, 3/1247, 3/1248, 3/1249, 3/1250, 3/1251, 3/1252, 3/1253, 3/1254, 3/1255, 3/1256, 3/1257, 3/1258, 3/1259, 3/1260, 3/1261, 3/1262, 3/1263, 3/1264, 3/1265, 3/1266, 3/1267, 3/1268, 3/1269, 3/1270, 3/1271, 3/1272, 3/1273, 3/1274, 3/1275, 3/1276, 3/1277, 3/1278, 3/1279, 3/1280, 3/1281,



# Mitra S. K. Private Limited

Address of Branch

P.O. Barhi Di Keonjhar Office 758 035



Scan QR Code

## TEST REPORT

Name & Address of Customer :

Tata Steel Ltd (MSK) Joda West

At Po. - Joda, Dist. - Keonjhar Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004485

Date :

10/02/2024

Sample No. :

MSKGL/ED/2023-24/0100666

Reference No. & Date :

0200156017, Date - 28/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(s)	Joda West Iron & Mn Mines
4. Date of sampling	15/01/2024
5. Place of sampling	Near Dustator Screen Plant/VPM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	1st

Report No. : MSKGL/ED/2023-24/004485

Sample No. : MSKGL/ED/2023-24/0100666

## RESULT

### Analysis Result of Ambient Air

Sr No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	15.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 : Part 10 : 1989 (Reaff. 2014) (INDIA) (C)	2 8HR.	0.58
3	Methane Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 : Part 6 : 2006 (Reaff. 2012) (C)	80 24 HR.	21.4
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	160 1 HR.	NDL/CL 30.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 : Part 3 : 2006 (Reaff. 2012) (C)	100 24 HR.	80
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (PT. 24) 2019 (C)	60 24 HR.	87
7	Sulfur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 : Part 7 : 2001 (Reaff. 2012) (C)	80 24 HR.	7.1

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate  
3, Poghada Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044035120  
Email: udayanlab@mitras.com



TC-6959



Scan for Portal

ULR: TC-695024000001726F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd, (MGM), Joda West

Address: Joda, Dist. - Keshiur, Odisha - 750024 India

Report No. :

MSKPLIED/2023-24/N1208T

Date :

05/02/2024

Sample No. :

MSKMBED/2023-24/01/BN247H

Date of receipt of sample :

15/01/2024

Date(s) of performance :

18/01/2024 - 05/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056 Date : 16/00/2023

Discipline :

Chemical

We hereby certify that the following sample Driven by us has been analysed with the following results.

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	NA
4. Date of sampling	16/01/2024
5. Place of sampling	NEAR RAILWAY SIDING - JMMN
6. Environmental conditions during sampling & Transport	1) Temperature: 10-25 deg C 2) Barometric Pressure: 732 mm of Hg 3) Rain fall No & Clock Chain Maintained
7. Sampling Plan & Method used	IS 5182 (Part 11) & USEPA
8. Identification of the personnel performing sampling by MSK	LAJUN KU NAIR, PRATIK KUMAR MANTRI
9. Field Equipments Used	MSKBSUFIELD RDS-3

Report No. : MSKPLIED/2023-24/N1208T

Sample No. : MSKMBED/2023-24/01/BN247H

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA IO 3-4, June	5 (Annual)	BDL (DL: 1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL (DL: 4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL (DL: 0.5)
4	Lead (as Pb)	micro gm/m3	USEPA IO 3-4, June	1 (24 HOURS)	0.02
5	Manganese as Mn	micro gm/m3	USEPA IO 3-4, June	Not Specified	0.39
6	Nickel as Ni	ng/m3	USEPA IO 3-4, June	20 (Annual)	BDL (DL: 5.0)

Definition : Limit as per CPCB notification, from Delhi, 10th November 2012, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed by:

Signature:

Name: Dr. Divyanshu Banerjee

Designation: Technical in charge

Authorized Signatory:

Signature:

Name: Dr. Divyanshu Banerjee

Designation: Lab in charge

The results relate only to the sample(s) tested.

This Test Report shall not be revalidates except in (a) without the permission of Mitra S.K. Private Limited.

The retained part of sample(s) for chemical analysis (HPLC - gas/liquid chromatography) shall be retained for 15 days from the date of receipt of the Test Report. Permissible sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (HPLC - Solid & Liquid Matrix) shall be retained for 15 days as per CPCB guidelines & 1 year from the date of issue of the Test Report. The retained part of sample(s) for Microbiological analysis (Micro - countable sample(s) Food, Soiled Water, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: 3/Phase Centre (Old) Floor, 14B, S.J.C. Road (Road) Kolkata - 700016, West Bengal, India  
Tel. : +91 21 67443001/2/3/4/5 Fax : +91 21 22880001  
Email : [info@mitras.com](mailto:info@mitras.com) Website : [www.mitrask.com](http://www.mitrask.com)





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGMT) Joda West

AsPo : Joda, Dist : Keonjhar, Orissa - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004495

Date :

19/02/2024

Sample No. :

MSKGL/ED/2023-24/0100590

Reference No. & Date :

0000156417, Date - 28/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:-

1. Group	Air
2. Description of sample	Ambient Air
3. Unique Identification of sample(s) (any)	Joda West Area & Mr. Meena
4. Date of sampling	18/01/2024
5. Place of sampling	Near Railway Station-JWMAA
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Place & Method used	Win

Report No. : MSKGL/ED/2023-24/004495

Sample No. : MSKGL/ED/2023-24/0100590

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Amonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	18.5
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 : Part 10 : 1999 (Reaff. 2014) (NENRL) (O)	2 8-HR	0.60
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 : Part 6 : 2006 (Reaff. 2012) (O)	80 24 HR.	27.5
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL (GL:20.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012) (O)	180 24 HR.	798
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (PT. 24) 2019 (O)	60 24 HR.	125
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 : Part 2 : 2001 (Reaff. 2012) (O)	80 24 HR.	8.5

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolbata 700015  
West Bengal  
Tel. : +91 7044038120  
Email: udayantab@mitraa.com



TC-1850



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ULR: TC-895024000001727F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd. (MGM), Joda West

Asda - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/41208C

Date :

09/05/2024

Sample No. :

MSKNB/ED/2023-24/01/MQ248E

Date of receipt of sample:

19/01/2024

Date(s) of performance:

19/01/2024 - 05/02/2024

Location of performance of

Remnant Facility

Reference No. &amp; Date :

3000156017/058, Date - 16/08/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following accuracy:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	18/01/2024
5. Place of sampling	NEAR D-QUARRY SCREEN PLANT - JWMM
6. Environmental conditions during sampling & transport	1) Temperature: 10-25 (deg C) 2) Barometric Pressure: 733 mm of Hg 3) Rain fall: No & Wind Choke Maintained
7. Sampling Plan & Method used	IS:5102(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	LALIN KU NAIK, PRATIK KUMAR MANTRI
9. Field Equipments Used	MSKBR/FLD/DRDS-8

Report No. : MSKPL/ED/2023-24/41208C

Sample No. : MSKNB/ED/2023-24/01/MQ248E

## RESULT

## Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BQL (CL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BQL (CL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BQL (CL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 hours)	BQL (CL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.39
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	8.0

Opinion : Limit as per CPCB notification, New Delhi, 10th November 2000, for Ambient air quality

Statement of Conformity : NA

— END —

Performed By:

Signature

Name

Designation

Dr. Devottin Banerjee  
Technical In charge

Authorized Signatory

Signature

Name

Designation

Lalin Ku Naik  
Lab In charge

This report is valid only for the listed test(s).

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The retention period of sample(s) for chemical analysis (Met - solid/semi sample(s)) Food, Water shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retention period of sample(s) for chemical analysis (Pet - Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB Guideline (Part 1) from the date of issue of the Test Report. The retention period of sample(s) for Microbiological analysis (Pet - Soluble sample(s)) Food, Sealed Water, Sealed food shall be retained for 10 days from the date of issue of the Test Report.

Head Office: Shree Ganga (M) Road, T40, A.J.C. Bore Field, Kolkata - 700150, West Bengal, India.  
Tel: 91-91-6014000 / 2250201 Fax: 91-33-2260028  
Email: info@mitraa.com Website: www.msklab.com



## Address of Branch :

P.O. Barbil Dt. Keonjhar Odisha 758 035



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**TEST REPORT**

## Name &amp; Address of Customer :

Joda West Iron &amp; Mn Mines

At Po. : Joda, Dist. : Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004492

Date :

17/02/2024

Sample No. :

MSKGL/ED/2023-24/01/00591

Reference No. &amp; Date :

3600156017, Date - 21/03/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(s) if any	Joda West Iron & Mn Mines
4. Date of sampling	16/01/2024
5. Place of sampling	Near D-Quarry Screen Place JWM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004492

Sample No. : MSKGL/ED/2023-24/01/00591

**RESULT**

## Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	12.1
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 : Part 10 : 1999 (Reaff. 2014) (NDIR) (O)	2 8HR.	0.78
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 : Part 6 : 2006 (Reaff. 2012) (O)	90 24 HR.	19.5
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	160 1 HR.	BDL (GL 20.4)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012) (O)	100 24 HR.	850
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (PT-24):2019 (O)	80 24 HR.	80
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 : Part 2 : 2001 (Reaff. 2012) (O)	80 24 HR.	8.3

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pajladanga Road, Kolkata 700016  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6960



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URL: TC-696024000001728F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM) Joda West

WPA - Joda, Dist - Koochhar, JORHA - 781034 India

### Report No. :

MSKFL/ED/2023-24/F12081

### Date :

05/02/2024

### Sample No. :

MSKMB/ED/2023-24/01/MS24BE

### Date of receipt of sample :

19/01/2024

### Date(s) of performance :

19/01/2024 - 19/02/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156017/056 Date - 19/09/2023

### Discipline :

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	NA
4. Date of sampling	16/01/2024
5. Place of sampling	NEAR D- QUARRY SORTING YARD - JWMM
6. Environmental conditions during sampling & Transport	1) Temperature: 10-26 deg C 2) Barometric Pressure: 733 mm of Hg 3) Rain fall: No & Cold Clear Morning
7. Sampling Plan & Method used	IS 5182 (Part 11) & USEPA
8. Identification of the personnel performing sampling by MSK	LALIN KU NAIR, PRATIK KUMAR MANTRI
9. Field Equipments Used	MSK/BBL/FIELDQDS-6

Report No. : MSKFL/ED/2023-24/F12081

Sample No. : MSKMB/ED/2023-24/01/MS24BE

## RESULT

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-10 3-4, June	5 (Annual)	BCL(DL: 1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BCL(DL: 4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BCL(DL: 0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-10 3-4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-10 3-4, June	Not Specified	0.17
6	Nickel as Ni	ng/m3	USEPA-10 3-4, June	20 (Annual)	5.8

Opinion : Limit as per CPCB notification, New Delhi, 1980 (November 2009), for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name

Designation

Dr. Divyanshu Saxena

Authorized Signatory

Signature

Name

Designation

Dr. Divyanshu Saxena

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Not - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for microbial analysis (Biol, Food & Liquid Media) shall be retained for 15 days as per CPCB guidelines (As) & within from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Not - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Sanku Chandra (1st Floor), 148, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
Tel : 91 33 4014000 / 79850017 Fax : 91 33 2390016  
Email : info@mitrask.com Website : www.mitrask.com





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## TEST REPORT

Name &amp; Address of Customer :

Tata Steel Ltd. (MGV) - India West

Alf. No. - Joda - Dist. - Keonjhar, Odisha - 758034 India Pls

Report No. :

Table

Sample No. :

Reference No. &amp; Date :

MSKGL/EDV003-24/004487

10-022702-1

MSKGL/ED0025-24/D100495

3009156017 Data - 28/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample(s) (if any)	Amb West Iron & Mn. Mines
4. Date of sampling	16/01/2024
5. Place of sampling	Near D-Quarry Sorting Yard, AMMM
6. Environmental conditions during sampling & transmission	Clear & Sunny
7. Sampling Plan & Method used	N/A

Report No.: MSKGL/ED/2023-24/094467

Sample No.: MSKGL/ED/2023-24/01/00592

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micro gram/m3	IS 5182 (Part 25)	400 24 HR.	12.7
2	Carbon Monoxide (CO)	mg/m3	IS 5182 - Part 10: 1989 (Revised 2014) (MOPH) (I)	2 8-HR.	0.67
3	Nitrogen Dioxide (NO2)	micro gram/m3	IS 5182 - Part 6: 2006 (Revised 2012) (I)	80 24 HR.	34.1
4	Ozone (O3)	micro gram/m3	IS 5182 (Part 9)	180 1 HR.	BDL(DI<25.0)
5	Particulate Matter (<10µm)	micro gram/m3	IS 5182-Part 28: 2006 (Revised, 2012) (I)	100 24 HR	296
6	Particulate Matter (<2.5µm)	micro gram/m3	IS 5182 (PT-24):2010 (I)	60 24 HR.	104
7	Sulphur Dioxide (SO2)	micro gram/m3	IS 5182 - Part 2: 2001 (Revised 2012) (I)	80 24 HR.	8.7

—END—

Report Verified By

For Milra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-4B, Udayan Industrial Estate,  
S. Pargades Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044038120  
Email: udayanlab@mitras.com



TC-8890



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ULR: TC-8902400001729F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

APPo - Joda Dist - Raigarh, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/61208D

Date :

05/03/2024

Sample No. :

MSKNB/ED/2023-24/01/NS249J

Date of receipt of sample:

18/01/2024

Date(s) of performance:

18/01/2024 - 05/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

0000156017/056 Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	18/01/2024
5. Place of sampling	NEAR GANGEIGUDA PIT - JWM
6. Environmental conditions during sampling & Transport	1) Temperature: 10-25 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-1) (2) & USEPA
8. Identification of the personnel performing sampling by MSK	LALIN KJ NAIK, PRATIK KUMAR MANTRI
9. Field Equipments Used	MSKUBS/TELETRDS-1

Report No. : MSKPL/ED/2023-24/61208D

Sample No. : MSKNB/ED/2023-24/01/NS249J

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-10 3.4, June	6 (Annual)	BDL (DL-1.0)
2	Benzene	micro g/m3	IS 5182 (Part 11)	6 (Annual)	BDL (DL-4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL (DL-0.5)
4	Lead (as Pb)	micro g/m3	USEPA-10 3.4, June	1 (24 hours)	0.06
5	Manganese as Mn	micro g/m3	USEPA-10 3.4, June	Not Specified	0.30
6	Nickel as Ni	ng/m3	USEPA-10 3.4, June	20 (Annual)	0.0

Option I NA

Statement of Conformity NA

END

Reviewed by:

Signature:

Name: Dr. Devendra Sonawane

Designation: Technical in charge

Authorized Signatory:

Signature:

Name:

Designation:

The results herein are to be used for internal purposes only.

This Test Report shall not be reproduced except in full and without the authority of Mitra S. K. Private Limited.

The retained part of sample for chemical analysis (Mn) (as per the sample) from (Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample for instrumental analysis (As, Pb, Bz(a)P, Ni) shall be retained for 15 days or as per (USEPA) guidelines & (Air) 1 month from the date of issue of the Test Report.

The retained part of sample for microbiological analysis (from - perishable sample(s) Food, Sewer/Water, Treated food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Street Corner (off Road) 7th A J/O, Bada Road, Kolkata - 700016, West Bengal, India.  
Tel: 91 33 48143300 / 22809907 Fax: 31 33 22850038  
Email: yod@mitras.com Website: www.mitras.com



## Address of Branch :

P.O. Barhi De Koogher Odisha 758135



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## TEST REPORT

## Name &amp; Address of Customer :

Joda West / Joda / MIDM / Joda West

AdPo. - Joda, Dist - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004488

Date :

18/02/2024

Sample No. :

MSKGL/ED/2023-24/0100293

Reference No. &amp; Date :

J060156017 Date - 28/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West / Joda / MIDM / Joda West
4. Date of sampling	18/01/2024
5. Place of sampling	Near Gangajuna P.L. BAHMA
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004488

Sample No. : MSKGL/ED/2023-24/0100293

## RESULT

## Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	13.2
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 Part 16 / 1999 (Reaff. 2014) (NDIR) (O)	2 24HR.	0.88
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 Part 6 / 2006 (Reaff. 2012) (O)	80 24 HR.	20.8
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 8)	180 1 HR.	BDL (0.00)
5	Particulate Matter (<10µm)	micro gm/m <sup>3</sup>	IS 5182 Part 23 / 2006 (Reaff. 2012) (O)	100 24 HR.	208
6	Particulate Matter (<2.5µm)	micro gm/m <sup>3</sup>	IS 5182 (PT-24) 2019 (O)	80 24 HR.	97
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 Part 7 / 2001 (Reaff. 2012) (O)	80 24 HR.	7.3

END

Report Verified By



For Mitra S. K. Private Limited



Authorised Signatory



## Address of Laboratory :

Building No. 8-46, Udayan Industrial Estate,  
3, Pagledanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6909



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ULR: TC-695C24600001730F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West

A/Po. : Joda Dist. : Keonjhar, Odisha - 758034 India

### Report No. :

MSKPL/ED/2023-24/V1209B

### Date :

05/02/2024

### Sample No. :

MSKNB/ED/2023-24/01/TP24AE

### Date of receipt of sample:

16/01/2024

### Date(s) of performance:

16/01/2024 - 05/02/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156017/096, Date - 16/08/2023

### Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	NA
4. Date of sampling	16/01/2024
5. Place of sampling	NEAR H-QUARTER REST SHELTER - JWMM
6. Environmental conditions during sampling & Transport	1) Temperature: 10-26 deg C 2) Barometric Pressure: 733 mm of Hg 3) Rain fall No & Wind Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	LALIN KJ NAIK, PRATIK KUMAR MANTRI
9. Field Equipments Used	MSK/BBU/FIELDWDS-1

Report No. : MSKPL/ED/2023-24/V1209B

Sample No. : MSKNB/ED/2023-24/01/TP24AE

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-40 3.4, June	6 (Annual)	BDL/CL 1.0
2	Benzene	micro gm/m3	IS 5182 (Part 11)	6 (Annual)	BDL/CL 4.2
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL/CL 0.5
4	Lead (as Pb)	micro gm/m3	USEPA-40 3.4, June	5 (24 Hours)	5.92
5	Manganese as Mn	micro gm/m3	USEPA-40 3.4, June	Not Specified	0.17
6	Nickel as Ni	ug/m3	USEPA-40 3.4, June	20 (Annual)	18.8

Opinion : Limit as per CPCB notification: New Delhi, 16th November 2009, for Ambient air quality

Statement of Conformity : NA

——— END ———

Reviewed By:

 Signature:   
Name: Dr. Devdatta Bishnoi  
Designation: Technical in charge

Authorized Signatory:

 Signature:   
Name: Dr. Sankuadeen Mahapatra  
Designation: Lab in charge

This report holds only as for given sample.

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days as per CPCB guidelines &amp; (As) 3 month from the date of issue of the Test Report. The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Seawater, Surface food) shall be retained for 15 days from the date of issue of the Test Report.

 Head Office: Gerson Centre (Jai Puri), T4B, A.J.C. Road Road, Kolkata - 700016, West Bengal, India.  
Tel : 91 33 40148900 / 22550007 Fax : 91 33 22550008  
E-mail : info@mitrask.com Website : www.mitrask.com





Scan for Detail

## Name & Address of Customer :

Tata Steel (I) (MGNY) Joda West

At Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

## TEST REPORT

Report No. :

MSKGL/ED/2023-24/004400

Date :

10/02/2024

Sample No. :

MSKGL/ED/2023-24/01/00594

Reference No. & Date

3000156/17, UBO - 28/08/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	16/01/2024
5. Place of sampling	Near H-Channel Road Station, JMMML
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004400

Sample No. : MSKGL/ED/2023-24/01/00594

## RESULT

### Analysis Result of Ambient Air

Sl.No.	Parameter	Unit	Method	Limit	Result
1	Amonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	15.5
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10 : 1999 (Reaff. 2014) (NOR) / (C)	2 8HR.	0.65
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 8 : 2008 (Reaff. 2012) / (C)	60 24 HR.	28.2
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL (DL-20.0)
5	Particulate Matter (<1µm)	micro gram/m <sup>3</sup>	IS 5182: Part 35:2006 (Reaff. 2012) / (C)	100 24 HR.	238
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (PT-24) (2014) / (C)	60 24 HR.	115
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182: Part 2 : 2011 (Reaff. 2012) / (C)	80 24 HR.	8.5

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pasladanga Road, Kolkata 700015  
West Bengal  
Tel: +91 7044036120  
Email: udayanlab@mitrask.com



TC-6930



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URL: TC-695024000001731F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM) Joda West

APNo. : Joda, Dist : Kendrapada, Odisha - 758034 India

## Report No. :

MSKPL/ED/2023-24/2120AR

## Date :

08/02/2024

## Sample No. :

MSKNB/ED/2023-24/01/UF246H

## Date of receipt of sample:

19/01/2024

## Date(s) of performance:

19/01/2024 - 05/02/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date:- 19/08/2022

## Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results.

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	16/01/2024
5. Place of sampling	NEAR TIME OFFICE - JWMM
6. Environmental conditions during sampling & Transport	1) Temperature: 10-26 deg C 2) Barometric Pressure: 733 mm of Hg 3) Rain: Nil No. & Gold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	LALIN KU NAIK, PRATIK KUMAR MANTRI
9. Field Equipments Used	MSK55BUFIELD/RO5-2

Report No. : MSKPL/ED/2023-24/2120AR

Sample No. : MSKNB/ED/2023-24/01/UF246H

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL/BL 1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL/BL 1.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 10)	1 (Annual)	BDL/BL 0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	5.04
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.31
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	10.8

Operator: Limit as per CPCB notification, New Delhi, 10th November 2009, for Ambient air quality

Statement of Conformity NA

END

Reviewed by:

Signature:

Name: Dr. Divyansu Balaio

Designation: Technical in charge

Authorized Signatory:

Signature:

Name:

Designation:

This report shall only be for the use of client.

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The retained part of each sample for chemical analysis (Amb - particulate sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Particulate sample(s) shall be retained 7 days from the date of issue of the Test Report.

The retained part of sample(s) for microbiological analysis (Food - perishable sample(s) Food - Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

The retained part of sample(s) for microbiological analysis (Food - Sealed &amp; Sealed Water) shall be retained for 15 days as per CPCB guidelines &amp; (Min 4 month from the date of issue of the Test Report).

The retained part of sample(s) for microbiological analysis (Non - perishable sample(s) Food - Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: 2/F, 2nd Corridor (3rd Floor), M6, A J C, Bore Road, Kolkata - 700016, West Bengal, India  
Tel: +91 7044036120 / 22650007 Fax: +91 33 22650006  
Email: info@mitrask.com Website: www.mitrask.com





Scan for Janta

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

AMPs - Joda, Dist - Keonjhar, Orissa - 758034 India Pin

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/004498

10/02/2024

MSKGL/ED/2023-24/0100585

3000156517, Date = 25/06/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	API
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn. Mines
4. Date of sampling	16/01/2024
5. Place of sampling	NEAR TIME OFFICE JMWMA
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004498

Sample No. : MSKGL/ED/2023-24/0100585

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	16.6
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5142 Part 10 : 1998 (Reaff 2014) (NDIR) (0)	2 8HR.	0.46
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 Part 6 : 2005 (Reaff 2012) (0)	80 24 HR.	16.5
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	160 1 HR.	BOL(DL20.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 Part 21:2006 (Reaff. 2013) (0)	160 24 HR.	0.94
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (PT-21) 2015 (0)	60 24 HR.	1.17
7	Sulphur dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 Part 2 : 2001 (Reaff. 2012) (0)	80 24 HR.	9.8

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pajedanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044030120  
Email: udayanvco@mitrask.com



TC-6930



Scan for Portal

URL: TC-69502400001834

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (NGM) Joda West

Address : Joda East - Koorjhar, Odisha - 758034 India

### Report No. :

MSKPL/ED/2023-24/81215W

### Date :

05/02/2024

### Sample No. :

MSKNB/ED/2023-24/01/DN3C9W

### Date of receipt of sample :

27/01/2024

### Date(s) of performance :

27/01/2024 - 05/02/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156017/056, Date - 16/08/2023

### Discipline :

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	22/01/2024
5. Place of sampling	Near D-Quarry Shading Yard
6. Environmental conditions during sampling & transport	1) Temperature: 15-30 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5162(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Aakash Kr Sengupta, Pratik Kr Mahtia
9. Field Equipments Used	MSK/DBL/FIELD/PCS-G

Report No. : MSKPL/ED/2023-24/81215W

Sample No. : MSKNB/ED/2023-24/01/DN3C9W

## RESULT

### Chemical

Sl.No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m <sup>3</sup>	USEPA-ID 3.4, June	8 (Annual)	BDL (DL: 1.0)
2	Benzene	micro gm/m <sup>3</sup>	IS 5162 (Part 11)	5 (Annual)	BDL (DL: 4.2)
3	Benzo(a)Pyrene	ng/m <sup>3</sup>	IS 5162 (Part 12)	1 (Annual)	BDL (DL: 0.5)
4	Lead (as Pb)	micro gm/m <sup>3</sup>	USEPA-ID 3.4, June	1 (241 hours)	BDL (DL: 0.01)
5	Manganese as Mn	micro gm/m <sup>3</sup>	USEPA-ID 3.4, June	Not Specified	0.12
6	Nickel as Ni	ng/m <sup>3</sup>	USEPA-ID 3.4, June	20 (Annual)	BDL (DL: 0.0)

Option : Limit as per CPCB notification, New Delhi, 18th November 2002, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature

*P. Ganguly*

Name

Mr. Pratik Ganguly

Designation

Executive Chemist

Authorized Signatory

Signature

*P. Ganguly*

Name

Mr. Pratik Ganguly

Designation

Executive Chemist

The results relate only to the item(s) tested.

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The preserved part of sample(s) for chemical analysis (ion - particulate sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Preservative sample(s) shall be retained 2 days from the date of issue of the Test Report.

The preserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Material) shall be retained for 15 days from the date of issue of the Test Report.

The preserved part of sample(s) for Microbiological analysis (Non - preservative sample(s) Food, Sewage Water, Spilled Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Green Centre 10th Floor, H.K. & L.C. Block Road, Kolkata - 700015, West Bengal, India

Tel : (91) 2349142001 / 23050001 Fax : 91 33 22952008

Email: info@mitrask.com Website: www.mitrask.com



P.O. Balakrishna, Kuvempur, Orissa, 751 015



Scott, J. H. (1990).

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Reference No. &amp; Date :

3030186017056 Data - 15/04/2022

1. Group	AE
2. Description of sample	Antique Ag
3. Unique identification of sample(s) if any	Jade West Iron & Mo Mine
4. Date of sampling	22/01/2024
5. Place of sampling	Near Clatskanie Shooting Yard
6. Environmental conditions during sampling & transport	Cloudy
7. Sampling Plan & Method used	IR

Sample No.: MSKGL/ED/2023-24/01/00886

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Standard	Limit	Result
1	Ammonia (NH3)	micro gram/m3	IS 5182 (Part 25)	400 24 HR.	23.0
2	Carbon Monoxide (CO)	mg/m3	IS 5182, Part 10, 1999 (Revt.2014) (MORL) (3)	2 8HR.	0.45
3	Nitrogen Dioxide (NO2)	micro gram/m3	IS 5182: Part 8 2006 (Revt.2012) (3)	80 24 HR.	23.0
4	Ozone (O3)	micro gram/m3	IS 5182 (Part 9)	180-1 HR.	BOL(DL-30.0)
5	Particulate Matter (<10um)	micro gram/m3	IS 5182-Part 21:2006 (Revt. 2012) (3)	100-24 HR.	157
6	Particulate Matter (<2.5um)	micro gram/m3	IS 5182 (Pt.24) 2019 (3)	80 24 HR.	75
7	Sulphur Dioxide (SO2)	micro gram/m3	IS 5182: Part 2:2001 (Revt.2012) (3)	80 24 HR.	7.0

—END—

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate  
3, Fajalabanya Road, Kolkata 700075  
West Bengal  
Tel. : +91 7044036120  
Email : udayanlab@misk.com



TC-8890



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

At Post - Joda, Dist - Medinipur, Jharkhand - 758034 India

Report No. :

MSKPLEI/2023-24/L1215F

Date :

05/03/2024

Sample No. :

MSKNB/ED/2023-24/01/E23CC5

Date of receipt of sample:

27/01/2024

Date(s) of performance:

27/01/2024 - 06/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/055, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	22/01/2024
5. Place of sampling	Near D-Quarry Screen
6. Environmental conditions during sampling & transport	1) Temperature: 15-30 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rainfall: No, 4) Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182 (Part 11) & USEPA
8. Identification of the personnel performing sampling by MSK	Akshay K. Sanyal, Pratik K. Mondal
9. Field Equipments Used	MSK/BB/FIELD/DC-2

Report No. : MSKPLEI/2023-24/L1215F

Sample No. : MSKNB/ED/2023-24/01/E23CC5

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzof(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.03)
5	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	0.17
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Optimum : Limit as per CPCB notification, New Delhi, 19th November 2009, for maximum at quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature: *P. Ganguly*  
Name: Mr. Prit Ganguly  
Designation: Executive Chemist

Authorized Signatory:

Signature: *P. Ganguly*  
Name: Mr. Prit Ganguly  
Designation: Executive Chemist

This result valid only in the test(s) listed.

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The retained part of sample(s) for chemical analysis (Air - particulate complex) Food, Water(s) shall be retained for 15 days from the date of issue of the Test Report. Particulate sample(s) shall be retained 7 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Food & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) is retained from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Water - particulate complex) Food, Soiled Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Green Square (Plot No. 146), A.J.C. Road, Kankar, Kolkata - 700016, West Bengal, India.  
Tel. : 91-33-20143000/20650007 Fax : 91-33-20650001  
Email: info@mitras.com / 140884 - Web: mitras.com



Address of Branch :

P.O. Baital Of Kanchipuram District 758 025



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## TEST REPORT

Name & Address of Customer :

Tata Steel Ltd (MSK), near West

APPO, - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004534

Date :

16/05/2024

Sample No. :

MSKGL/ED/2023-24/010096T

Reference No. & Date :

MSKGL/ED/2023-24/010096T, Date - 15/05/2024

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (any)	Joda West Iron & Mn Mines
4. Date of sampling	22/01/2024
5. Place of sampling	Near G-Quarry Scraper Plant
6. Environmental conditions during sampling & Transport	Cloudy & Rainy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004534

Sample No. : MSKGL/ED/2023-24/010096T

## RESULT

### Analysis Result of Ambient Air

S/N	Parameter	Unit	Method	Limit	Result
1	Ambient (NH3)	micro gram/m3	IS 5182 (Part 25)	400 24 HR.	20.9
2	Carbon Monoxide (CO)	mg/m3	IS 5182, Part 10: 1989 (Reaff 2014) (NDR) (O)	2 8HR	0.77
3	Nitrogen Dioxide (NO2)	micro gram/m3	IS 5182, Part 9: 2006 (Reaff 2012) (O)	80 24 HR.	20.6
4	Ozone (O3)	micro gram/m3	IS 5182 (Part 9)	180 1 HR.	BOL (DL 30.0)
5	Particulate Matter (<10um)	micro gram/m3	IS 5182, Part 2: 2006 (Reaff 2012) (O)	100 24 HR.	142
6	Particulate Matter (<2.5um)	micro gram/m3	IS 5182 (PT-24) (2019) (O)	60 24 HR.	72
7	Sulphur Dioxide (SO2)	micro gram/m3	IS 5182 - Part 2: 2001 (Reaff 2012) (O)	90 24 HR.	7.3

END

Report Verified By



For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate  
3, Pajodempa Road, Kulkarni 700115  
West Bengal  
Tel : +91 7044038120  
Email : udayaniso@mitrascl.com



TC-0000



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

Attn:- Jyoti Datta - Regional Catalysts - 756034 India

### Report No. :

MSKPL/ED/2023-24/012157

### Date :

06/02/2024

### Sample No. :

MSKNB/ED/2023-24/01/P83CAB

### Date of receipt of sample:

27/01/2024

### Date(s) of performance:

27/01/2024 - 06/02/2024

### Location of performance of

Permanente Facility

### Reference No. & Date :

3000158017/056, Date - 16/09/2023

### Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	22/01/2024
5. Place of sampling	Near to Quarry Road Shaller
6. Environmental conditions during sampling & transport	1) Temperature: 15-30 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS-5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Alashix Selvi, Pratik Kr Nandi
9. Field Equipments Used	MSK/BHL/FIELD/DROS-1

Report No. : MSKPL/ED/2023-24/012157

Sample No. : MSKNB/ED/2023-24/01/P83CAB

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BOL(DL:1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	6 (Annual)	BOL(DL:0.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BOL(DL:0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.05
5	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	0.40
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	12.2

Option:- Limit as per CPCB notification, New Delhi, 19th November 2009, for Ambient air quality

Statement of Conformity NA

— END —

Authorized by:

Signature:

Name:

Designation:

P. Ganguly

Mr. Pail Ganguly

Executive Chemist

Authorized Signatory:

Signature:

Name:

Designation:

P. Ganguly

Mr. Pail Ganguly

Executive Chemist

This result valid only for the test(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s)) Food, Water shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Sol, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guidelines &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s)) Food, Sealed Water, Sealed (Solid) shall be retained for 10 days from the date of issue of the Test Report.

Head Office: 3rd/4th Floor (2nd Floor) 748, A.J.C. Road Road, Kolkata - 700015, West Bengal, India

Tel : + 91 33 40143000 / 22650001 Fax : + 91 33 23540000

Email: info@mitrascl.com Website : www.mskcl.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

At Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004800

Date :

19/02/2024

Sample No. :

MSKGL/ED/2023-24/0100088

Reference No. & Date :

3000156017556, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn - Mnps
4. Date of sampling	22/01/2024
5. Place of sampling	Near H-Quarry Road Shutter
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004800

Sample No. : MSKGL/ED/2023-24/0100088

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH3)	micro grams	IS 5182 (Part 25)	400 24 HR	16.8
2	Carbon Monoxide (CO)	mg/m3	IS 5182 Part 10: 1999 (Reaff. 2014) (NDIR) (C)	2 8HR	0.55
3	Nitrogen Dioxide (NO2)	micro grams	IS 5182 Part 6: 2006 (Reaff. 2012) (C)	80 24 HR	19.6
4	Ozone (O3)	micro grams	IS 5182 (Part 9)	180 1 HR	BDL (or 20.0)
5	Particulate Matter (<10um)	micro grams	IS 5182 Part 23: 2006 (Reaff. 2012) (C)	100 24 HR	170
6	Particulate Matter (<2.5um)	micro grams	IS 5182 (PT-24) 2015 (C)	60 24 HR	97
7	Sulphur Dioxide (SO2)	micro grams	IS 5182 Part 2: 2011 (Reaff. 2012) (C)	80 24 HR	7.5

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Panchajanya Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6339



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

A/P's - Joda Dist. - Kharajpur, Odisha - 758034 India

### Report No. :

MSKPL/ED/2023-24/R1215Z

### Date :

05/02/2024

### Sample No. :

MSKNB/ED/2023-24/01/AM3C8V

### Date of receipt of sample:

27/01/2024

### Date(s) of performance:

27/01/2024 - 06/02/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156017/056, Date - 16/08/2023

### Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	NA
4. Date of sampling	22/01/2024
5. Place of sampling	Near Time Office
6. Environmental conditions during sampling & Transport	1) Temperature : 15-30 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-11 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Aakash Kr Sanyal, Pratik Kr Martri
9. Field Equipments Used	MSK/BI/PIELDRDS-3

Report No. : MSKPL/ED/2023-24/R1215Z

Sample No. : MSKNB/ED/2023-24/01/AM3C8V

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-40 3.4, June	5 (Annual)	BDL(DL: 1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL: 4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL: 0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-40 3.4, June	1 (24 Hours)	0.04
5	Manganese as Mn	micro gm/m3	USEPA-40 3.4, June	Not Specified	0.25
6	Nickel as Ni	ng/m3	USEPA-40 3.4, June	20 (Annual)	0.3

Option : Limit as per CPCB notification, New Delhi, 10th November 2006, for ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

P. Ganguly

Name : Mr. Pall Ganguly

Designation : Executive Chemist

Authorized Signatory:

Signature:

P. Ganguly

Name : Mr. Pall Ganguly

Designation : Executive Chemist

The results relate only to the items tested.

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The retained part of sample(s) for chemical analysis (Air - particulate sample(s)) Food, Water etc. shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for Chemical analysis (Air, Solid &amp; Liquid Phase) shall be retained for 15 days as per CPCB guidelines &amp; (Air) 1 month from the date of issue of the Test Report. The retained part of sample(s) for Microbiological analysis (Food - perishable sample(s)) Food, Solid Water, Residue (soil) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Branch Office (Odisha), 34B, A. J. C. Road (Hill), Bhubaneswar - 751011, West Bengal, India.  
Tel. : 91 376 616000 / 22650007 Fax : 91 376 22650008  
E-mail: info@mitrask.com Website: www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

Attn: Joda, Dist. - Raipur, Chhattisgarh - 758034 India Ph

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/004541

04/02/2024

MSKGL/ED/2023-24/01/00085

3000156017056, Date - 15/03/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample(s) (if any)	Joda west area & Main Mines
4. Date of sampling	22/01/2024
5. Place of sampling	Near Tata Office
6. Environmental conditions during sampling & Transport	Cloudy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004541

Sample No. : MSKGL/ED/2023-24/01/00085

## RESULT

### Analysis Result of Ambient Air

Sr No.	Parameter	Unit	Method	Limit	Result
1	Amonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	13.3
2	Carbon Monoxide (CO)	mg/m3	IS 5182 (Part 10-1999) (Reaff. 2014) (NDIR) (D)	2 8HR.	0.88
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 (Part 6-2006) (Reaff. 2012) (D)	80 24 HR.	17.8
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 3)	180 1 HR.	BDL/BL 20/0)
5	Particulate Matter (<10um)	micro gm/m3	IS 5182 (Part 23-2006) (Reaff. 2012) (D)	150 24 HR.	170
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24) 2010 (D)	60 24 HR.	85
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 (Part 7-2001) (Reaff. 2012) (D)	80 24 HR.	8.5

END

Report Verified By

For Mitra S. K. Private Limited



## Address of Laboratory :

Building No. R-4B, Udayan Industrial Estate,  
3, Fagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6880



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ULR: TC-895024000001838F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

At/Po : Joda, Dist - Medinipur, COOBE - 750034 India

### Report No. :

MSKPLUED/2023-24/V1215Q

### Date :

16/02/2024

### Sample No. :

MSKNB/ED/2023-24/01/TV3C7G

### Date of receipt of sample :

27/01/2024

### Date(s) of performance :

27/01/2024 - 06/02/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000158017/066, Date - 16/09/2023

### Discipline :

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	22/01/2024
5. Place of sampling	Near Garagajuda Pt
6. Environmental conditions during sampling & Transport	1) Temperature: 15-30 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Alakh Kr Sethy, Pratik Kr Mondal
9. Field Equipments Used	MSIVBBL/FIELD/RDS-4

Report No. : MSKPLUED/2023-24/V1215Q

Sample No. : MSKNB/ED/2023-24/01/TV3C7G

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	6 (Annual)	BDL(DL:4.2)
3	Benz(a)Pyrene	ng/m3	IS 5162 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-IO 3.4, June	1 (24 hours)	0.02
5	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	0.21
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	25.1

Opinion : Limit as per CPCB notification, New Delhi, 10th November, 2006; on permanent air quality

Statement of Conformity : NA

— END —

Reviewed by

Signature

Name : Mr. Pall Ganguly

Designation : Executive Chemist

Authorized Signatory

Signature

Name : Mr. Pall Ganguly

Designation : Executive Chemist

The results apply only to the item(s) tested.

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The retained part of sample(s) for chemical analysis (from - perishable sample(s) Food, Viable) shall be retained for 15 days from the date of issue of the Test Report. (Non-perishable sample(s) shall be retained 2 days from the date of issue of the Test Report)

The retained part of sample(s) for chemical analysis (from - solid & liquid Waxes) shall be retained for 15 days from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (from - perishable sample(s) Food, Sealed Water, Sealed Acid) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Green Ganga (New Floor), 74B, A.J.C. Road Road, Kolkata - 700015, West Bengal, India.  
Tel: 91 33 40143901 / 55000077 Fax: 91 33 23660088  
Email: udayanlab@mitrask.com



# Mitra S. K. Private Limited

Address of Branch :

P.O. Baral Di Kanchhal Orissa 758 035



Scan the QR Code

## TEST REPORT

Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

At/PO. : Joda, DIST. : Keonjhar, Odisha - 758035 India Pin

Report No. :

MSKGL/ED/2023-24/004547

Date :

10/02/2024

Sample No. :

MSKGL/ED/2023-24/000000

Reference No. & Date :

3060116017/056, Date : 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	22/01/2024
5. Place of sampling	New Campalgaon
6. Environmental conditions during sampling & Transport	Cloudy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004547

Sample No. : MSKGL/ED/2023-24/000000

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5162 (Part 25)	800 24 HR	25.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5162 (Part 10) (HR) (Rev'd 2014) (MSR) (O)	2 8HR	0.98
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5162 (Part 6) 2006 (Rev'd 2012) (O)	80 24 HR	24.2
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5162 (Part 3)	180 1 HR	BDL (QL 20.0)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5162 (Part 23) 2006 (Rev'd 2012) (O)	100 24 HR	120
6	Fluoride Water (<2.5um)	micro gram/m <sup>3</sup>	IS 5162 (Pt 24) 2019 (O)	80 24 HR	83
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5162 (Part 2) 2001 (Rev'd 2012) (O)	80 24 HR	8.3

— BMG —

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory

Head Office: 19/20/21/22/23/24/25/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100/101/102/103/104/105/106/107/108/109/110/111/112/113/114/115/116/117/118/119/120/121/122/123/124/125/126/127/128/129/130/131/132/133/134/135/136/137/138/139/140/141/142/143/144/145/146/147/148/149/150/151/152/153/154/155/156/157/158/159/160/161/162/163/164/165/166/167/168/169/170/171/172/173/174/175/176/177/178/179/180/181/182/183/184/185/186/187/188/189/190/191/192/193/194/195/196/197/198/199/200/201/202/203/204/205/206/207/208/209/210/211/212/213/214/215/216/217/218/219/220/221/222/223/224/225/226/227/228/229/230/231/232/233/234/235/236/237/238/239/240/241/242/243/244/245/246/247/248/249/250/251/252/253/254/255/256/257/258/259/260/261/262/263/264/265/266/267/268/269/270/271/272/273/274/275/276/277/278/279/280/281/282/283/284/285/286/287/288/289/290/291/292/293/294/295/296/297/298/299/300/301/302/303/304/305/306/307/308/309/310/311/312/313/314/315/316/317/318/319/320/321/322/323/324/325/326/327/328/329/330/331/332/333/334/335/336/337/338/339/340/341/342/343/344/345/346/347/348/349/350/351/352/353/354/355/356/357/358/359/360/361/362/363/364/365/366/367/368/369/370/371/372/373/374/375/376/377/378/379/380/381/382/383/384/385/386/387/388/389/390/391/392/393/394/395/396/397/398/399/400/401/402/403/404/405/406/407/408/409/410/411/412/413/414/415/416/417/418/419/420/421/422/423/424/425/426/427/428/429/430/431/432/433/434/435/436/437/438/439/440/441/442/443/444/445/446/447/448/449/450/451/452/453/454/455/456/457/458/459/460/461/462/463/464/465/466/467/468/469/470/471/472/473/474/475/476/477/478/479/480/481/482/483/484/485/486/487/488/489/490/491/492/493/494/495/496/497/498/499/500/501/502/503/504/505/506/507/508/509/510/511/512/513/514/515/516/517/518/519/520/521/522/523/524/525/526/527/528/529/530/531/532/533/534/535/536/537/538/539/540/541/542/543/544/545/546/547/548/549/550/551/552/553/554/555/556/557/558/559/560/561/562/563/564/565/566/567/568/569/570/571/572/573/574/575/576/577/578/579/580/581/582/583/584/585/586/587/588/589/590/591/592/593/594/595/596/597/598/599/600/601/602/603/604/605/606/607/608/609/610/611/612/613/614/615/616/617/618/619/620/621/622/623/624/625/626/627/628/629/630/631/632/633/634/635/636/637/638/639/640/641/642/643/644/645/646/647/648/649/650/651/652/653/654/655/656/657/658/659/660/661/662/663/664/665/666/667/668/669/670/671/672/673/674/675/676/677/678/679/680/681/682/683/684/685/686/687/688/689/690/691/692/693/694/695/696/697/698/699/700/701/702/703/704/705/706/707/708/709/710/711/712/713/714/715/716/717/718/719/720/721/722/723/724/725/726/727/728/729/730/731/732/733/734/735/736/737/738/739/740/741/742/743/744/745/746/747/748/749/750/751/752/753/754/755/756/757/758/759/760/761/762/763/764/765/766/767/768/769/770/771/772/773/774/775/776/777/778/779/780/781/782/783/784/785/786/787/788/789/790/791/792/793/794/795/796/797/798/799/800/801/802/803/804/805/806/807/808/809/810/811/812/813/814/815/816/817/818/819/820/821/822/823/824/825/826/827/828/829/830/831/832/833/834/835/836/837/838/839/840/841/842/843/844/845/846/847/848/849/850/851/852/853/854/855/856/857/858/859/860/861/862/863/864/865/866/867/868/869/870/871/872/873/874/875/876/877/878/879/880/881/882/883/884/885/886/887/888/889/890/891/892/893/894/895/896/897/898/899/900/901/902/903/904/905/906/907/908/909/910/911/912/913/914/915/916/917/918/919/920/921/922/923/924/925/926/927/928/929/930/931/932/933/934/935/936/937/938/939/940/941/942/943/944/945/946/947/948/949/950/951/952/953/954/955/956/957/958/959/960/961/962/963/964/965/966/967/968/969/970/971/972/973/974/975/976/977/978/979/980/981/982/983/984/985/986/987/988/989/990/991/992/993/994/995/996/997/998/999/1000/1001/1002/1003/1004/1005/1006/1007/1008/1009/1010/1011/1012/1013/1014/1015/1016/1017/1018/1019/1020/1021/1022/1023/1024/1025/1026/1027/1028/1029/1030/1031/1032/1033/1034/1035/1036/1037/1038/1039/1040/1041/1042/1043/1044/1045/1046/1047/1048/1049/1050/1051/1052/1053/1054/1055/1056/1057/1058/1059/1060/1061/1062/1063/1064/1065/1066/1067/1068/1069/1070/1071/1072/1073/1074/1075/1076/1077/1078/1079/1080/1081/1082/1083/1084/1085/1086/1087/1088/1089/1090/1091/1092/1093/1094/1095/1096/1097/1098/1099/1100/1101/1102/1103/1104/1105/1106/1107/1108/1109/1110/1111/1112/1113/1114/1115/1116/1117/1118/1119/1120/1121/1122/1123/1124/1125/1126/1127/1128/1129/1130/1131/1132/1133/1134/1135/1136/1137/1138/1139/1140/1141/1142/1143/1144/1145/1146/1147/1148/1149/1150/1151/1152/1153/1154/1155/1156/1157/1158/1159/1160/1161/1162/1163/1164/1165/1166/1167/1168/1169/1170/1171/1172/1173/1174/1175/1176/1177/1178/1179/1180/1181/1182/1183/1184/1185/1186/1187/1188/1189/1190/1191/1192/1193/1194/1195/1196/1197/1198/1199/1200/1201/1202/1203/1204/1205/1206/1207/1208/1209/1210/1211/1212/1213/1214/1215/1216/1217/1218/1219/1220/1221/1222/1223/1224/1225/1226/1227/1228/1229/1230/12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## Address of Laboratory :

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West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West.

KSPo, -Joda, Dist. -Koonpur, Odisha - 758034, India.

Report No. :

MSKPL/ED/2023-24/R1215X

Date :

08/02/2024

Sample No. :

MSKNB/ED/2023-24/01/QT3CBH

Date of receipt of sample:

27/01/2024

Date(s) of performance:

27/01/2024 - 08/02/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

300Q150017/026, Date - 16/08/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results.

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	NA
4. Date of sampling	22/01/2024
5. Place of sampling	Near Railway Siding
6. Environmental conditions during sampling & Transport	1) Temperature :15-20 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain fall : No & Wind Churn Moderate
7. Sampling Plan & Method used	IS 5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Aakash K. Sathya, Pratik K. Mantri
9. Field Equipments Used	MSKBSL/FIELD/DS-3

Report No. : MSKPL/ED/2023-24/R1215X

Sample No. : MSKNB/ED/2023-24/01/QT3CBH

## RESULT

Chemical					
S/ No.	Parameter	UDW	Method	Limit	Result
1	Arsenic as (As)	ng/m <sup>3</sup>	USEPA-40.3.4. June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m <sup>3</sup>	IS 5182 (Part 11)	6 (Annual)	BDL(DL:4.3)
3	Benzo(a)Pyrene	ng/m <sup>3</sup>	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m <sup>3</sup>	USEPA-40.3.4. June	1 (24 Hours)	0.05
5	Manganese as Mn	micro gm/m <sup>3</sup>	USEPA-40.3.4. June	Not Specified	0.60
6	Nickel as Ni	ng/m <sup>3</sup>	USEPA-40.3.4. June	20 (Annual)	22.7

Options : Limit as per CPCB notification, New Delhi, 18th November 2005, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed By:

Signature

P. Ganguly

Name

Mr. P. Ganguly

Designation :

Executive Chemist

Authorized Signatory:

Signature

P. Ganguly

Name

Mr. P. Ganguly

Designation :

Executive Chemist

The results relate only to the item(s) tested.

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The retained part of sample(s) for chemical analysis (Non - perishable samples) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The retained part of sample(s) for microbiological analysis (Non - perishable samples) Food, Sewage Water, Sewage Sludge) shall be retained for 15 days from the date of issue of the Test Report.

The retained part of sample(s) for microbiological analysis (Non - perishable samples) Food, Sewage Water, Sewage Sludge) shall be retained for 15 days from the date of issue of the Test Report.

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Tel: +91 33 45140036 / 22650007 Fax: +91 33 22680006

Email: info@mitrask.com, details@mitrask.com, www.mitrask.com





Source: Portal

## TEST REPORT

Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

At Po. Joda, Dist. Kocinghar, Odisha - 758034 India Pin

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGLIED2023-24/004580

10/02/2024

MSKGLIED2023-24/0100985

1000156017/058, Date : 15/08/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda west iron & Mn Mines
4. Date of sampling	22/01/2024
5. Place of sampling	Near Railway Station
6. Environmental conditions during sampling & Transport	Clear
7. Sampling Plan & Method used	

Report No. : MSKGLIED2023-24/004580

Sample No. : MSKGLIED2023-24/0100985

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	15.6
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 Part 10:1989 (Reaff. 2014) (NDIR) (C)	2 8HR	0.76
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro g/m <sup>3</sup>	IS 5182 Part 6:2006 (Reaff. 2012) (C)	80 24 HR	28.0
4	Ozone (O <sub>3</sub> )	micro g/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR	BDL (DL:20.0)
5	Particulate Matter (<10um)	micro g/m <sup>3</sup>	IS 5182 Part 28:2006 (Reaff. 2012) (C)	100 24 HR	260
6	Particulate Matter (<2.5um)	micro g/m <sup>3</sup>	IS 5182 (PT-24):2019 (C)	60 24 HR	196
7	Sulphur Dioxide (SO <sub>2</sub> )	micro g/m <sup>3</sup>	IS 5182 Part 2:2001 (Reaff. 2012) (C)	80 24 HR	7.2

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory



## Address of Laboratory :

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3, Pegladanga Road, Kolkata 700016  
West Bengal  
Tel : +91 7044036128  
Email: udayanlab@mitrask.com



TC-4890



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

AMP, - Joda, Dist. - Kanchipuram, Odisha - 756036 India

Report No. :

MSKPLED/2023-24/1215U

Date :

06/02/2024

Sample No. :

MSKNB/ED/2023-24/01/3B3CA7

Date of receipt of sample:

27/01/2024

Date(s) of performance:

27/01/2024 - 06/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	NA
4. Date of sampling	23/01/2024
5. Place of sampling	Near Time Office
6. Environmental conditions during sampling & Transport	1) Temperature : 15-30 deg C 2) Barometric Pressure : 733 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-1,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Akash Kr Sanyal, Lata Naskar
9. Field Equipments Used	MSK/GBL/FIELDVDS-2

Report No. : MSKPLED/2023-24/1215U

Sample No. : MSKNB/ED/2023-24/01/3B3CA7

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:5.0)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.25
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 16th November 2006 for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed by:

Signature

Name : Ms. Palli Ganguly

Designation : Executive Chemist

Authorized Signatory:

Signature

Name

Designation

This report is valid only for the sample(s) tested.

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The retained part of sample(s) for chemical analysis (Non-perishable sample(s) (Food/Water) will be retained for 15 days from the date of issue of this Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Non-perishable sample(s) (Food/Water) will be retained for 15 days from the date of issue of this Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Non-perishable sample(s) (Food/Water) will be retained for 15 days from the date of issue of this Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

AtPO. : Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004548

Date :

10/02/2024

Sample No. :

MSKGL/ED/2023-24/01000901

Reference No. & Date :

3000156017/036, Date - 15/06/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	23/01/2024
5. Place / Mistinging	Road/Time /Offroad
6. Environmental condition during sampling & Transport	Clear
7. Sampling Point & Method used	RA

Report No. : MSKGL/ED/2023-24/004548

Sample No. : MSKGL/ED/2023-24/01000901

## RESULT

### Analysis Result of Ambient Air

Sl No	Parameter	Unit	Method	Limit	Result
1	Amonia (NH3)	micro gram/m3	IS 5182 (Part 25)	400 24 HR.	17.5
2	Carbon Monoxide (CO)	mg/m3	IS 5182 : Part 10 : 1998 (Reaff. 2014) (NDIR) (C)	2 8HR.	0.91
3	Nitrogen Dioxide (NO2)	micro gram/m3	IS 5182 : Part 6 : 2016 (Reaff. 2012) (D)	80 24 HR.	21.2
4	Ozone (O3)	micro gram/m3	IS 5182 (Part 8)	180 1 HR.	BCD (DL-20.0)
5	Particulate Matter (<10um)	micro gram/m3	IS 5182, Part 28:2006 (Reaff. 2012) (D)	300 24 HR.	29.1
6	Particulate Matter (<2.5um)	micro gram/m3	IS 5182 (PT-24) 2016 (D)	60 24 HR.	11.3
7	Sulphur Dioxide (SO2)	micro gram/m3	IS 5182 : Part 1 : 2001 (Reaff. 2012) (D)	80 24 HR.	7.9

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

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West Bengal  
Tel : +91 7044038120  
Email: udayanlab@mtmsk.com



TC-0005



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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM) Joda West

At/To : Joda Dist - Kanchhar, Odisha - 758034 India

## Report No. :

MSKPL/ED/2023-24/L12168

## Date :

06/03/2024

## Sample No. :

MSKNB/ED/2023-24/01/6X3CD

## Date of receipt of sample :

27/01/2024

## Date(s) of performance :

27/01/2024 - 08/02/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date : 16/09/2023

## Discipline :

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	23/01/2024
5. Place of sampling	Near D-Quarry Shoring Yard
6. Environmental conditions during sampling & Transport	1) Temperature :15-30 deg C 2) Barometric Pressure: 733 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182 (Part 11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Akash K. Sanyal, Lalit Nair
9. Field Equipments Used	MSK/BBL/FIELD/PCS-6

Report No. : MSKPL/ED/2023-24/L12168

Sample No. : MSKNB/ED/2023-24/01/6X3CD7

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-40 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-40 3.4, June	3 (24 Hours)	BDL(DL:0.04)
5	Manganese as Mn	micro gram/m3	USEPA-40 3.4, June	Not Specified	0.07
6	Nickel as Ni	ng/m3	USEPA-40 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 16th November 2000, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By

Signature

Name

Designation

P. Ganguly

Mr. Pall Ganguly

Executive Chemist

Authorized Signatory

Signature

Name

Designation

Dr. Soumitra Mahapatra

Lab in charge

This report is valid only to the (name) listed

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 7 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Sol, Semi &amp; Liquid Vessel) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Shaved Vials, Swabs (ect) shall be retained for 15 days from the date of issue of the Test Report.

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Email: info@mtmsk.com Website: www.mtmsk.com



Address of Branch :

P.O. Bani (D) Keonjhar Dist. 758103



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## TEST REPORT

Name & Address of Customer :

Tata Steel Ltd. (MGM), Joda West

AtPu - Joda Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004535

Date :

10/05/2024

Sample No. :

MSKGL/ED/2023-24/0100862

Reference No. & Date :

3000150017/058, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:-

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (If any)	Joda West Area & Mt. Mines
4. Date of sampling	23/01/2024
5. Place of sampling	Near D-Quarry Sharma Vard
6. Environmental conditions during sampling & Transport	Cloudy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004535

Sample No. : MSKGL/ED/2023-24/0100862

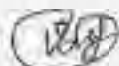
## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Amonia (NH <sub>3</sub> )	mg/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	18.8
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5112 - Part 10 : 1999 (Reaff. 2014) (INDIR) (C)	2 8HR.	0.52
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 - Part 5 : 2008 (Reaff. 2012) (O)	80 24 HR.	22.5
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL (DL 20.4)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 - Part 23 : 2008 (Reaff. 2012) (O)	100 24 HR.	153
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (PT-24), 2018 (O)	60 24 HR.	88
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 - Part 2 : 2001 (Reaff. 2012) (O)	80 24 HR.	9.6

END

Report Verified By



For Mitra S. K. Private Limited



Authorised Signatory



## Address of Laboratory :

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3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. +91 7044036120  
Email: udayanlab@mitrask.com



TC-0830



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM), Joda West

AMPD - Joda, Dist - Nuvaurpur, Odisha - 756034 India

Report No. :

MSKPL/ED/2023-24/21215C

Date :

06/02/2024

Sample No. :

MSKNB/ED/2023-24/01/D13C8J

Date of receipt of sample:

27/01/2024

Date(s) of performance:

27/01/2024 - 06/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

0000159017/058, Date - 16/08/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results.

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	23/01/2024
5. Place of sampling	Near D-Quarry Screen
6. Environmental conditions during sampling & Transport	1) Temperature: 15-30 deg C 2) Barometric Pressure: 733 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Akash Kr Sanyal, Lab. Asst.
9. Field Equipments Used	MSKMBRL/ED-13MDS-8

Report No. : MSKPL/ED/2023-24/21215C

Sample No. : MSKNB/ED/2023-24/01/D13C8J

## RESULT

Chemical					
Sl. No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-ID 3.4, June	6 (Annual)	BDL(DL 1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	6 (Annual)	BDL(DL 4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 10)	1 (Annual)	BDL(DL 0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-ID 3.4, June	4 (24 Hours)	BDL(DL 0.01)
5	Manganese as Mn	micro gram/m3	USEPA-ID 3.4, June	Not Specified	0.34
6	Nickel as Ni	ng/m3	USEPA-ID 3.4, June	20 (Annual)	BDL(DL 5.0)

Options : Limit as per CPCB notification, New Delhi, 10th November 2005, for ambient air quality

Statement of Conformity : NA

— END —

Reviewed by:

Signature

Name

Designation

P. Ganguly

Ms. Pali Ganguly

Executive Chemist

Analyst Signature:

Signature

Name

Designation

Dr. Sanyal  
Lab. in charge

The results relate only to the sample(s) tested.

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The total weight of sample(s) for chemical analysis (both - particulate samples) Fluid/Water) shall be retained for 15 days from the date of issue of the Test Report. Detachable sample(s) shall be retained 2 days over the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (both - Solid & Liquid Waste) shall be retained for 15 days as per CPCB notification dated 10th November 2005 from the date of issue of the Test Report. The retained part of sample(s) for Microbiological analysis (Non - pathogenic samples) Food, Surface Water, Sewage Effluent) shall be retained for 15 days from the date of issue of the Test Report.

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Email: info@mitrask.com Website: www.mitrask.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (HGM), Joda West

APPO, Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004536

Date :

10/02/2024

Sample No. :

MSKGL/ED/2023-24/0100993

Reference No. & Date :

U000126017/066, DMM - 15/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (If any)	Joda West Iron & Mn Mines
4. Date of sampling	23/01/2024
5. Place of sampling	Neel Ch Quality Super Pit
6. Environmental conditions during sampling & Transport	Good
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004536

Sample No. : MSKGL/ED/2023-24/0100993

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1.	Aerosols (NH3)	micro gram/m3	IS 5182 (Part 25)	400 24 HR.	27.2
2.	Carbon Monoxide (CO)	mg/m3	IS 5182 (Part 10 : 1996 (Reaff. 2014) (NDIR) (O)	2 8HR.	3.62
3.	Nitrogen Dioxide (NO2)	micro gram/m3	IS 5182 (Part 6 : 2006 (Reaff. 2012) (O)	80 24 HR.	22.5
4.	Ozone (O3)	micro gram/m3	IS 5182 (Part 9)	180 1 HR.	608.0 (L: 20.0)
5.	Particulate Matter (<10um)	micro gram/m3	IS 5182 (Part 23:2006 (Reaff. 2012) (O)	100 24 HR.	102
6.	Particulate Matter (<2.5um)	micro gram/m3	IS 5182 (PT-24):2018 (O)	60 24 HR.	54
7.	Sulphur Dioxide (SO2)	micro gram/m3	IS 5182 (Part 2 : 2001 (Reaff. 2012) (O)	80 24 HR.	6.5

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pataliputra Road, Kolkata 700015  
West Bengal  
Tel : +91 7044035120  
Email: udayanlab@mitrasr.com



TC-6900



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## TEST REPORT

### Name & Address of Customer :

Jata Steel Ltd.(MCM),Joda West

Joda, Joda, Dist. - Kanchan, Odisha - 756034 India

Report No. :

MSKPL/ED/2023-24/F 1215R

Date :

06/02/2024

Sample No. :

MSKNB/ED/2023-24/01/KW3CB

Date of receipt of sample:

27/01/2024

Date(s) of performance:

27/01/2024 - 06/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000166017/058, Date - 16/03/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results.

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	23/01/2024
5. Place of sampling	Near H-Quarry Rest Shelter
6. Environmental conditions during sampling & Transport	1) Temperature - 15.00 (deg C) 2) Barometric Pressure - 733 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-11/12) & USEPA
8. Identification of the personnel performing sampling by MSK	Akash K. Sanyal, Lab In-charge
9. Field Equipments Used	MSKBBU/FIELDPCS-1

Report No. : MSKPL/ED/2023-24/F1215R

Sample No. : MSKNB/ED/2023-24/01/KW3CB

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3-4, June	5 (Annual)	BDL(UL1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(UL1.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(UL0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3-4, June	1 (24 hours)	BDL(UL0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3-4, June	Not Specified	0.14
6	Nickel as Ni	ng/m3	USEPA-IO 3-4, June	20 (Annual)	2.7

Conclusion :

Limit as per CPCB notification, New Delhi: 01th November 2005, for Ambient Air Quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature

Name : Mr. P. Ganguly

Designation : Executive Chemist

*P. Ganguly*

Authorized Signatory:

Signature

Name

Designation

*P. Ganguly*  
Lab In-charge

This report is valid only to the extent of the test(s) performed.

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The retained part of sample(s) for chemical analysis (Non - portable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Portable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The retained part of sample(s) for microbiological analysis (Non - portable sample(s) Food, Sealed Water, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report. Portable sample(s) for microbiological analysis (Non - portable sample(s) Food, Sealed Water, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report.

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E-mail: udayanlab@mitrasr.com Website: www.msklab.com





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (NLM) Joda West

AsPu : Joda, Dist : Konyakur, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/014531

Date :

10/02/2024

Sample No. :

MSKGL/ED/2023-24/0140994

Reference No. & Date :

3003150017/056, Date: 14/06/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of Sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West - Iron & Mn Mines
4. Date of sampling	23/01/2024
5. Place of sampling	Near 14 Quarry, Baril, Orissa
6. Environmental conditions during sampling & Transport	Good
7. Sampling Place & Method used	NA

Report No. : MSKGL/ED/2023-24/014531

Sample No. : MSKGL/ED/2023-24/0140994

## RESULT

### Analysis Result of Ambient Air

Sl No	Parameter	Unit	Method	Limit	Result
1	Ambient (NH3)	micro gram/m3	IS 5182 (Part 25)	400 24 HR	17.5
2	Carbon Monoxide (CO)	mg/m3	IS 5182 : Part 10 : (Rev. 2014) (NMR) (O)	2 24 HR	0.61
3	Nitrogen Dioxide (NO2)	micro gram/m3	IS 5182 : Part 6 : 2006 (Rev. 2012) (O)	80 24 HR	20.2
4	Ozone (O3)	micro gram/m3	IS 5182 (Part 8)	180 1 HR	BCI (DL-20.0)
5	Particulate Matter (<10um)	micro gram/m3	IS 5182 : Part 24 : 2006 (Rev. 2012) (O)	100 24 HR	101
6	Particulate Matter (<2.5um)	micro gram/m3	IS 5182 (PT 24) 2019 (O)	60 24 HR	89
7	Sulphur Dioxide (SO2)	micro gram/m3	IS 5182 : Part 2 : 2001 (Rev. 2012) (O)	80 24 HR	7.6

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory

Head Office:

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Email: info@mitra-sk.com Website: www.mitra-sk.com

Page 1 of 1



## Address of Laboratory :

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West Bengal  
Tel. : +91 7944036120  
Email: udayanlab@mitrasrk.com



TC-0950



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM), Joda West

ANP, Joda, Dist - Kanchipur, Odisha - 756034, India

Report No. :

MSKPL/ED/2023-24/D12150

Date :

06/02/2024

Sample No. :

MSKNB/ED/2023-24/01/Y53CCQ

Date of receipt of sample :

27/01/2024

Date(s) of performance :

27/01/2024 - 05/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

3000156017/056, Date - 16/09/2023

Discipline :

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	NA
4. Date of sampling	23/01/2024
5. Place of sampling	Near Gangaguda, P.
6. Environmental conditions during sampling & Transport	1) Temperature: 15-30 deg C 2) Barometric Pressure: 733 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS-5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Aakash K. Rathi, Lalit Nish
9. Field Equipments Used	MSK/BBL/FIELD/03154

Report No. : MSKPL/ED/2023-24/D12150

Sample No. : MSKNB/ED/2023-24/01/Y53CCQ

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL 1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL 4.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL 0.0)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.04
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.25
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	0.0

Opinion : Limit as per CPCB notification, New Delhi, 19th November 2009, for Ambient air quality

Statement of Conformity : N/A

END

Reviewed by

Signature

Name

Designation

*P. Ganguly*  
Mr. P. Ganguly

Executive Chemist

Authorized Signatory

Signature

Name

Designation

*[Signature]*  
Dr. Subhankar Ghosh  
Lab in charge

The results are valid only for the date(s) listed.

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The retained part of sample(s) for chemical analysis (Air - verifiable sample(s) (Solid, Water) shall be retained for 15 days from the date of issue of the Test Report. Potentially sample(s) shall be retained 27 days from the date of issue of the Test Report.

The retained part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days for verifiable sample(s) & (Air) 1 month from the date of issue of the Test Report.

The retained part of sample(s) for Microbiological analysis (Water - verifiable sample(s) Food, Solid Waste, Baked food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Street (Gangadhar Road), 748, J. C. Bose Road, Kolkata - 700015, West Bengal, India.  
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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

As Per :- Joda, Dist :- Koonjher, Odisha - 758034 India (H)

Report No. :-

Date :-

Sample No. :-

Reference No. & Date :

MSKGLIED/2023-24/054562

10/02/2024

MSKGLIED/2023-24/01/00890

300/150017/050 Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	23/01/2024
5. Place of sampling	Near Changanassa, OH
6. Environmental conditions during sampling & Transport	Cloudy
7. Sampling Type & Method used	NA

Report No. : MSKGLIED/2023-24/054562

Sample No. : MSKGLIED/2023-24/01/00890

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	14.3
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 : Part 10 : 1999 (Reaff. 2014) (NDIR) (C)	2 6HR	0.67
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 : Part 6 : 2006 (Reaff. 2012) (C)	80 24 HR	27.3
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	160 1 HR	80L (CL-35.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182: Part 31:2006 (Reaff. 2012) (C)	100 24 HR	166
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (PT-24) 2019 (C)	50 24 HR	94
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 : Part 2 : 2001 (Reaff. 2012) (C)	80 24 HR	7.7

END

Report Verified By

For Mitra S. K. Private Limited

Authorized Signatory

Head Office:

Address: Dunder (Bh. Hall) 194, A.J.C. Road, Kallada - 75010 West Bengal, India.  
Tel. : 910040143000/3040000 Fax: 91 03 22900000  
Email : info@msk.com Website : www.msk.com



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6938



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URL: TC-69502400001/143F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West

AUDA, Joda, Dist - Koorbhar, Odisha - 758034 INDIA

Report No. :

MSK/ED/2023-24/T12151

Date :

08/02/2024

Sample No. :

MSK/ED/2023-24/01/S93C96

Date of receipt of sample:

27/01/2024

Date(s) of performance:

27/01/2024 - 08/02/2024

Location of performance of

Performance Facility

Reference No. &amp; Date :

3000158017/056, Date - 16/06/2023

Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	NA
4. Date of sampling	23/01/2024
5. Place of sampling	Near Railway Station
6. Environmental conditions during sampling & Transport	1) Temperature: 15-30 deg C 2) Barometric Pressure: 733 mm of Hg 3) Rain fall : No & Cold Chait: Maintained
7. Sampling Plan & Method used	IS 5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Atanu Kr Sathy, Lalin Nask
9. Field Equipments Used	MSK/BEL/FIELD/RDS-3

Report No. : MSK/ED/2023-24/T12151

Sample No. : MSK/ED/2023-24/01/S93C96

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ug/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL 1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL 4.2)
3	Benz(a)Pyrene	ug/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL 0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.45
6	Nickel as Ni	ug/m3	USEPA-IO 3.4, June	20 (Annual)	0.9

Option : Limit as per CPCB notification, New Delhi, 10th November 2009, for Ambient Air Quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

Name:

Designation:

P. Ganguly

Mr. Pail Ganguly

Executive Chemist

Authorized Signatory:

Signature:

Name:

Designation:

Dr. Subrata Kumar Bhattacharya

Lab In-charge

The results valid only in the format issued

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The retained part of sample(s) for chemical analysis (Ambient - particulate sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Retainable sample(s) shall be retained 3 days from the date of issue of the Test Report

The retained part of sample(s) for chemical analysis (Ambient - particulate sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Retainable sample(s) shall be retained 3 days from the date of issue of the Test Report

The retained part of sample(s) for chemical analysis (Ambient - particulate sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Retainable sample(s) shall be retained 3 days from the date of issue of the Test Report

Head Office: Street Corner SBI Flax, 74B, A.J.C. Road, Bhubaneswar, Odisha - 751015, West Bengal, India  
Tel : 91 3040140001 / 2280007 Fax : 91 30 2280008  
Email : info@mitrask.com Website : www.mitrask.com



## Address of Branch :

P.O. Barabati, Bhubaneswar, Odisha-751005



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## TEST REPORT

### Name & Address of Customer :

Total Steel & Iron (TOMI) - Joda West

APR, - Joda, Dist. - Keonjhar, Odisha - 755034 India Pin

Report No. :

MSKGL/ED/2023-24/004537

Date :

16/09/2024

Sample No. :

MSKGL/ED/2023-24/01/00995

Reference No. & Date :

3000166017/050, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mine
4. Date of sampling	23/01/2024
5. Place of sampling	Near Railway Station
6. Environmental conditions during sampling & Transport	Cloudy
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004537

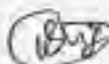
Sample No. : MSKGL/ED/2023-24/01/00995

## RESULT

Analysis Result of Ambient Air					
Sl No.	Parameter	Unit	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	17.5
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 - Part 10 : 1998 (Reaff. 2014) (NIR) (C)	2 8HR	0.58
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 - Part 6 : 2006 (Reaff. 2012) (C)	80 24 HR	24.5
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	160 1 HR	BDL (DL 29.0)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182 - Part 23:2006 (Reaff. 2017) (C)	600 24 HR	175
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 24) 2019 (C)	80 24 HR	57
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 - Part 1 : 2001 (Reaff. 2012) (C)	80 24 HR	9.6

—END—

Report Verified By



For Mitra S. K. Private Limited



Authorised Signatory



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-5920



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West

Address: Joda, Dist. - Keonjhar, Odisha - 758034 India

### Report No. :

MSKPL/ED/2023-24/F1147G

### Date :

03/02/2024

### Sample No. :

MSKNB/ED/2023-24/01/N16A1E

### Date of receipt of sample :

05/01/2024

### Date(s) of performance :

05/01/2024 - 02/02/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000195017/056 (Date - 18/09/2023)

### Discipline :

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results.

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	NA
4. Date of sampling	02/01/2024
5. Place of sampling	Bichakimul Basti Area Agartala Center
6. Environmental conditions during sampling & Transport	IS:5182(P-11,12) & USEPA
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pranab Saha/Dharmendra Chak, Lata Naskar
9. Field Equipments Used	MSK/BAL/FIELD/RDS-15

Report No. : MSKPL/ED/2023-24/F1147G

Sample No. : MSKNB/ED/2023-24/01/N16A1E

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m <sup>3</sup>	USEPA-ID 3.4, June	6 (Annual)	BDL (DL:1.0)
2	Benzene	micro gm/m <sup>3</sup>	IS 5182 (Part 11)	5 (Annual)	BDL (DL:4.2)
3	Benz(a)Pyrene	ng/m <sup>3</sup>	IS 5182 (Part 12)	1 (Annual)	BDL (DL:0.5)
4	Lead (as Pb)	micro gm/m <sup>3</sup>	USEPA-ID 3.4, June	1 (24 Hours)	BDL (DL:0.01)
5	Manganese as Mn	micro gm/m <sup>3</sup>	USEPA-ID 3.4, June	Not Specified	0.03
6	Nickel as Ni	ng/m <sup>3</sup>	USEPA-ID 3.4, June	20 (Annual)	BDL (DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By

Signature

Name : Dr. Devdatta Banerjee

Designation : Technician in charge

Authorized Signatory

Signature

Name : Dr. Soumenjit Mukherjee

Designation : Lab in charge

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Perishable sample(s) Food, Sealed Water, Sealed Food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: (Branch) Centre (Bh. Plot), 7th, A.J.C. Road, Kolkata - 700016, West Bengal, India  
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Email : info@mitrask.com Website : www.mitrask.com



## Address of Branch :

P. O. Barhi Di Kharhar Odisha 759 035



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**TEST REPORT**

## Name &amp; Address of Customer :

Tara Steel Ltd. (MDM) Joda West

At Po. - Joda, Dist. - Kharhar, Odisha - 759034 India Pin

## Report No. :

MSKGL/ED/2023-24/004433

## Date :

02/01/2024

## Sample No. :

MSKGL/ED/2023-24/01/00161

## Reference No. &amp; Date :

3000159317/056, Date - 15/09/2023

We hereby certify that the following service /Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn. Mine
4. Date of sampling	02/01/2024
5. Place of sampling	Bichkundil Bakh Apsa Agansuri Center
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004433

Sample No. : MSKGL/ED/2023-24/01/00161

**RESULT**

## Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Unit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2B)	400 24 HR.	24.5
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 - Part 10 : 1999 (Reaff. 2014) (MOR) (C)	2 8HR.	0.44
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 : Part 5 : 2008 (Reaff. 2012) (C)	80 24 HR.	24.5
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BOL (DL-20.0)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182: Part 23:2008 (Reaff. 2012) (C)	100 24 HR.	13.1
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (PT-24), 2015 (C)	60 24 HR.	63
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 - Part 2 : 2001 (Reaff. 2012) (C)	80 24 HR.	3.6

— END —

Report Verified By



For Mitra S. K. Private Limited

  
 Authorized Signatory



**Address of Laboratory :**

Building No. P-48, Udayan Industrial Estate,  
 1 Pooladanga Road, Kolkata 700015  
 West Bengal  
 Tel : +91 7044036120  
 Email: udayanlab@mitrask.com



TC-4939



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URL: TC-0930240000016340

**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd (MGM), Joda West

At/Po.: Joda, Dist.: Keonjhar, Odisha - 758034 India

**Report No. :**

MSKPL/ED/2023-24/01148W

**Date :**

03/02/2024

**Sample No. :**

MSKNB/ED/2023-24/01/PCFA0R

**Date of receipt of sample:**

05/01/2024

**Date(s) of performance:**

05/01/2024 - 02/02/2024

**Location of performance of**

Permanent Facility

**Reference No. & Date :**

3000160177JSE, Date - 10/08/2023

**Discipline:**

Chemical

We hereby certify that the following sample given by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	02/01/2024
5. Place of sampling	In Front of Administration office Bichkundli
6. Environmental conditions during sampling & Transport	1) Temperature - 18-32 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain fall, No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182 (Part 11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Prashant Saini, Dharmabhar Das, Lalit Nish
9. Field Equipments Used	MSKIBLUFIELDRDS-14

**Report No. :** MSKPL/ED/2023-24/01148W**Sample No. :** MSKNB/ED/2023-24/01/PCFA0R**RESULT****Chemical**

S/ No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as As	µg/m <sup>3</sup>	USEPA-IO 3.4, June	5 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m <sup>3</sup>	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.7)
3	Benz(a)Pyrene	ng/m <sup>3</sup>	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m <sup>3</sup>	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m <sup>3</sup>	USEPA-IO 3.4, June	Not Specified	0.14
6	Nickel as Ni	ng/m <sup>3</sup>	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.9)

**Opinion :** Limit as per CPCB notification, New Delhi, 16th November 2008, for Ambient air quality.**Statement of Conformity** NA

— END —

**Reviewed By:****Signature:****Name:****Designation:**

Dr. Debasmita Banerjee

Technical in charge

**Authorized Signatory:****Signature:****Name:****Designation:**

Dr. Subrat Kumar Mukherjee

Lab in charge

The results relate only to the facts as stated.

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The retained part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The retained part of sample(s) for microbiological analysis (Bact., Fungi &amp; Yeast) shall be retained for 15 days as per CPCB guidelines &amp; (Air) 1 month from the date of issue of the Test Report. The retained part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Baked Water, Baked Food) shall be retained for 10 days from the date of issue of the Test Report.

**Head Office:**

Street Office (5th Floor), 21B, A.C.C. Bazar Road, Kolkata - 700010, West Bengal, India.  
 Tel.: 91 9047143001 / 2664607 Fax: 91 90 2660305  
 Email: info@mitrask.com Website: www.mitrask.com



## Address of Branch :

P.O. Barhi (Koraput) Dist. 758 025



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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGN) - Joda West

ADPO - Joda, Dist - Koraput, Odisha - 758034, India Pin

## Report No. :

MSKGL/ED/2023-24/004427

## Date :

10/02/2024

## Sample No. :

MSKGL/ED/2023-24/01/00100

## Reference No. &amp; Date :

30001500171005, Date - 15/08/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn. Mines
4. Date of sampling	02/01/2024
5. Place of sampling	In Front of Administration office Bichakundi
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004422

Sample No. : MSKGL/ED/2023-24/01/00160

## RESULT

## Analysis Result of Ambient Air

Sl. No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	BOL(DL:10.0)
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 Part 19 (1998) (Reaff. 2014) (NIR) (Q)	2 8HR.	0.54
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 Part 3 : 2006 (Reaff. 2012) (Q)	80 24 HR.	15.5
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BOL(DL:20.0)
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 Part 23:2006 (Reaff. 2012) (Q)	100 24 HR.	153
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (PT-24):2019 (Q)	60 24 HR.	73
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 Part 2 : 2001 (Reaff. 2012) (Q)	80 24 HR.	BOL(DL:0.0)

END

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Panchsagar Road, Kolkata 700015  
West Bengal  
Tel : +91 704005120  
Email: udayanlab@mitrask.com



TC-0909



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URL: TC-090924000016387

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM), Joda West

AlPa - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

Date :

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. &amp; Date :

Discipline:

MSKPL/ED/2023-24/011475

03/02/2024

MSKNE/ED/2023-24/01/NBKDSJ

03/01/2024

03/01/2024 - 02/02/2024

Permanent Facility

3000159017/055, Uda - 15/08/2023

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	03/01/2024
5. Place of sampling	near Hume Pump House
6. Environmental conditions during sampling & Transport	1) Temperature: 14-30 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain fall: No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182 (P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik K/ Manin Mukesh Halder, Prasad Sethi
9. Field Equipments Used	MSKBBL/FIELD/ROD-13

Report No. : MSKPL/ED/2023-24/011475

Sample No. : MSKNE/ED/2023-24/01/NBKDSJ

## RESULT

### Chemical

Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL (DL:1.0)
2	Benzene	micro gram/m3	IS 5182 (Part 11)	5 (Annual)	BDL (DL:4.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL (DL:0.5)
4	Lead (as Pb)	micro gram/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL (DL:0.01)
5	Manganese as Mn	micro gram/m3	USEPA-IO 3.4, June	Not Specified	0.08
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL (DL:3.0)

Qualification : LMLab (per GPCB notification, New Delhi, 15th November 2009 for Ambient air quality)

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

Name:

Dr. Devashree Senapati

Designation:

Technician in charge

Authorized Signatory:

Signature:

Name:

Dr. Sanjay Kumar Mahapatra

Designation:

CSO in charge

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The preserved part of sample(s) for chemical analysis (from - certified sample(s) Food, Water) shall be retained for 15 days (not the date of issue of the Test Report). Perishable sample(s) shall be retained 3 days.

And (the date of issue of the Test Report).

The preserved part of sample(s) for microbiological analysis (from - perishable sample(s)) Food, Water shall be retained for 15 days (not the date of issue of the Test Report).

The preserved part of sample(s) for microbiological analysis (from - perishable sample(s)) Food, Water shall be retained for 15 days (not the date of issue of the Test Report).

The preserved part of sample(s) for microbiological analysis (from - perishable sample(s)) Food, Water shall be retained for 15 days (not the date of issue of the Test Report).

Head Office: Block C, 5th Floor, V.A. &amp; J.G. Road Road, Kolkata - 700015, West Bengal, India

Tel: 03 30-4040051/ 2400007 Fax: 03 30 2260000

Email: info@mitrask.com Website: www.mitrask.com



## Address of Branch :

P.O. Barfi Di Keonjhar Orissa 756035



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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel LILIMOM, Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 756034 India Pin

Report No. :

MSKGLIED/2023-24/00434

Date :

10/01/2024

Sample No. :

MSKGLIED/2023-24/01/00257

Reference No. &amp; Date :

SK0158017/050, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	03/01/2024
5. Place of sampling	Katha Huttan, Purnea House
6. Environmental conditions during sampling & Transport	Clean & Silent
7. Sampling Plan & Method used	NA

Report No. : MSKGLIED/2023-24/00434

Sample No. : MSKGLIED/2023-24/01/00257

## RESULT

## Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Amonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	BDL(DL-10.0)
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 : Part 10 : 1999 (Reaff.2014) (NDIR) (O)	2' 3HR.	0.35
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 : Part 2 : 2006 (Reaff.2012) (O)	60 24 HR.	15.5
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR.	BDL(DL-20.0)
5	Particulate Matter (<10µm)	micro gm/m <sup>3</sup>	IS 5182 Part 23-2006 (Reaff.2012) (O)	100 24 HR.	162
6	Particulate Matter (<2.5µm)	micro gm/m <sup>3</sup>	IS 5182 (PT-24) 2013 (O)	60 24 HR.	56
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 : Part 12 : 2001 (Reaff.2012) (O)	60 24 HR.	7.4

— END —

Report Verified By

For Mitra S. K. Private Limited



Authorised Signatory



## Address of Laboratory :

Building No. P- 46, Udayan Industrial Estate,  
3, Pagaradanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000001717F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

WFO - Joda, Dist - Jharkhand, PIN - 758034 India

### Report No. :

MSKPL/ED/2023-24/B1204E

### Date :

05/02/2024

### Sample No. :

MSKNB/ED/2023-24/01/T2227T

### Date of receipt of sample:

16/01/2024

### Date(s) of performance:

16/01/2024 - 08/02/2024

### Location of performance of

Permanent Facility

### Reference No. & Date :

3000156017/056, Date - 16/09/2023

### Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	13/01/2024
5. Place of sampling	CHEMICAL LAB, JODA - JHMM
6. Environmental conditions during sampling & Transport	1) Temperature: 10-28 deg C 2) Barometric Pressure: 733 mm of Hg 3) Rain fall No & Cold Chain Maintained
7. Sampling Plan & Method used	IS-5122(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	AKASH KUMAR SETHI, LALIN KUMAR NAIK
9. Field Equipments Used	MSK/BSL/INELDRDS-14

Report No. : MSKPL/ED/2023-24/B1204E

Sample No. : MSKNB/ED/2023-24/01/T2227T

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Ambient SO <sub>2</sub> (As)	µg/m <sup>3</sup>	USEPA-ID 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m <sup>3</sup>	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benz(a)Pyrene	ng/m <sup>3</sup>	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m <sup>3</sup>	USEPA-ID 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m <sup>3</sup>	USEPA-ID 3.4, June	Not Specified	0.31
6	Nickel as Ni	µg/m <sup>3</sup>	USEPA-ID 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per GPCB notification, New Delhi, 1987 (overcome 2002) for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By:

Signature:

Name:

Designation:

P. Jeyaraj  
Mr. P. Jeyaraj

Executive Chemist

Authorized Signatory:

Signature:

Name:

Designation:

P. Jeyaraj  
Mr. P. Jeyaraj  
Lab in charge

The results given only to the person(s) to whom:

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The reserved part of sample for chemical analysis (Non - destructive sample) of Food, Water and/or related to 15 days from the date of issue of the Test Report. For water sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample for chemical analysis (Non - destructive sample) shall be retained for 15 days from the date of issue of the Test Report. For water sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample for chemical analysis (Non - destructive sample) of Food, Water and/or related to 15 days from the date of issue of the Test Report. For water sample(s) shall be retained 2 days from the date of issue of the Test Report.

Head Office: 3/46, A.J.C. Road, Kolkata - 700015, West Bengal, India

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Email : info@mitrask.com Website : www.mitrask.com



## Address of Branch :

P.O. Darbi (K) Keonjhar Dist. 755 035



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## TEST REPORT

### Name & Address of Customer :

Felix Steel Ltd.(MGN) - Joda West

AMPo. - Joda, Dist. - Keonjhar, Odisha - 755034 India Pin

Report No. :

MSKGL/ED/2023-24/004478

Date :

10/02/2024

Sample No. :

MSKGL/ED/2023-24/01/00568

Reference No. & Date :

3600156017, Date - 28/02/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air (Buffer Zone)
3. Unique Identification of sample (if any)	Joda West Iron & Mn Mines
4. Date of sampling	12/01/2024
5. Place of sampling	Chennel Lode Building, Joda West
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004478

Sample No. : MSKGL/ED/2023-24/01/00568

## RESULT

### Analysis Result of Ambient Air

Sr No.	Parameter	Unit	Method	Limit	Result
1	Ambient (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR	15.5
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5142 : Part 10 : 1998 (Reaff 2014) (INDRY) (C)	2 8HR	0.07
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 : Part 6 : 2006 (Reaff 2012) (C)	80 24 HR	23.5
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	180 1 HR	BOLITA 20.0
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS 5182 : Part 23 (2006) (Reaff. 2012) (C)	100 24 HR	120
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (PT-24) 2019 (C)	60 24 HR	60
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 : Part 2 : 2001 (Reaff. 2012) (C)	80 24 HR	7.5

END

Report Verified By



For Mitra S. K. Private Limited

Authorised Signatory



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Payladanga Road, Kolkala 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrasr.com



TC-0990



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URL: TC-695024000017187

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd. (MGM), Joda West

ADPO, - Joda, Dist. - Keshiari, Odisha - 758034 India

## Report No. :

MSKPL/ED/2023-24/51203G

## Date :

08/02/2024

## Sample No. :

MSKNB/ED/2023-24/01/KH2285

## Date of receipt of sample:

18/01/2024

## Date(s) of performance:

16/01/2024 - 05/02/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/058, Date : 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	Ambient Air Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	NA
4. Date of sampling	13/01/2024
5. Place of sampling	JODA WEST CAMP-JWMM
6. Environmental conditions during sampling & Transport	1) Temperature : 10.26 deg. C 2) Barometric Pressure : 733 mm of Hg 3) Rain fall : No & 4) Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-1, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	AKASH KUMAR SETHI, LALIN KUMAR NAIK
9. Field Equipments Used	MSKBSL/FIELD/RDS-14

Report No. : MSKPL/ED/2023-24/51203G

Sample No. : MSKNB/ED/2023-24/01/KH2285

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 1.4, June	6 (Annual)	BDL (DL: 1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL (DL: 4.2)
3	Benz(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL (DL: 0.8)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL (DL: 0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.34
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	5.2

Opinion: Limit as per CPCB notification, New Delhi, 08th November, 2009, for Ambient air quality

Statement of Conformity NA

END

Reviewed By:

Signature

Name

Designation

Mr. Prat Ganguly  
Executive Chemist

Authorized Signatory:

Signature

Name

Designation

Dr. Subhadra Nair  
Lab in charge

The results relate only to the item(s) listed.

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The returned part of sample(s) for chemical analysis (Non - perishable sample(s)) Food, Water, shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 7 days from the date of issue of the Test Report.

The returned part of sample(s) for chemical analysis (Perishable sample(s)) Food, Sealed Water, Sealed Food, shall be retained for 15 days as per CPCB guidance &amp; (Air) 1 month from the date of issue of the Test Report.

The returned part of sample(s) for Microbiological analysis (Non - perishable sample(s)) Food, Sealed Water, Sealed Food, shall be retained for 15 days from the date of issue of the Test Report.

Head Office: 3000156017 (1st Floor), HPL-3, J.J. Saha Road, Kolkata - 700016, West Bengal, India  
Tel: +91 31-4648900 / 2360007 Fax: +91 31 2360009  
Email: info@mitrasr.com Website: www.msksr.com



## Address of Branch :

P.O., Barai Di Kurehar Chas, 766 035



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**TEST REPORT**

## Name &amp; Address of Customer :

Tata Steel Ltd. (MSK) Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 756034 India PIN

## Report No.:

MSKGL/ED/2023-24/004482

## Date :

16/03/2024

## Sample No. :

MSKGL-DO/2023-24/0100565

## Reference No. &amp; Date :

H00150017, Date : 28/03/2023

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	Joda West Iron & Mn. Mines
4. Date of sampling	12/01/2024
5. Place of sampling	Joda West Campus, WMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Place & Method used	NA

Report No. : MSKGL/ED/2023-24/004482

Sample No. : MSKGL/ED/2023-24/0100565

**RESULT**

## Analysis Result of Ambient Air

Sl No.	Parameter	Unit	Method	Limit	Result
1	Amonia (NH3)	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	10.2
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part 10-1999 (Reaff 2014) (NOR) (O)	2 8HR.	0.39
3	Nitrogen Dioxide (NO2)	micro gram/m <sup>3</sup>	IS 5182 (Part 8-2005 (Reaff 2012) (O)	80 24 HR.	26.6
4	Ozone (O3)	micro gram/m <sup>3</sup>	IS 5182 (Part 9)	160 1 HR.	604 (DL 10.0)
5	Particulate Matter (<10µm)	micro gram/m <sup>3</sup>	IS 5182 (Part 23-2006 (Reaff 2012) (O)	100 24 HR.	188
6	Particulate Matter (<2.5µm)	micro gram/m <sup>3</sup>	IS 5182 (PT-24), 2019 (O)	60 24 HR.	86
7	Sulphur Dioxide (SO2)	micro gram/m <sup>3</sup>	IS 5182 (Part 2-2001 (Reaff 2012) (O)	80 24 HR.	7.1

— END —

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For Mitra S. K. Private Limited

  
 Authorised Signatory





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## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd (MSM) Joda West

At Po - Joda Dist. - Keonjhar, Odisha - 758034 India Pin

**Report No. :**

MSKGL/ED/2023-24/004254

**Date :**

10/01/2024

**Sample No. :**

MSKGL/ED/2023-24/1201406

**Reference No. & Date :**

3000156017/006, Date - 15/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample (if any)	BBL-4336 Near Time Office
4. Date of sampling	21/12/2023
5. Place of sampling	Near Time Office
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

**Report No. :** MSKGL/ED/2023-24/004254

**Sample No. :** MSKGL/ED/2023-24/1201406

## RESULT

Analysis Result of Ambient Air					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR	16.1
2	Carbon Monoxide (CO)	mg/m3	IS 5182 : Part 10 : 1999 (Reaff.2014) (NDIR) (O)	2 8HR	0.64
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 (Part 6) (O)	80 24 HR	32.3
4	Ozone (O3)	micro gm/m3	TPM/MSK/ENV/AP/01/07 (O)	180 1 HR	<20.0
5	Particulate Matter (<10um)	micro gm/m3	IS 5182 (Part 23) (O)	100 24 HR	110.7
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24) 2019 (O)	60 24 HR	50.6
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 (Part 2) 2001 Reaff.2005 (O)	80 24 HR	8.5

— END —

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For Mitra S. K. Private Limited

Authorized Signatory



## Address of Branch :

P.O. : Barbel Di Keonjhar Orissa 758 035



Scan for Detail

## Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

At/Pos. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

## TEST REPORT

Report No. :

MSKGL/ED/2023-24/004255

Date :

10/01/2024

Sample No. :

MSKGL/ED/2023-24/12/01407

Reference No. & Date :

3000158017/058, Date - 15/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	BEL-4337 Near Time Office
4. Date of sampling	22/12/2023
5. Place of sampling	Near Time Office
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004255

Sample No. : MSKGL/ED/2023-24/12/01407

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 2b)	400 24 HR.	19.5
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 : Part 10 : 1999 (Reaff.2014) (NDIR) (O)	2 8HR.	0.49
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	29.1
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	TPMMSK/ENV/AP/01/07 (O)	180 1 HR.	<20.0
5	Particulate Matter (<10µm)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	156.2
6	Particulate Matter (<2.5µm)	micro gm/m <sup>3</sup>	IS 5182 (PT-24),2019 (O)	80 24 HR.	85.8
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 2),2001 RIRm.2006 (O)	80 24 HR.	7.9

— END —

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory





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## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd.(MSM) Joda West

At/ Po. : Joda, Dist - Keonjhar, Odisha - 758034 India Pin

**Report No. :**

MSKGLIED/2023-24/004256

**Date :**

10/01/2024

**Sample No. :**

MSKGLIED/2023-24/1201408

**Reference No. & Date :**

3000156017/056, Date - 15/03/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	BBL-4339 In front of Administrative Office.
4. Date of sampling	26/12/2023
5. Place of sampling	In front of Administrative Office
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGLIED/2023-24/004256

Sample No. : MSKGLIED/2023-24/1201408

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UDM	Method	Limit	Result
1	Amonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HRL	16.9
2	Carbon Monoxide (CO)	mg/m3	IS 5182 : Part 10 :1999 (Reaff.2014) (NDIR) (O)	2 8HR	0.29
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 8) (O)	80 24 HRL	16.0
4	Ozone (O3)	micro gm/m3	TPMMSKENV/AP/01/07 (O)	180 1 HRL	<20.0
5	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	100 24 HRL	126.0
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24)2019 (O)	60 24 HRL	57.0
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 (Part 2)2001 Reaff.2006 (O)	80 24 HRL	<6.0

— END —

Report Verified By



For Mitra S. K. Private Limited

Authorised Signatory



## Address of Branch :

P.O. Barail Di Keonjhar Odisha 758 035



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd (MGM) Joda West

At Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004257

Date :

10/01/2024

Sample No. :

MSKGL/ED/2023-24/1201411

Reference No. & Date :

3000156017/056, Date - 15/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	BBL-4341 Jaraul High School Jandi
4. Date of sampling	27/12/2023
5. Place of sampling	Jaraul High School Jandi
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004257


Sample No. : MSKGL/ED/2023-24/1201411

## RESULT

### Analysis Result of Ambient Air

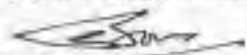
Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	11.6
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 : Part 10 : 1999 (Reaff.2014) (NDIR) (O)	2 8HR.	0.34
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	22.6
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	TPM/MSK/ENV/AP/01/07 (O)	180 1 HR.	<20.0
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	142.0
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (PT-24),2019 (O)	60 24 HR.	57.0
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2),2001 (Reaff.2006) (O)	80 24 HR.	<6.0

END

Report Verified By 



For Mitra S. K. Private Limited

  
Authorised Signatory





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## TEST REPORT

**Name & Address of Customer :**

Tata Steel Ltd.(MGM) ,Jhda West

At/Po. - Jhda Dist. - Koraput, Odisha - 758034 India Ph

**Report No. :**

MSKGLIED/2023-24/004258

**Date :**

10/01/2024

**Sample No. :**

MSKGLIED/2023-24/12/01410

**Reference No. & Date :**

3000156017/056, Date - 15/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results.

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	BBL-4349 Jajang High School, Jajang
4. Date of sampling	27/12/2023
5. Place of sampling	Jajang High School, Jajang
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

**Report No. :** MSKGLIED/2023-24/004258

**Sample No. :** MSKGLIED/2023-24/12/01410

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	13.6
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 : Part 10 :1999 (Reaff.2014) (NDIR) (O)	2 8HR	0.34
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	20.7
4	Ozone (O <sub>3</sub> )	micro gram/m <sup>3</sup>	TPMMSKENV(AP)01/07 (O)	180 1 HR.	<20.0
5	Particulate Matter (<10um)	micro gram/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	111.0
6	Particulate Matter (<2.5um)	micro gram/m <sup>3</sup>	IS 5182 (PT-24),2018 (O)	80 24 HR.	84.0
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gram/m <sup>3</sup>	IS 5182 (Part 2):2001 Refn:2006 (O)	80 24 HR.	<6.0

END

Report Verified By



For Mitra S. K. Private Limited

Authorized Signatory



## Address of Branch :

P.O. Barbil Dt Kionghar Orissa-758 035



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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(NLM) Joda West

At/ Po. : Joda, Dist. : Keonjhar, Odisha-758034, India Pin

Report No. :

MSKGL/ED/2023-24/004258

Date :

10/01/2024

Sample No. :

MSKGL/ED/2023-24/12/01408

Reference No. & Date :

1000150017/056, Date - 15/02/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	BEL-4338 Bichakundi Basti Area Anganbari Centre
4. Date of sampling	25/12/2023
5. Place of sampling	Bichakundi Basti Area Anganbari Centre
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004258

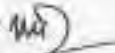
Sample No. : MSKGL/ED/2023-24/12/01408

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 25)	400 24 HR.	15.4
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 : Part 10 :1999 (Reaff.2014) (NDIR) (O)	2 8HR.	0.43
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS: 5182 (Part 6) (O)	80 24 HR.	19.8
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	TPMMSKENV(AP)01/07 (O)	180 1 HR.	<20.0
5	Particulate Matter (<10µm)	micro gm/m <sup>3</sup>	IS: 5182 (Part 23) (O)	100 24 HR.	47.3
6	Particulate Matter (<2.5µm)	micro gm/m <sup>3</sup>	IS 5182 (PT-24),2019 (O)	60 24 HR.	16.2
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 2),2001 Rftm:2006 (O)	80 24 HR.	<6.0

— END —

Report Verified By 



For Mitra S. K. Private Limited

Authorised Signatory

Head Office: Bhadrak (Guru 2nd Floor), 745, A.J.C. Road, Bhubaneswar-751005, West Bengal, India.  
Tel: 91 31 48549000 / 22860077 Fax: 91 30 22860692  
Email: msk@msk.com Website: www.msk.com





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**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd, (MCML) Joda West

A/Po. - Joda, Dist - Kanker, Orissa - 758034 India Pin

**Report No. :**

MSKGL/ED/2023-24/004280

**Date :**

16/01/2024

**Sample No. :**

MSKGL/ED/2023-24/01/00034

**Reference No. & Date :**

3000156017/056, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	29/12/2023
3. Unique Identification of sample (if any)	BBL-4357 Near Time Office
4. Date of sampling	29/12/2023
5. Place of sampling	Near Time Office
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

**Report No. :** MSKGL/ED/2023-24/004280**Sample No. :** MSKGL/ED/2023-24/01/00034**RESULT****Analysis Result of Ambient Air**

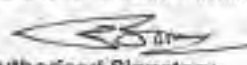
Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 2S)	400 24 HR.	10.1
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 : Part 10 :1999 (Reaff.2014) (NDIR) (O)	2 8HR.	0.39
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 : Part 6 : 2006 (Reaff.2012) (O)	30 24 HR.	25.5
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	TPMMSK/ENV/AP/01/07 (O)	180 1 HR.	<20.0
5	Particulate Matter (<10µm)	micro gm/m <sup>3</sup>	IS 5182 : Part 23:2006 (Reaff. 2012) (O)	100 24 HR.	125
6	Particulate Matter (<2.5µm)	micro gm/m <sup>3</sup>	IS 5182 (PT-24),2019 (O)	60 24 HR.	59.0
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 : Part 2 :2001 (Reaff.2012) (O)	80 24 HR.	6.0

— END —

Report Verified By




For Mitra S. K. Private Limited


  
 Authorised Signatory





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**TEST REPORT****Name & Address of Customer :**

Tata Steel Ltd.(MSM), Joda West

AdPa : Joda, Dist - Keonjhar, Odisha - 758034 India Pin

**Report No. :**

MSKGL/ED/2023-24/004261

**Date :**

10/01/2024

**Sample No. :**

MSKGL/ED/2023-24/01/003035

**Reference No. & Date :**

3000158017/068, Date : 16/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	29/01/2023
3. Unique Identification of sample(if any)	BOL-4358 Guruda Village
4. Date of sampling	29/12/2023
5. Place of sampling	Guruda Village
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

**Report No. :** MSKGL/ED/2023-24/004261**Sample No. :** MSKGL/ED/2023-24/01/000035**RESULT****Analysis Result of Ambient Air**

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	11.8
2	Carbon Monoxide (CO)	mg/m3	IS 5182 : Part 10 :1999 (Reaff.2014) (NDIR) (O)	2 8HR.	0.64
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 : Part 6 :2006 (Reaff.2012) (O)	80 24 HR.	21.0
4	Ozone (O3)	micro gm/m3	TPMMSK/ENV(AP)/01/07 (O)	180 1 HR.	<20
5	Particulate Matter (<10um)	micro gm/m3	IS 5182: Part 23:2006 (Reaff. 2012) (O)	190 24 HR.	87.0
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24):2019 (O)	80 24 HR.	42.0
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 : Part 2 :2001 (Reaff.2012) (O)	80 24 HR.	7.6

— END —

Report Verified By




For Mitra S. K. Private Limited

  
 Authorised Signatory





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## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd.(MOA) Joda West

At Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004263

Date :

10/01/2024

Sample No. :

MSKGL/ED/2023-24/01/00037

Reference No. & Date :

3000156017/056, Date - 15/06/2023

We hereby certify that the following sample drawn by us has been analysed with the following results:

1. Group	AIR
2. Description of sample	30/31, 12.2023
3. Unique Identification of sample(if any)	DBL-4300 Near Time Office
4. Date of sampling	30/12/2023
5. Place of sampling	Near Time Office
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004263

Sample No. : MSKGL/ED/2023-24/01/00037

## RESULT

### Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	12.9
2	Carbon Monoxide (CO)	mg/m3	IS 5182 : Part 10 : 1996 (Reaff. 2014) (NDR) (O)	2 8HR	0.34
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 : Part 6 : 2006 (Reaff. 2012) (O)	80 24 HR.	28.5
4	Ozone (O3)	micro gm/m3	TPWMSK/ENV/APY01/07 (O)	160 1 HR.	<20.0
5	Particulate Matter (<10um)	micro gm/m3	IS 5182: Part 23:2006 (Reaff. 2012) (O)	100 24 HR.	52.0
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PPT-24), 2019 (O)	60 24 HR.	25.0
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 : Part 2 : 2001 (Reaff. 2012) (O)	80 24 HR.	6.6

END

Report Verified By



For Mitra S. K. Private Limited

Authorised Signatory



## Address of Branch :

P.O. Barfi Di Keonjhar Orissa 758 035



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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd. (MGM), Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGLIED/2023-24/004264

Date :

10/01/2024

Sample No. :

MSKGLIECV2023-24/01/00036

Reference No. &amp; Date :

3000156017/056, Date - 15/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	28/03/12/2023
3. Unique Identification of sample (if any)	BBL-4359 Palsa Kha Village
4. Date of sampling	29/12/2023
5. Place of sampling	Palsa Kha Village
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGLIED/2023-24/004264

Sample No. : MSKGLIECV2023-24/01/00036

## RESULT

## Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH <sub>3</sub> )	micro gm/m <sup>3</sup>	IS 5182 (Part 25)	400 24 HR.	<10.0
2	Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 : Part 10 : 1999 (Reaff. 2014) (NDIR) (O)	2 8HR.	0.39
3	Nitrogen Dioxide (NO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 : Part 6 : 2006 (Reaff. 2012) (O)	80 24 HR.	17.3
4	Ozone (O <sub>3</sub> )	micro gm/m <sup>3</sup>	TPMMSKENV(A/Po)/02 (O)	180 1 HR.	<20.0
5	Particulate Matter (<10µm)	micro gm/m <sup>3</sup>	IS 5182: Part 23:2006 (Reaff. 2012) (O)	100 24 HR.	57.0
6	Particulate Matter (<2.5µm)	micro gm/m <sup>3</sup>	IS 5182 (PT-24) 2018 (O)	60 24 HR.	28.0
7	Sulphur Dioxide (SO <sub>2</sub> )	micro gm/m <sup>3</sup>	IS 5182 : Part 2 : 2001 (Reaff. 2012) (O)	80 24 HR.	6.4

— END —

Report Verified By



For Mitra S. K. Private Limited

Authorised Signatory



## Address of Branch :

P.O. Barbil Dt Keonjhar Orissa 758 035



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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM) Joda West

APPo. - Joda Dist - Keonjhar, Odisha - 758034 India Pin

Report No. :

MSKGL/ED/2023-24/004265

Date :

10/01/2024

Sample No. :

MSKGL/ED/2023-24/01/00038

Reference No. &amp; Date :

3000158017056, Date - 15/09/2023

We hereby certify that the following sample drawn by us has been analyzed with the following results:

1. Group	AIR
2. Description of sample	30/31.12.2023
3. Unique Identification of sample (if any)	BML-4361 Bamepari SSVM School
4. Date of sampling	30/12/2023
5. Place of sampling	Bamepari SSVM School
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA

Report No. : MSKGL/ED/2023-24/004265

Sample No. : MSKGL/ED/2023-24/01/00038

## RESULT

## Analysis Result of Ambient Air

Sl No.	Parameter	UOM	Method	Limit	Result
1	Amonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	11.0
2	Carbon Monoxide (CO)	mg/m3	IS 5182 : Part 10 : 1999 (Reaff 2014) (NDIR) (O)	2 8HR.	0.20
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 : Part 6 : 2006 (Reaff. 2012) (O)	80 24 HR.	25.2
4	Ozone (O3)	micro gm/m3	TPMMSKENV/AP/01/07 (O)	180 1 HR.	<20.0
5	Particulate Matter (<10um)	micro gm/m3	IS 5182, Part 23:2006 (Reaff. 2012) (O)	100 24 HR.	77.0
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24) 2018 (O)	80 24 HR.	44.0
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 : Part 2 : 2001 (Reaff. 2012) (O)	80 24 HR.	0.9

END

Report Verified By



For Mitra S. K. Private Limited

  
 Authorised Signatory



## Address of Laboratory :

Building No. P- 4B, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000720F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/010E8W

Date :

16/01/2024

Sample No. :

MSKNB/ED/2023-24/01/SZE16Y

Date of receipt of sample:

02/01/2024

Date(s) of performance:

02/01/2024 - 16/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	30/12/2023
5. Place of sampling	BBL-4343 Bamebari SSVM Village
6. Environmental conditions during sampling & Transport	1) Temperature :18-32 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Dhambrudhar Das
9. Field Equipments Used	MSK/BBL/FIELD/RDS-14

Report No. : MSKPL/ED/2023-24/010E8W

Sample No. : MSKNB/ED/2023-24/01/SZE16Y

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.14
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name

Designation

*P. Ganguly*  
Mr. P. Ganguly, Mr. B. J. Jha  
Executive Chemist

Authorized Signatory

Signature

Name

Designation

*P. Ganguly*  
Mr. P. Ganguly, Mr. B. J. Jha  
Executive Chemist

The results relate only to the item(s) tested

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The reserved part of sample(s) for chemical analysis (Non-perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non-perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report

Head Office: Shree Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel. : 91 33 40143000 / 22650007 Fax: 91 33 22650008  
Email: info@mitrask.com Website: www.mitrask.com



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-69502400000719F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/ED/2023-24/D10E8Q

## Date :

16/01/2024

## Sample No. :

MSKNB/ED/2023-24/01/NW81CG

## Date of receipt of sample:

02/01/2024

## Date(s) of performance:

02/01/2024 - 16/01/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	30/12/2023
5. Place of sampling	BBL-4345 Time Office
6. Environmental conditions during sampling & Transport	1) Temperature :18-32 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain fall No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Dhambrudhar Das
9. Field Equipments Used	MSK/BBL/FIELD/RDS-2

Report No. : MSKPL/ED/2023-24/D10E8Q

Sample No. : MSKNB/ED/2023-24/01/NW81CG

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m <sup>3</sup>	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m <sup>3</sup>	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m <sup>3</sup>	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m <sup>3</sup>	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m <sup>3</sup>	USEPA-IO 3.4, June	Not Specified	0.32
6	Nickel as Ni	ng/m <sup>3</sup>	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed By:

Signature

*P. Ganguly*  
Ms. Palli Ganguly, Mr. Anil Jana

Name

Designation Executive Chemist

Authorized Signatory:

Signature

Name

Designation Executive Chemist

*P. Ganguly*  
Ms. Palli Ganguly, Mr. Anil Jana

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report. The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shreeji Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India  
Tel. : 91 33 40143000 / 22650007 Fax : 91 33 22650008  
Email : info@mitrask.com Website : www.mitrask.com



## Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695024000000718F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd. (MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/ED/2023-24/P10E8E

## Date :

16/01/2024

## Sample No. :

MSKNB/ED/2023-24/01/HWK18V

## Date of receipt of sample:

01/01/2024

## Date(s) of performance:

01/01/2024 - 16/01/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	29/12/2023
5. Place of sampling	BBL-4344 Palsa Kha Village
6. Environmental conditions during sampling & Transport	1) Temperature :18-32 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain fall No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Dhambrudhar Das
9. Field Equipments Used	MSK/BBL/FIELD/RDS-14

Report No. : MSKPL/ED/2023-24/P10E8E

Sample No. : MSKNB/ED/2023-24/01/HWK18V

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.10
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name: Mr. Prial Ganguly, Mr. Bhabu Jana

Designation: Executive Chemist

Authorized Signatory:

Signature

Name: Mr. Prial Ganguly, Mr. Bhabu Jana

Designation: Executive Chemist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shree Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
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West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000717F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/N10E83

Date :

16/01/2024

Sample No. :

MSKNB/ED/2023-24/01/BEN1A5

Date of receipt of sample:

01/01/2024

Date(s) of performance:

01/01/2024 - 16/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	29/12/2023
5. Place of sampling	BBL-4343 Guruda Village
6. Environmental conditions during sampling & Transport	1) Temperature :18-32 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Dhambudhar Das
9. Field Equipments Used	MSK/BBL/FIELD/RDS-18

Report No. : MSKPL/ED/2023-24/N10E83

Sample No. : MSKNB/ED/2023-24/01/BEN1A5

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.06
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity : NA

— END —

Reviewed By

Signature

Name

Designation

*P. Ganguly*  
Ms. P. Ganguly, Mr. Binod Jena  
Executive Chemist

Authorized Signatory

Signature

Name

Designation

*P. Ganguly*  
Ms. P. Ganguly, Mr. Binod Jena  
Executive Chemist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non-perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non-perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695024000000716F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd. (MGM)\_Joda West

At/Po. : Joda, Dist. : Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/ED/2023-24/C10E8B

## Date :

16/01/2024

## Sample No. :

MSKNB/ED/2023-24/01/7DE173

## Date of receipt of sample:

01/01/2024

## Date(s) of performance:

01/01/2024 - 16/01/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	29/12/2023
5. Place of sampling	BBL-4342 Time Office
6. Environmental conditions during sampling & Transport	1) Temperature : 18-32 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Dhambrudhar Das
9. Field Equipments Used	MSK/BBL/FIELD/RDS-2

Report No. : MSKPL/ED/2023-24/C10E8B

Sample No. : MSKNB/ED/2023-24/01/7DE173

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	1.17
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	6.4

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name

Designation

Ms. Priyanka, Mr. Banu Jana

Executive Chemist

Authorized Signatory:

Signature

Name

Designation

Ms. Priyanka, Mr. Banu Jana

Executive Chemist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000715F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd. (MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/ED/2023-24/Y10E8X

## Date :

16/01/2024

## Sample No. :

MSKNB/ED/2023-24/01/7AT19J

## Date of receipt of sample:

30/12/2023

## Date(s) of performance:

30/12/2023 - 16/01/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	27/12/2023
5. Place of sampling	BBL-4341 Jarouli High School Jurudi
6. Environmental conditions during sampling & Transport	1) Temperature : 18-32 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS: 5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Dhambrudhar Das
9. Field Equipments Used	MSK/BBL/FIELD/RDS-14

Report No. : MSKPL/ED/2023-24/Y10E8X

Sample No. : MSKNB/ED/2023-24/01/7AT19J

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	<1.0
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	<4.2
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	<0.5
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	1.29
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	<5.0

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name

Designation

*P. Ganguly*  
Ms. P. Ganguly, Mr. B. Das  
Executive Chemist

Authorized Signatory:

Signature

Name

Designation

*P. Ganguly*  
Ms. P. Ganguly, Mr. B. Das  
Executive Chemist

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline 5 (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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West Bengal  
Tel : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000714F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/H10E8V

Date :

16/01/2024

Sample No. :

MSKNB/ED/2023-24/01/5AK1BC

Date of receipt of sample:

30/12/2023

Date(s) of performance:

30/12/2023 - 16/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000158017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	27/12/2023
5. Place of sampling	BBL-4340 Jajang High School
6. Environmental conditions during sampling & Transport	1) Temperature : 18-32 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS 5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Dhambudhar Das
9. Field Equipments Used	MSK/BBL/FIELD/RDS-18

Report No. : MSKPL/ED/2023-24/H10E8V

Sample No. : MSKNB/ED/2023-24/01/5AK1BC

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	<1.0
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	<4.2
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	<0.5
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	<0.01
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.03
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	<5.0

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality.

Statement of Conformity NA

— END —

Reviewed By

Signature

Name

Designation: Executive Chemist

*P. Ganguly*  
Mr. Pasi Ganguly, Mr. Bansi Jena

Authorized Signatory

Signature

Name

Designation: Executive Chemist

*P. Ganguly*  
Mr. Pasi Ganguly, Mr. Bansi Jena

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-69502400000276F

## TEST REPORT

### Name & Address of Customer :

Tata Steel Ltd. (MGM)\_Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/F10E8U

Date :

06/01/2024

Sample No. :

MSKNB/ED/2023-24/12/KV52AU

Date of receipt of sample:

28/12/2023

Date(s) of performance:

28/12/2023 - 06/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	26/12/2023
5. Place of sampling	BBL-4339 in front of Administration office
6. Environmental conditions during sampling & Transport	1) Temperature :18-32 deg C 2) Barometric Pressure : 735 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Akash Setty
9. Field Equipments Used	MSK/BBL/FIELD/RDS-14

Report No. : MSKPL/ED/2023-24/F10E8U

Sample No. : MSKNB/ED/2023-24/12/KV52AU

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	<1.0
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	<4.2
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	<0.5
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	<0.01
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	4.07
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	7.0

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name: Ms. Pankaj Ganguly, Mr. Gopal Jana

Designation: Executive Chemist

Authorized Signatory:

Signature

Name: Ms. Pankaj Ganguly, Mr. Gopal Jana

Designation: Executive Chemist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 3 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report. The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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West Bengal  
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Email: udayanlab@mitrask.com



TC-6950



Scan for Portal

ULR: TC-695024000000275F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd (MGM)\_Joda West

A/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/K10E8A

Date :

06/01/2024

Sample No. :

MSKNB/ED/2023-24/12/66529R

Date of receipt of sample:

28/12/2023

Date(s) of performance:

28/12/2023 - 06/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	25/12/2023
5. Place of sampling	BBL-4338 Bichakundi Basti Area Aganbari Center
6. Environmental conditions during sampling & Transport	1) Temperature : 18-32 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain fall : No & Cold Chain Maintained
7. Sampling Plan & Method used	IS-5182(P-11, 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Akash Setty
9. Field Equipments Used	MSK/BBL/FIELD/RDS-18

Report No. : MSKPL/ED/2023-24/K10E8A

Sample No. : MSKNB/ED/2023-24/12/66529R

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	<1.0
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	<4.2
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	<0.5
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	<0.01
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.12
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	<5.0

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed By:

Signature:

Name:

Designation:

*P. Ganguly*  
Mr. Priti Ganguly, Mr. Ganesh Jena  
Executive Chemist

Authorized Signatory

Signature:

Name:

Designation:

*P. Ganguly*  
Mr. Priti Ganguly, Mr. Ganesh Jena  
Executive Chemist

The results relate only to the item(s) tested.  
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The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.  
The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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Email: udayanlab@mitrask.com



TC-6950



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ULR: TC-695024000000274F

## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd. (MGM), Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

Report No. :

MSKPL/ED/2023-24/710E80

Date :

06/01/2024

Sample No. :

MSKNB/ED/2023-24/12/3M52CB

Date of receipt of sample:

26/12/2023

Date(s) of performance:

26/12/2023 - 06/01/2024

Location of performance of

Permanent Facility

Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4337 Time Office
6. Environmental conditions during sampling & Transport	1) Temperature :18-32 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain fall No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Akash Setty
9. Field Equipments Used	MSK/BBL/FIELD/RDS-2

Report No. : MSKPL/ED/2023-24/710E80

Sample No. : MSKNB/ED/2023-24/12/3M52CB

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	<1.0
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	<4.2
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	<0.5
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.62
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	5.40

Opinion : Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name

Designation: Executive Chemist

*P. Ganguly*  
Mr. P. Ganguly, Mr. Basu Janti

Authorized Signatory:

Signature

Name

Designation

*P. Ganguly*  
Mr. P. Ganguly, Mr. Basu Janti  
Executive Chemist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Shreeji Centre (5th Floor), 74B, A. J. C. Bose Road, Kolkata - 700016, West Bengal, India

Tel: 91 33 40143000 / 22550007 Fax: 91 33 22550008

Email: info@mitrask.com Website: www.mitrask.com



## Address of Laboratory :

Building No. P-48, Udayan Industrial Estate,  
3, Pagladanga Road, Kolkata 700015  
West Bengal  
Tel. : +91 7044036120  
Email: udayanlab@mitrask.com



TC-6950



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## TEST REPORT

## Name &amp; Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India

## Report No. :

MSKPL/ED/2023-24/2101EN

## Date :

08/01/2024

## Sample No. :

MSKNB/ED/2023-24/12/3F52BC

## Date of receipt of sample:

26/12/2023

## Date(s) of performance:

26/12/2023 - 06/01/2024

## Location of performance of

Permanent Facility

## Reference No. &amp; Date :

3000156017/056, Date - 16/09/2023

## Discipline:

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the following results:

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(If any)	NA
4. Date of sampling	21/12/2023
5. Place of sampling	BBL-4336 Time Office
6. Environmental conditions during sampling & Transport	1) Temperature :18-32 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain fall No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Akash Setty
9. Field Equipments Used	MSK/BBL/FIELD/RDS-2

Report No. : MSKPL/ED/2023-24/2101EN

Sample No. : MSKNB/ED/2023-24/12/3F52BC

## RESULT

Chemical					
Sl No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	<1.0
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	<4.2
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	<0.5
4	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	Not Specified	0.38
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	7.6

Opinion : Limit as per CPCB notification, New Delhi, 16th November 2009, for Ambient air quality

Statement of Conformity NA

— END —

Reviewed By:

Signature

Name

Designation

*P. Ganguly*  
Ms. P. Ganguly, Mr. Chandra Jena  
Executive Chemist

Authorized Signatory

Signature

Name

Designation

*P. Ganguly*  
Ms. P. Ganguly, Mr. Chandra Jena  
Executive Chemist

The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 7 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid &amp; Liquid Waste) shall be retained for 15 days as per CPCB guideline &amp; (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Sirach Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India.  
Tel. : 91 33 40143000 / 22650007 Fax : 91 33 22650008  
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*Test Report*

Page 1 of 1

**Ambient Air Quality Monitoring Report-November-2023**

Report No.: AN/AAQ/TS-JWIM/2023/1-1			Date: 04/12/2023	
Name and Address of Industry:-	M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		W. O. No.	470008928/962
			W. O. date	23/03/2023
Sample Description/ Type	Ambient Air Quality (Core Zone)	Sample Ref. No.:-	ALPL/22112023/ENV-283-1/JEIM-CZ/AAQMS-1 and ALPL/22112023/ENV-283-2/JEIM-CZ/AAQMS-2	
Sample Drawn By:-	Anacon Representative	Sample forward Date:-	6,13,20,27 November-2023 & 3-December-2023	
Test Started On:-	6,13,20,27 Nov-2023 & 3-Dec-2023	Test Completed On:-	7,16,23,28 November-2023 & 4-Dec-2023	
Sampling Procedure	AN/A/T-2/May-01			

Sr. No.	LOCATION	Date of sampling	PM <sub>10</sub> µg/m <sup>3</sup>	PM <sub>2.5</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>x</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>
Method Reference			IS 5182 (Part 23)	USEPA 40 (Part 50)	IS 5182 (Part-2)	IS 5182 (Part-6)	IS 5182 (Part-10)
AAQMS-1	Nr. Time Office of JWIMM	02/11/2023	66.5	28.0	11.5	27.2	BDL (DL = 0.5)
		09/11/2023	60.6	26.7	15.6	29.5	BDL (DL = 0.5)
		09/11/2023	63.7	22.5	14.7	27.7	BDL (DL = 0.5)
		13/11/2023	56.0	20.5	13.0	30.5	BDL (DL = 0.5)
		16/11/2023	65.7	26.3	14.3	28.6	BDL (DL = 0.5)
		20/11/2023	71.2	31.0	13.3	26.8	BDL (DL = 0.5)
		23/11/2023	61.7	23.8	10.3	25.5	BDL (DL = 0.5)
		27/11/2023	67.1	26.4	11.8	28.0	BDL (DL = 0.5)
Monthly Average Value			64.1	25.7	13.1	28.5	BDL (DL = 0.5)
AAQMS-2	Near D-Quarry Sorting Yard- JWIMM	02/11/2023	57.2	22.6	11.3	18.2	BDL (DL = 0.5)
		06/11/2023	61.7	23.4	10.8	20.6	BDL (DL = 0.5)
		09/11/2023	68.8	25.0	8.5	19.7	BDL (DL = 0.5)
		13/11/2023	51.2	26.3	9.3	15.8	BDL (DL = 0.5)
		19/11/2023	57.7	24.7	10.4	17.5	BDL (DL = 0.5)
		20/11/2023	67.9	30.5	8.9	15.3	BDL (DL = 0.5)
		23/11/2023	62.4	28.8	9.4	16.2	BDL (DL = 0.5)
		27/11/2023	65.0	22.9	8.3	19.1	BDL (DL = 0.5)
Monthly Average Value			61.2	25.6	9.4	18.1	BDL (DL = 0.5)

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs. • BDL - Below Detection Limit.

**Remark:-** All Results are within Limit as per CPCB Standards.

Verified by

*[Signature]*

Sachin Raut

Deputy Technical Manager

Authorized Signatory

*[Signature]*

Dr. (Mrs.) S. D. Garway

Quality Manager

—End of Report—







*Test Report*

Page 1 of 1

**Ambient Air Quality Monitoring Report-November-2023**

Report No.: AN/AQ/18-JEIM/2023/1-2			Date: 04/12/2023	
Name and Address of Industry:-	M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		W. O. No.	1700098928/962
			W. O. date:	22/03/2023
Sample Description/ Type	Ambient Air Quality (Core Zone)	Sample Ref. No.:-	ALPL/22112023/ENV-283-3/JEIM-CZ/AAQMS-3 and ALPL/22112023/ENV-283-4/JEIM-CZ/AAQMS-4	
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	6/12/2023 November-2023 & 3-December-2023	
Test Started On:-	6,13,20,27 Nov-2023 & 3-Dec-2023	Test Completed On:-	7,16,21,28 November-2023& 4-Dec-2023	
Sampling Procedure	ANtd/7.2/Mon-01			

Sl. No.	LOCATION	Date of sampling	PM <sub>10</sub> µg/m <sup>3</sup> (Part 2)	PM <sub>2.5</sub> µg/m <sup>3</sup> (Part 2)	SO <sub>2</sub> µg/m <sup>3</sup> (Part 2)	NO <sub>x</sub> µg/m <sup>3</sup> (Part 2)	CO mg/m <sup>3</sup> (Part 2)
Method Reference:			IS 5182 (Part 2)	IS 5182 (Part 2)	IS 5182 (Part 2)	IS 5182 (Part 2)	IS 5182 (Part 2)
AAQMS-3	Near D-Quarry Screen-JWIMM	02/11/2023	54.7	18.3	9.3	28.4	BDL (DL -0.5)
		06/11/2023	61.2	21.4	11.2	26.1	BDL (DL -0.5)
		09/11/2023	62.8	23.6	11.4	26.9	BDL (DL -0.5)
		13/11/2023	57.6	18.4	8.7	27.3	BDL (DL -0.5)
		16/11/2023	59.1	23.7	11.4	28.0	BDL (DL -0.5)
		20/11/2023	62.7	24.9	12.1	30.1	BDL (DL -0.5)
		23/11/2023	57.3	18.1	9.4	28.0	BDL (DL -0.5)
		27/11/2023	58.1	19.6	8.7	26.4	BDL (DL -0.5)
Monthly Average Value			59.2	21.0	10.4	27.8	BDL (DL -0.5)
AAQMS-4	Near H-Quarry Rest Shelter-JWIMM	02/11/2023	61.5	19.7	10.9	25.9	BDL (DL-0.5)
		06/11/2023	57.2	18.8	10.4	25.1	BDL (DL-0.5)
		09/11/2023	60.0	20.4	12.7	26.5	BDL (DL-0.5)
		13/11/2023	52.8	18.3	10.0	25.4	BDL (DL-0.5)
		16/11/2023	59.1	19.7	11.7	25.8	BDL (DL-0.5)
		20/11/2023	56.7	18.5	11.2	25.6	BDL (DL-0.5)
		23/11/2023	61.6	23.4	12.8	28.3	BDL (DL-0.5)
		27/11/2023	59.4	20.7	11.5	25.9	BDL (DL-0.5)
Monthly Average Value			58.5	19.9	11.4	26.1	BDL (DL-0.5)

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Remark: • All Results are within Limit as per CPCB Standard.

Verified by

*Sachin Raut*  
Sachin Raut

Deputy Technical Manager

Authorized Signatory

*Dr. (Mrs.) S. D. Garway*

Dr. (Mrs.) S. D. Garway  
Quality Manager

—End of Report—







Test Report

Page 1 of 1

**Ambient Air Quality Monitoring Report-November-2023**

Report No.: AN/AAQ/TS-JFIM/2023/1-3			Date: 04/12/2023	
Name and Address of Industry:-	M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		W. O. No.	470008023/062
			, W. O. date: 22/03/2023	
Sample Description/ Type	Ambient Air Quality (Core Zone)	Sample Ref. No:-	ALPL/22112023/ENV-283-5/JFIM-CZ/AAQMS-3 and ALPL/22112023/ENV-283-6/JFIM-CZ/AAQMS-6	
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	6.12.2027 November-2023 & 2-December-2023	
Test Started On:-	6.12.2027 Nov-2023 & 2-Dec-2023	Test Completed On:-	7.16.21.28 November-2023& 4-Dec-2023	
Sampling Procedure	ANIS/7.2/Mon-01			

St. No.	LOCATION	Date of sampling	PM <sub>10</sub> µg/m <sup>3</sup>	PM <sub>2.5</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>
Method Reference			IS 183 (Part 2)	IS 183-42 (Part 30)	IS 182 (Part 2)	IS 182 (Part 3)	IS 180 (Part 3)
AAQMS-3	Near Railway Siding-JWIMM	03/11/2023	61.6	24.0	10.7	16.4	BDL (DL-0.5)
		07/11/2023	68.1	28.2	16.0	21.9	BDL (DL-0.5)
		10/11/2023	53.6	18.9	10.4	16.1	BDL (DL-0.5)
		16/11/2023	68.1	26.0	16.4	23.6	BDL (DL-0.5)
		18/11/2023	67.2	23.7	15.3	21.8	BDL (DL-0.5)
		21/11/2023	64.6	20.2	12.8	19.3	BDL (DL-0.5)
		24/11/2023	69.2	26.8	15.4	23.6	BDL (DL-0.5)
		28/11/2023	67.0	20.4	12.0	18.3	BDL (DL-0.5)
Monthly Average Value			64.9	23.5	13.6	19.9	BDL (DL-0.5)
AAQMS-6	Near Gangrigurda PO- JWIMM	03/11/2023	72.6	27.0	16.4	31.3	BDL (DL-0.5)
		07/11/2023	63.4	25.7	15.0	28.9	BDL (DL-0.5)
		10/11/2023	68.1	20.8	12.9	28.1	BDL (DL-0.5)
		16/11/2023	57.1	18.3	11.7	26.5	BDL (DL-0.5)
		18/11/2023	63.6	23.7	12.8	27.3	BDL (DL-0.5)
		21/11/2023	67.0	25.5	15.2	28.9	BDL (DL-0.5)
		24/11/2023	63.5	20.8	13.3	32.6	BDL (DL-0.5)
		28/11/2023	60.2	19.7	12.0	28.0	BDL (DL-0.5)
Monthly Average Value			64.3	22.7	13.7	29.0	BDL (DL-0.5)

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**Remark:** • All Results are within Limit as per CPCB Standards.

Verified by

*Snehal Raut*

Snehal Raut

Deputy Technical Manager

Authorized Signatory

*S. D. Garway*

Dr. (Mrs.) S. D. Garway  
Quality Manager

—End of Report—







**Anacon  
Laboratories**

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Test Report

Page 1 of 1

**Ambient Air Quality Monitoring Report-November-2023**

Report No.: AN/AAQ/TS-JEIM/2023/1-9			Date: 04/12/2023
Name and Address of Industry:-	M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		W. O. No.
			4700098928/902/ 22.03.2023
Sample Description/Type:-	Ambient Air Quality (Buffer Zone)	Sample Ref. No.:-	ALPL/2023/2023/ENV-283-14/JEIM-BZ/AAQMS-1 & ALPL/2023/2023/ENV-283-15/JEIM-BZ/AAQMS-2 & ALPL/2023/2023/ENV-283-16/JEIM-BZ/AAQMS-3
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	6-November-2023
Test Started On:-	7-November-2023	Test Completed On:-	8-November-2023
Sampling Procedure	ANtd/7.2/Mon-01		

Sr. No.	LOCATION	Date of sampling	PM <sub>10</sub> µg/m <sup>3</sup>	PM <sub>2.5</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>x</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>
Method Reference			IS 5182 (Part 23)	USEPA-40 (Part 50)	IS 5182 (Part-2)	IS 5182 (Part-6)	IS 5182 (Part-10)
AAQMS-1	Bichhakundi Front of Administrative Office	04/11/2023	54.6	21.3	9.2	16.4	BDL (DL-0.5)
Monthly Average Value			54.6	21.3	9.2	16.4	BDL (DL-0.5)
AAQMS-2	Bichhakundi Basti Area Aganwadi Center	04/11/2023	47.2	15.8	6.7	16.1	BDL (DL-0.5)
Monthly Average Value			47.2	15.8	6.7	16.1	BDL (DL-0.5)
AAQMS-3	Lab Building-Joda	04/11/2023	53.9	22.7	9.1	18.4	BDL (DL-0.5)
Monthly Average Value			53.9	22.7	9.1	18.4	BDL (DL-0.5)
NAAQM Standard			100 (24 hrs)	60 (24 hrs)	80 (24 hrs)	80 (24 hrs)	2 (8hrs)

NOTE: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be released in sealed envelope and applicable is used parameters only. • Test report shall not be responsible except in full unless you have written approval of Anacon Labs. • BDL- Below detection limit.

**Remark:** - All Results are within Limit as per CPCB Standards.

Verified by

*S. Raut*

Shehal Raut

Deputy Technical Manager

Authorized Signatory

*S. D. Garway*

Dr. (Mrs.) S. D. Garway  
Quality Manager

—End of Report—



Thank you for instilling your trust and faith in our services. We cherish our relationships with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavor towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on [feedback@anacon.in](mailto:feedback@anacon.in).





*Test Report*

Page 1 of 1

**Ambient Air Quality Monitoring Report-November-2023**

Report No.: AN/AAQ/TS-JEIM/2023/1-9			Date: 04/12/2023
Name and Address of Industry:-	M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		W. O. No.
			4700008078/062 22/03/2022
Sample Description/Type	Ambient Air Quality (Buffer Zone)	Sample Ref. No.:-	ALPL/22112023/ENV-283-17/JEIM-BZ/AAQMS-4 & ALPL/22112023/ENV-283-18/JEIM-BZ/AAQMS-5 & ALPL/22112023/ENV-283-19/JEIM-BZ/AAQMS-6
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	27-November-2023
Test Started On:-	28-November-2023	Test Completed On:-	29-November-2023
Sampling Procedure	ANtd/7.2/Mon-01		

Sr. No.	LOCATION	Date of sampling	PM <sub>10</sub> µg/m <sup>3</sup>	PM <sub>2.5</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>
Method Reference			IS 5182 (Part 23)	USEPA-40 (Part 50)	IS 5182 (Part 2)	IS 5182 (Part 5)	IS 5182 (Part 10)
AAQMS-4	Khondbond Mines	25/11/2023	56.1	24.7	12.8	21.9	BDL (DL-0.5)
Monthly Average Value			56.1	24.7	12.8	21.9	BDL (DL-0.5)
AAQMS-5	Kathi Hatting Pump House	25/11/2023	46.3	16.4	7.3	17.9	BDL (DL-0.5)
Monthly Average Value			46.3	16.4	7.3	17.9	BDL (DL-0.5)
AAQMS-6	Roida High School	25/11/2023	51.6	17.2	9.1	18.4	BDL (DL-0.5)
Monthly Average Value			51.6	17.2	9.1	18.4	BDL (DL-0.5)
NAAQM Standard			100 (24 hrs)	60 (24 hrs)	80 (24 hrs)	80 (24 hrs)	2 (8hrs)

NOTES: ■ Please see watermark "Original Test Report" to confirm the authenticity of this report. ■ Results shall be referred to tested sample(s) and applicable to tested parameters only. ■ Test report should not be reproduced except in full without prior written approval of Anacon Labs. ■ BDL: Below detection limit.

**Remarks:** - All Results are within Limit as per CPCB Standards.

Verified by

*[Signature]*

Snehal Raut

Deputy Technical Manager

Authorized Signatory

*[Signature]*

Dr. (Mrs.) S. D. Garway

Quality Manager

—End of Report—







**Anacon  
Laboratories**

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### Test Report

Page 1 of 1

### Ambient Air Quality Monitoring Report-November-2023

Report No.: AN/AAQ/TS-JEIM/2023/1-10			Date: 04/12/2023
Name and Address of Industry:-	M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		W. O. No.
			470008928563 22.03.2022
Sample Description/Type	Ambient Air Quality (Buffer Zone)	Sample Ref. No.:-	ALJ1/23112023/ENV-283-20/JEIM-B2/AAQMS-7
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	19-November-2023
Test Started On:-	17-November-2023	Test Completed On:-	18-November-2023
Sampling Procedure	ANtd/7.2/Mon-01		

Sr. No.	LOCATION	Date of sampling	PM <sub>10</sub> µg/m <sup>3</sup>	PM <sub>2.5</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>
Method Reference			IS-5182 (Part-23)	IS:5182-40 (Part-50)	IS-5182 (Part-2)	IS-5182 (Part-6)	IS-5182 (Part-10)
AAQM5-7	Joda West Camp	11/11/2023	47.2	15.8	6.7	16.1	BDL (DL-0.5)
Monthly Average Value			47.2	15.8	6.7	16.1	BDL (DL-0.5)
NAAQM Standard			100 (24 hrs)	60 (24 hrs)	80 (24 hrs)	80 (24 hrs)	2 (8hrs)

NOTES: • Please watermark "Original Test Report" in vertical/diagonal manner of the report. • Results shall be referred to is/are sample/round applicable to test parameters only. • Test report shall not be operational except in full without prior written approval of Anacon Labs. • BDL- Below detection limit.

**Remark:-** All Results are within Limit as per CPCB Standards

Verified by:

*[Signature]*  
Special In-charge

Deputy Technical Manager

Authorized Signatory

*[Signature]*

Dr. (Mrs) S. D. Garway  
Quality Manager

---End of Report---



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🌐 <http://www.anaconlaboratories.com>

Test Report

**Fugitive Emission Monitoring Report-November-2023**

Report No.: AN/FE/TS-JEIM/2023/-13		Date: 30/11/2023	
Name and Address of Industry:-	M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)	W. O. No.	
		47000089/18/961 22.03.2022	
Sample Description/Type	Fugitive Emission	Sample Ref. No.:-	ALPL/22112023/ENV-283- /JEIM/FE-1 to 12
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	13/11/2023
Test Started On:-	17/11/2023	Test Completed On:-	17/11/2023
Sampling Procedure	AN/d7.2/Mon-01		

Sl. No.	Location Name	Date of sampling	TSPM $\mu\text{g}/\text{m}^3$
Method Reference			IS 5182 (Part 23)
FE-1	Haul Road Near H- Quarry	06/11/2023	752
FE-2	Haul Road Near Time Office	06/11/2023	814
FE-3	Near Gangeiguda Pit	06/11/2023	391
FE-4	Near Screen Plant	06/11/2023	476
MoEF & CC Norms:		1200 $\mu\text{g}/\text{m}^3$	

NOTES: ■ Please see watermark "Original Test Report" to confirm the authenticity of this report. ■ Results shall be referred to tested sample(s) and applicable to tested parameters only. ■ Test report shall not be reproduced except in full without prior written approval of Anacon Labs.

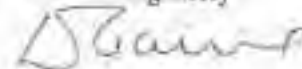
**Remark:** - All Results are within Limit as per CPCB Standards.

Verified by:

  
Sachin Rout

Deputy Technical Manager

Authorized Signatory:



Dr. (Mrs.) S. D. Garway  
Quality Manager

---End of Report---



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*Test Report*

Page 1 of 1

**Ambient Air Quality Monitoring Report-October-2023**

Report No.: AN/AAQ/TS-JEIM/2023/1			Date: 03/11/2023	
Name and Address of Industry:-	M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		W. O. No.	4700098928/962
			W. O. date:	22/03/2022
Sample Description/ Type	Ambient Air Quality (Core Zone)	Sample Ref. No:-	ALP1/23102023/ENV-261-1/JEIM-CZ/AAQMS-1 (m) ALP1/23102023/ENV-261-2/JEIM-CZ/AAQMS-2	
Sample Drawn By:-	Anacon Representative	Sample Issued Date:-	9,10,25,29 October -2023	
Test Started On:-	9,10,23,30 October-2023	Test Completed On:-	10,17,25,31 October-2023	
Sampling Procedure	ANIS/T 2/Mon-01			

Sr. No.	LOCATION	Date of sampling	PM <sub>10</sub> µg/m <sup>3</sup>	PM <sub>2.5</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>x</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>
Method Reference			IS 5182 (Part 23)	USEPA-40 (Part 50)	IS 5182 (Part 2)	IS 5182 (Part 6)	IS 5182 (Part 30)
AAQMS-1	Nr. Time Office of- JWIMM	02/10/2023	65.6	27.6	12.9	24.4	BDL (DL - 0.5)
		05/10/2023	60.1	24.6	12.2	25.3	BDL (DL - 0.5)
		09/10/2023	57.6	25.9	14.7	26.8	BDL (DL - 0.5)
		12/10/2023	64.2	23.4	12.6	27.5	BDL (DL - 0.5)
		16/10/2023	76.9	26.3	13.3	27.9	BDL (DL - 0.5)
		19/10/2023	79.5	31.4	14.0	30.4	BDL (DL - 0.5)
		23/10/2023	73.8	28.4	12.9	33.9	BDL (DL - 0.5)
		26/10/2023	75.5	32.5	11.9	31.4	BDL (DL - 0.5)
Monthly Average Value			70.4	27.8	13.1	28.1	BDL (DL - 0.5)
AAQMS-2	Near D-Quarry Sorting Yard- JWIMM	02/10/2023	73.2	26.0	13.7	28.9	BDL (DL - 0.5)
		05/10/2023	66.7	23.3	12.9	33.1	BDL (DL - 0.5)
		09/10/2023	65.4	28.5	13.7	29.5	BDL (DL - 0.5)
		12/10/2023	72.5	24.0	14.4	27.9	BDL (DL - 0.5)
		16/10/2023	76.1	31.0	14.9	30.4	BDL (DL - 0.5)
		19/10/2023	81.7	26.9	13.3	27.7	BDL (DL - 0.5)
		23/10/2023	77.8	23.6	12.6	29.5	BDL (DL - 0.5)
		26/10/2023	73.1	21.0	11.8	27.2	BDL (DL - 0.5)
Monthly Average Value			73.3	25.5	13.4	29.3	BDL (DL - 0.5)

NOTES: • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to spot testing only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs. • BDL- Below Detection Limit.

**Remark:** - All Results are within Limit as per CPCB Standards.

Verified by

**Srichal Raut**  
 Deputy Technical Manager

Authorized Signatory

**Dr. (Mrs.) S. D. Garway**  
 Quality Manager

---End of Report---







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### Test Report

Page 1 of 1

### Ambient Air Quality Monitoring Report-October-2023

Report No.: AN/AAQ/TS-IRMM023/1-2			Date: 03/11/2023	
Name and Address of Industry:-	M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		W. O. No.:	4700090/23/062
			W. O. date:	22/03/2023
Sample Description/ Type	Ambient Air Quality (Core Zone)	Sample Ref. No.:-	A/LPL/23102023/ENV-261-3/JIM.CZ/AAQMS-3 and A/LPL/23102023/ENV-261-4/JIM.CZ/AAQMS-4	
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	03/10/23 09 October - 2023	
Test Started On:-	03.10.23 30 October-2023	Test Completed On:-	30.10.23 31 October-2023	
Sampling Procedure	ANid/7.2/Mon-01			

Sz. No.	LOCATION	Date of sampling	PM <sub>10</sub> µg/m <sup>3</sup>	PM <sub>2.5</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>
Method Reference:			IS 5382 (Part 2.3)	IS 5382 (Part 2.4)	IS 5382 (Part 2.5)	IS 5382 (Part 2.6)	IS 5382 (Part 2.7)
AAQMS-3	Near D-Quarry Screen-JWIMM	02/10/2023	71.0	21.8	13.7	26.6	BDL (DL-0.5)
		05/10/2023	64.3	18.2	14.4	24.7	BDL (DL-0.5)
		09/10/2023	72.2	20.1	12.6	26.4	BDL (DL-0.5)
		12/10/2023	61.9	18.7	9.2	18.3	BDL (DL-0.5)
		16/10/2023	71.3	21.4	11.7	21.9	BDL (DL-0.5)
		19/10/2023	67.1	19.3	8.7	16.4	BDL (DL-0.5)
		23/10/2023	58.7	18.1	9.3	18.2	BDL (DL-0.5)
		26/10/2023	61.8	21.6	11.4	21.9	BDL (DL-0.5)
Monthly Average Value			66.2	19.9	11.4	21.8	BDL (DL-0.5)
AAQMS-4	Near H-Quarry Road Shallow-JWIMM	03/10/2023	53.6	25.3	8.7	17.9	BDL (DL-0.5)
		05/10/2023	59.2	27.0	8.3	20.4	BDL (DL-0.5)
		09/10/2023	57.6	25.7	7.1	23.4	BDL (DL-0.5)
		12/10/2023	68.6	29.5	10.6	19.2	BDL (DL-0.5)
		16/10/2023	61.8	30.7	8.3	23.8	BDL (DL-0.5)
		19/10/2023	55.5	25.4	10.1	21.3	BDL (DL-0.5)
		23/10/2023	52.3	28.7	8.6	16.7	BDL (DL-0.5)
		26/10/2023	50.6	24.0	8.7	20.6	BDL (DL-0.5)
Monthly Average Value			57.1	27.0	9.0	20.4	BDL (DL-0.5)

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**Remark:** • All Results are within Limit as per CPCB Standards.

Verified by

*Sachal Raut*  
Sachal Raut

Deputy Technical Manager

Authorized Signatory

*S. D. Garway*  
Dr. (Mrs.) S. D. Garway  
Quality Manager

—End of Report—

Thank you for trusting your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavor towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on [feedback@anacon.in](mailto:feedback@anacon.in).







*Test Report*

Page 1 of 1

**Ambient Air Quality Monitoring Report-October-2023**

Report No.: AN/AAQ/TS-JEIM/2023/1-3			Date: 03/11/2023	
Name and Address of Industry:-	M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		W. O. No.	470008928/062
			W. O. date:	23/09/2023
Sample Description/ Type	Ambient Air Quality (Core Zone)	Sample Ref. No:-	ALPL/23102023/ENV-261-5/JEIM-CZ/AAQMS-5 and ALPL/23102023/ENV-261-6/JEIM-CZ/AAQMS-6	
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	01/10/2023 October-2023	
Test Started On:-	01.10.23, 30 October-2023	Test Completed On:-	10.17.25, 31 October-2023	
Sampling Procedure	ANid/7.2/Mon-01			

St. No.	LOCATION	Date of sampling	PM <sub>10</sub> µg/m <sup>3</sup>	PM <sub>2.5</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>x</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>
Method Reference:			IS 1383 (Part 2):	IS 4564-40 (Part 50)	IS 15152 (Part 2)	IS 15152 (Part 6)	IS 15152 (Part 10)
AAQMS-5	Near Railway Siding-JWIMM	03/10/2023	96.5	22.5	6.7	17.3	BDL (DL - 0.5)
		06/10/2023	50.7	21.3	7.2	15.6	BDL (DL - 0.5)
		10/10/2023	55.4	18.4	7.6	15.9	BDL (DL - 0.5)
		13/10/2023	51.8	17.6	6.7	17.8	BDL (DL - 0.5)
		17/10/2023	61.2	19.6	7.5	15.5	BDL (DL - 0.5)
		20/10/2023	55.1	16.0	6.2	15.3	BDL (DL - 0.5)
		24/10/2023	63.2	21.3	8.7	14.7	BDL (DL - 0.5)
		27/10/2023	51.6	17.1	6.9	15.7	BDL (DL - 0.5)
Monthly Average Value			55.2	19.5	7.2	16.2	BDL (DL - 0.5)
AAQMS-6	Near Gangriguda Pit- JWIMM	03/10/2023	55.7	20.5	13.0	25.5	BDL (DL - 0.5)
		06/10/2023	57.5	23.4	10.9	24.1	BDL (DL - 0.5)
		10/10/2023	60.8	25.5	11.5	25.9	BDL (DL - 0.5)
		13/10/2023	64.5	22.1	10.1	27.0	BDL (DL - 0.5)
		17/10/2023	60.1	25.0	12.3	25.0	BDL (DL - 0.5)
		20/10/2023	63.2	23.4	11.2	26.8	BDL (DL - 0.5)
		24/10/2023	60.7	21.7	9.6	23.2	BDL (DL - 0.5)
		27/10/2023	65.5	24.7	11.1	22.2	BDL (DL - 0.5)
Monthly Average Value			61.0	23.3	11.2	25.0	BDL (DL - 0.5)

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Verified by

*Snehal Raut*

Snehal Raut

Deputy Technical Manager

Authorized Signatory

*S. D. Garway*

Dr. (Mrs.) S. D. Garway  
Quality Manager

---End of Report---







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### Test Report

Page 1 of 1

### Ambient Air Quality Monitoring Report-October-2023

Report No.: AN/AAQ/TS-JEIM/2023/1-8			Date: 03/11/2023
Name and Address of Industry:-	M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		W. O. No.
			4700098028/962 22.09.2022
Sample Description/Type	Ambient Air Quality (Buffer Zone)	Sample Ref. No.:-	ALPL/23102023/ENV-26)-14/JEIM-BZ/AAQMS-1 & ALPL/23102023/ENV-26)-15/JEIM-BZ/AAQMS-2 & ALPL/23102023/ENV-26)-16/JEIM-BZ/AAQMS-3
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	9-October-2023
Test Started On:-	10-October-2023	Test Completed On:-	11-October-2023
Sampling Procedure	ANtd/7.2/Mon-01		

Sr. No.	LOCATION	Date of sampling	PM <sub>10</sub> µg/m <sup>3</sup>	PM <sub>2.5</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>
Method Reference			IS 5182 (Part 23)	USEPA-40 (Part 50)	IS 5182 (Part-2)	IS 5182 (Part-6)	IS 5182 (Part-10)
AAQMS-1	Bichhakundi Front of Administrative Office	07/10/2023	54.7	18.2	9.1	17.3	BDL (DL-0.5)
Monthly Average Value			54.7	18.2	9.1	17.3	BDL (DL-0.5)
AAQMS-2	Bichhakundi Basti Area Aganwadi Center	07/10/2023	47.3	16.1	7.2	18.3	BDL (DL-0.5)
Monthly Average Value			47.3	16.1	7.2	18.3	BDL (DL-0.5)
AAQMS-3	Lab Building-Joda	07/10/2023	51.7	21.4	7.6	16.1	BDL (DL-0.5)
Monthly Average Value			51.7	21.4	7.6	16.1	BDL (DL-0.5)
NAAQM Standard			100 (24 hrs)	60 (24 hrs)	80 (24 hrs)	80 (24 hrs)	2 (8hrs)

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Verified by

Snehal Raut

Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway  
Quality Manager

---End of Report---







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### Test Report

Page 1 of 1

### Ambient Air Quality Monitoring Report-October-2023

Report No.: AN/AAQ/TS-JEIM/2023/1-9		Date: 03/11/2023	
Name and Address of Industry:-	M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)	W. O. No.	
		47009989226/MD 22.07.2022	
Sample Description/Type	Ambient Air Quality (Buffer Zone)	Sample Ref. No.:-	ALPL/23102023/ENV-261-17/JEIM-BZ/AAQMS-4 & ALPL/23102023/ENV-261-18/JEIM-BZ/AAQMS-5 & ALPL/23102023/ENV-261-19/JEIM-BZ/AAQMS-6
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	30-October-2023
Test Started On:-	30-October-2023	Test Completed On:-	1-November-2023
Sampling Procedure	ANtd/7.2/Mon-01		

Sr. No.	LOCATION	Date of sampling	PM <sub>10</sub> µg/m <sup>3</sup>	PM <sub>2.5</sub> µg/m <sup>3</sup>	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>x</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>
Method Reference			IS 5182 (Part 23)	USEPA-40 (Part 50)	IS 5182 (Part-2)	IS 5182 (Part-6)	IS 5182 (Part-10)
AAQMS-4	Khondbond Mines	28/10/2023	61.7	23.8	12.6	26.1	BDL (DL-0.5)
Monthly Average Value			61.7	23.8	12.6	26.1	BDL (DL-0.5)
AAQMS-5	Kathi Hatting Pump House	28/10/2023	52.9	17.6	8.1	16.4	BDL (DL-0.5)
Monthly Average Value			52.9	17.6	8.1	16.4	BDL (DL-0.5)
AAQMS-6	Roida High School	28/10/2023	53.6	23.7	9.2	18.1	BDL (DL-0.5)
Monthly Average Value			53.6	23.7	9.2	18.1	BDL (DL-0.5)
NAAQM Standard			100 (24 hrs)	60 (24 hrs)	80 (24 hrs)	80 (24 hrs)	2 (8hrs)

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Verified by  
  
 Snehal Raut  
 Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway  
 Quality Manager

—End of Report—











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🌐 Website : www.anacnlaboratories.com

Test Report

**Fugitive Emission Report-October-2023**

Report No.: AN/FE/TS-JEIM/2023/1-13			Date: 31/10/2023
Name and Address of Industry:-	M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		W. O. No.
			4700098928/962 22.03.2022
Sample Description/Type	Fugitive Emission	Sample Ref. No.:-	ALPL/23102023/ENVY-201- /JEIM/FE-1 to 12
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	16/10/2023
Test Started On:-	16/10/2023	Test Completed On:-	17/10/2023
Sampling Procedure	ANtd/7.2/Mon-01		

Sl. No.	Location Name	Date of sampling	TSPM µg/m <sup>3</sup>
Method Reference			IS 5182 (Part 23)
FE-1	Haul Road Near H- Quarry	09/10/2023	794
FE-2	Haul Road Near Time Office	09/10/2023	837
FE-3	Near Gangehuda Pit	09/10/2023	652
FE-4	Near Screen Plant	09/10/2023	493
MoEF & CC Norms:		1200 µg/m <sup>3</sup>	

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Verified by

Snehal Raut

Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway

Quality Manager

—End of Report—



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Photographs of Fugitive Dust control Measures deployed at site







Fixed  
Sprinklers



# NOISE MONITORING REPORT



# Mitra S. K. Private Limited

At/P.O.: BARBIL Ward No-6  
Dist.: Keonjhar, Odisha - 758035  
CIN: U51909WB1956PTC023037

T : +91 94370 09815, 94370 09820, 94370 75269  
E : barbil@mitrask.co.in  
W : www.mitrask.com



Report No. MSKGL/ED/2024-25/000032

Date: 04.04.2024

## MONITORING REPORT OF AMBIENT NOISE

Name of the Client		M/s. TATA STEEL LIMITED			
Name of the Mines		JODA WEST IRON & MANGANESE MINES (JWIMM)			
SL. NO.	Monitoring Location	Date Monitoring	Noise Level in dB (A)		
			Ld	Ln	Ldn
1.	In side Garage	18.03.2024	63.9	39.9	61.9
2.	In Front of Admin Office	18.03.2024	50.5	40.8	48.9
3.	In Front of Canteen	18.03.2024	48.2	46.1	47.5
4.	Shorting Yard Rest Shelter	18.03.2024	63.6	47.0	61.8
5.	250 meter from Screen Plant	19.03.2024	66.6	61.3	65.4
6.	D-Quarry Shorting Yard	19.03.2024	48.2	46.6	47.8

Note : Day Time : 6.00 AM -10.00 PM, Night Time: 10.00PM- 6.00AM

### AMBIENT AIR QUALITY STANDARDS IN RESPECT OF NOISE AS PER CPCB GUIDELINES

AREA CODE	CATEGORY OF AREA / ZONE	LIMITS IN dB (A)	
		DAY TIME	NIGHT TIME
A	INDUSTRIAL AREA	75	70
B	COMMERCIAL AREA	65	55
C	RESIDENTIAL AREA	55	45
D	SILENE ZONE	50	40

Checked by:-

For Mitra S. K. Private Limited

Authorised Signatory



# NOISE MONITORING REPORT



A/P.O.: BARBIL Ward No-6  
Dist.: Keonjhar, Odisha - 758035  
CIN: U51909WB1956PTC023037

T : +91 94370 09815, 94370 09820, 94370 75269  
E : barbil@mitrask.co.in  
W : www.mitrask.com

Report No. MSKGL/ED/2023-24/005057

Date: 29.02.2024


## MONITORING REPORT OF AMBIENT NOISE

Name of the Client		M/s. TATA STEEL LIMITED			
Name of the Mines		JODA WEST IRON & MANGANESE MINES (JWIMM)			
SL. NO.	Monitoring Location	Date Monitoring	Noise Level in dB (A)		
			Ld	Ln	Ldn
1.	In side Garage	08/09.02.2024	63.9	39.9	61.9
2.	In Front of Admin Office	08/09.02.2024	50.5	40.8	48.9
3.	In Front of Canteen	08/09.02.2024	48.2	46.1	47.5
4.	Shorting Yard Rest Shelter	08/09.02.2024	63.6	47.0	61.8
5.	250 meter from Screen Plant	09/10.02.2024	62.0	56.0	60.5
6.	D-Quarry Shorting Yard	09/10.02.2024	48.2	46.6	47.8

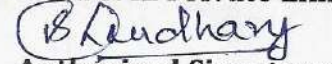
Note : Day Time : 6.00 AM - 10.00 PM, Night Time: 10.00PM- 6.00AM

### AMBIENT AIR QUALITY STANDARDS IN RESPECT OF NOISE AS PER CPCB GUIDELINES

AREA CODE	CATEGORY OF AREA / ZONE	LIMITS IN dB (A)	
		DAY TIME	NIGHT TIME
A	INDUSTRIAL AREA	75	70
B	COMMERCIAL AREA	65	55
C	RESIDENTIAL AREA	55	45
D	SILENE ZONE	50	40

Checked by:- 

For Mitra S. K. Private Limited

  
Authorised Signatory



THANK YOU



At/P.O.: BARBIL Ward No-6  
 Dist.: Keonjhar, Odisha - 758035  
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 E : barbil@mitrask.co.in  
 W : www.mitrask.com

Report No. MSKGL/ED/2023-24/004663

Date: 10.02.2024

**MONITORING REPORT OF AMBIENT NOISE**

Name of the Client		M/s. TATA STEEL LIMITED			
Name of the Mines		JODA WEST IRON & MANGANESE MINES (JWIMM)			
SL. NO.	Monitoring Location	Date Monitoring	Noise Level in dB (A)		
			Ld	Ln	Ldn
1.	In side Garage	15/16.01.2024	61.3	37.7	59.6
2.	In Front of Admin Office	15/16.01.2024	46.1	37.6	44.6
3.	In Front of Canteen	15/16.01.2024	60.8	52.7	59.4
4.	Shorting Yard Rest Shelter	15/16.01.2024	60.0	41.0	58.3
5.	250 meter from Screen Plant	16/17.01.2024	66.2	57.7	64.7
6.	D-Quarry Shorting Yard	16/17.01.2024	67.1	54.6	65.5

Note : Day Time : 6.00 AM -10.00 PM, Night Time: 10.00PM- 6.00AM

**AMBIENT AIR QUALITY STANDARDS IN RESPECT OF NOISE AS PER CPCB GUIDELINES**

AREA CODE	CATEGORY OF AREA / ZONE	LIMITS IN dB (A)	
		DAY TIME	NIGHT TIME
A	INDUSTRIAL AREA	75	70
B	COMMERCIAL AREA	65	55
C	RESIDENTIAL AREA	55	45
D	SILENE ZONE	50	40

Checked by:-



For Mitra S. K. Private Limited

Authorised Signatory





**Anacon  
Laboratories**

**Anacon Laboratories Pvt. Ltd. Nagpur Lab**

FP-34, 35, Food Park, Five Star Industrial Estate,

MIDC Butibori, Nagpur, Maharashtra, India - 441 122

+ 91 8045685558 Email : info@anacon.in

https://www.anaconlaboratories.com

### Test Report

### **Fugitive Emission Monitoring Report-November-2023**

Report No.: AN/FE/TS-JEIM/2023/1-13			Date: 30/11/2023
Name and Address of Industry:-	M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)		W. O. No.
			4700098928/962 22.03.2022
Sample Description/Type	Fugitive Emission	Sample Ref. No.:-	ALPL/22112023/ENV-283- /JEIM/FE-1 to 12
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	13/11/2023
Test Started On:-	17/11/2023	Test Completed On:-	17/11/2023
Sampling Procedure	ANtd/7.2/Mon-01		

Sl. No.	Location Name	Date of sampling	TSPM $\mu\text{g}/\text{m}^3$
Method Reference			IS 5182 (Part 23)
FE-1	Haul Road Near H- Quarry	06/11/2023	752
FE-2	Haul Road Near Time Office	06/11/2023	814
FE-3	Near Gangeiguda Pit	06/11/2023	391
FE-4	Near Screen Plant	06/11/2023	476
MoEF & CC Norms:		1200 $\mu\text{g}/\text{m}^3$	

**NOTES:** • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs.

**Remark:** - All Results are within Limit as per CPCB Standards.

Verified by

*Snehal Raut*

Snehal Raut

Deputy Technical Manager

Authorized Signatory

*S. D. Garway*

Dr. (Mrs.) S. D. Garway

Quality Manager

-----End of Report-----

Thank you for instilling your trust and faith in our services. We cherish our relationship with you, and we put in a lot of hard work in making sure that you get a seamless experience at every stage of your interaction with us. In our constant endeavor towards ensuring that your next experience will be significantly better than the current one, we welcome your feedback on [feedback@anacon.in](mailto:feedback@anacon.in).







Test Report

Page 1 of 4

**Noise Monitoring Report-October-2023**

Report No.: AN/NE/TS-JEIM/2023/1-16			Date: 31/10/2023
Name and Address of Industry:-	M/s Joda West Iron & Manganese Mine (M/s TATA Steel Limited)	W. O. No.	
		4700098928/962 date: 22.03.2022	
Sample Description/Type	Noise Monitoring	Sample Ref. No.:-	ALPL/23102023/ENV-261-N/JEIM/NE-1 to 6
Sample Drawn By:-	Anacon Representative	Data Inward date:-	09/10/2023
Sampling Procedure	ANtd/7.2/Mon-01	Sampling Method	IS 9989:1981(R2001)

**Sampling Date:** 03/10/2023 to 06/10/2023.

Sl. No.	Location Name	Results dB(A)	
		Day Time (6:00 am to 10:00pm)	Night Time (10:00 pm to 06:00am)
NE-1	Inside Garage -JWIMM	58.2	47.3
NE-2	Infront of Admin Office -JWIMM	48.1	37.6
NE-3	Infront of Canteen -JWIMM	51.9	48.1
NE-4	Sorting Yard Rest Sheltor -JWIMM	62.8	51.6
NE-5	250 Mtrs from Screen Plant -JWIMM	68.3	58.1
NE-6	D-Quarry Sorting Yard -JWIMM	62.9	57.3
Norms:	Industrial Area	75.0	70.0
	Commercial Area	65.0	55.0
	Residential Area	55.0	45.0


**NOTES:** • Please see watermark "Original Test Report" to confirm the authenticity of this report. • Results shall be referred to tested sample(s) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anacon Labs.

**Remark:** - All Results are within Limit as per CPCB Standards.

Verified by

  
Snehal Raut  
Deputy Technical Manager

Authorized Signatory

  
Dr. (Mrs.) S. D. Garway  
Quality Manager





# ***REPORT ON ASSESSMENT OF WHOLEBODY AND HAND ARM VIBRATION EXPOSURE AT WORKPLACE***

**Duration of Study: 29<sup>th</sup> April 2022- 30<sup>th</sup> April 2022**  
**Report No.: STL/IH/E02/057/22**

***At  
Joda West Iron & Mn Mine  
Tata Steel Limited  
Joda, Odisha, India***

**Conducted By: Tecorfin Consultants and Startech Laboratory Pvt. Ltd.**

**Monitored By : Y. Raghavendra Chary (Asst. Manager, Startech Labs)**  
**Guided By : Birendra Jena (Sr. Manager, Environment, Tata Steel Limited)**



***Tecorfin Consultants***



**# 1-58/7, IInd Floor, SMR Chambers, Madinaguda, Serilingampally, Hyderabad – 500 050, India.**  
*{Recognized Laboratory by ISO 9001:2015, OHSAS ISO 45001:2018, Directorate-General of Mines Safety,  
Directorate General Factory Advice Service and Labour Institute and Drugs Control Administration, T.S}*



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**1.0 ABBREVIATIONS**

ACGIH	American Conference of Industrial Hygienists
ANSI	American National Standards Institute
DGMS	Directorate General of Mines and Safety
Dist.	District
EU	European Union
HEMM	Heavy Earth Moving Machineries
HAV	Hand Arm Vibration
WBV	Whole Body Vibration
ISO	International Organization for Standardization
Km	Kilometer
m/s <sup>2</sup>	meter per second square
MTPA	Million Metric Tonnes Per Annum
MMR	Metalliferous Mines Regulations
MW	Mega Watt
NH	National Highway
OSHA	Occupational Safety and Health Administration
Pvt. Ltd.	Private Limited
TLV	threshold limit value
WD	Wheel Dozer
JWIMM	Joda West Iron & Mn Mine



## 2.0 INTRODUCTION

### **ABSTRACT:**

The assessment of exposures of mine workers to various forms of induced vibration during their respective occupation forms an integral part of the Occupational Health Surveillance strategies of the company. A robust management system framework and a sound safety governance structure drive our health and safety measures. To achieve our objective of Zero LTI (Loss time injury), six long-term safety strategies are being implemented across Tata Steel. Tata Steel Limited (hereinafter referred to as “The Company”) has engaged M/s Tecorfin Consultants Private Limited for undertaking detailed assessment of such exposure especially for the representative sampling subjects for different types of HEMM operators deployed at the mines. M/s Tecorfin Consultants Pvt. Ltd. has collaborated with M/s Startech Laboratory Private Limited, one of the recognized laboratories by ISO 9001-2015, ISO 45001:2018, Directorate-General of Mines Safety, Directorate General Factory Advice Service and Labour Institute and Drugs Control Administration, Telengana State, etc. The Present study has been conducted for 05 HEMM operators deployed at Joda West Iron & Mn Mine and were tested for their exposure to Whole Body Vibration as well as Hand Arm Vibration. The sampling and data collection has been carried out by Startech Laboratory using calibrated sensors and instruments. The collected data has been processed for estimating the Exposure Level and comparison has been done with applicable ISO standards. The assessment reveals that all the five identified HEMMs conforms to satisfactory Ergonomics as far as triaxial vibration exposure for both Whole Body Vibration as well as Hand Arm Vibrations are concerned. The observed values are well within the exposure action value of  $2.5\text{m/s}^2$  and  $0.5\text{m/s}^2$  for HAV and WBV respectively.

### **PROJECT DESCRIPTION:**

**About Tata Steel Limited:** Tata Steel Group is among the top global steel companies with an annual crude steel capacity of 27.5 million tonnes per annum (MTPA) as on March 31, 2017. It is the world's second-most geographically diversified steel producer, with operations in 26 countries and a commercial presence in over 50 countries. The Group recorded a consolidated turnover of US \$18.12 billion (INR 117,420 crore) in FY17. Tata Steel Group is spread across five continents with an employee base of nearly 74,000. Having bagged the Deming Application Prize and Deming Grand Prize for continuous improvement in 2008 and 2012 respectively.



Tata Steel has now been recognised as the global 'Industry Leader' in 'Steel category' by Dow Jones Sustainability Index (2015). Besides being a member of the World Steel Climate Action Programme, Tata Steel has also been felicitated with several awards including the Prime Minister's Trophy for the best performing integrated steel

plant for 2013-14 (received in 2017), Best Risk Management by CNBC TV18 (2016), 'Best-in-class Manufacturing' award from TIME India (2016) and the 'Most Ethical Company' award from the Ethisphere Institute (2016), IIM Sustainability Award (2015), among several others.

Tata Steel Ltd (TSL) was established in India as Asia's first integrated private steel company in 1907. Established in 1907, the Group's vision is to be the world steel industry benchmark in "Value Creation" and "Corporate Citizenship" through the excellence of its people, its innovative approach and overall conduct. Responsible mining as a policy is the single most important reason for the sustained growth and prosperity of Tata Steel for over a century. Tata Steel's Raw Material operations are spread across India and Canada and helps the company to be self-sufficient in steel production and operating captive mines that help to maintain cost-competitiveness and production efficiencies through an uninterrupted supply of raw materials.

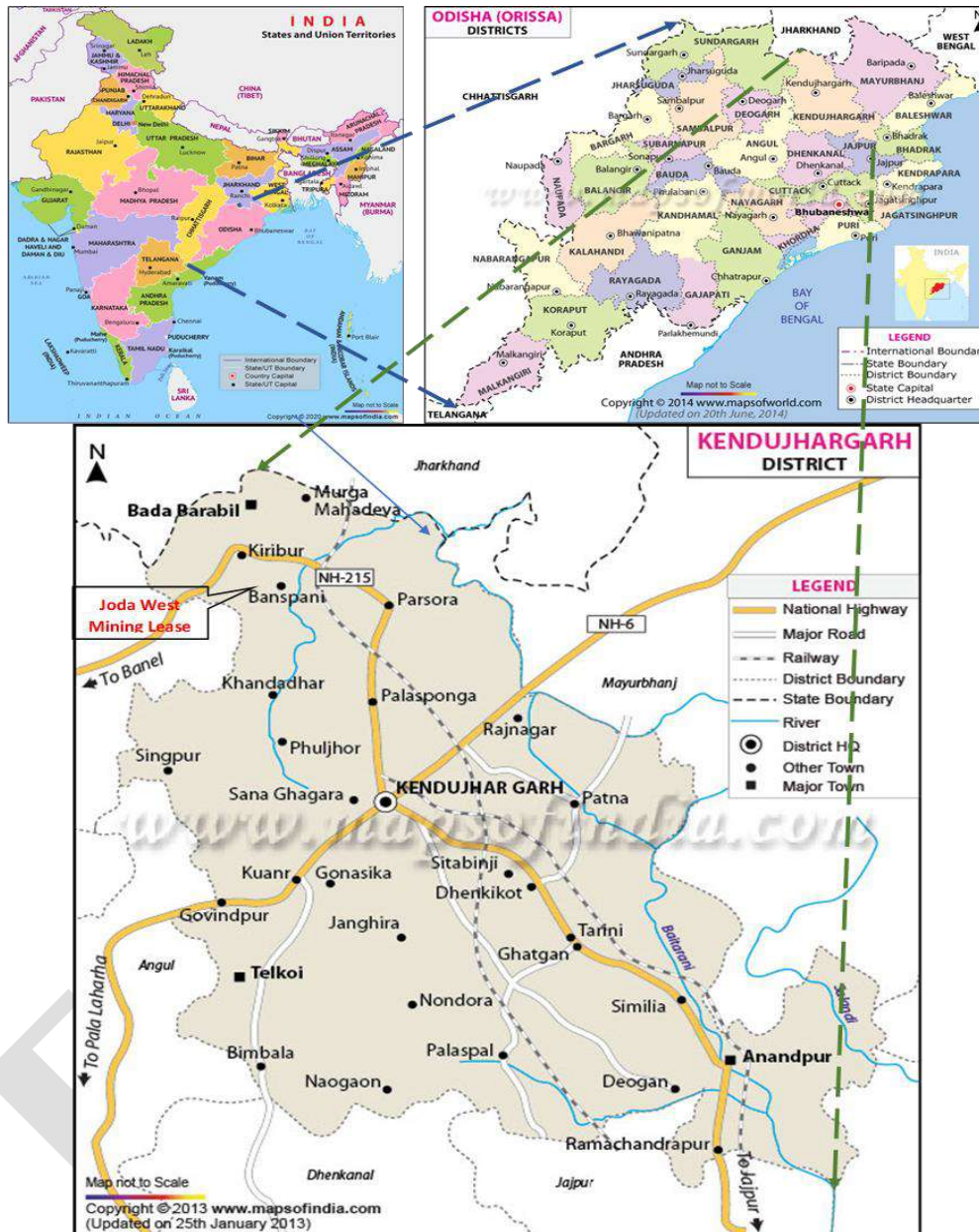
Tata Steels Raw Materials operations in India are mainly dealing with four broad minerals – Iron ore, Chromite, Manganese and Coal. The chromite and manganese mines and associated alloy making operations have been amalgamated under the 'Ferro Alloys & Minerals Division' that acts as a separate strategic business unit. Iron-ore and coal being the two key raw materials for steel making, efficient and scientific mining operations give us a competitive edge in steel production.

With an annual production of 360,000 MT, the Ferro Alloys and Minerals Division (FAMD) is the largest non-steel business unit of Tata Steel, operating chrome and manganese ore reserves in Odisha. Manganese ore requirement of company is met from Bamebari Iron & Manganese Mine, Joda West Iron & Manganese Mine, Tiringpahar Iron & Manganese Mine, and Khondbond Iron & Manganese Mine.

The company is operating four manganese mines in the Joda Valley in the district of Keonjhar, Odisha namely Bamebari Iron & Manganese Mine, Joda West Iron & Manganese Mine, Tiringpahar Iron & Manganese Mine and Khondbond Iron & Manganese Mines. The present report is in respect of Joda West Iron & Manganese Mine operated over mine lease area of 1437.719ha. The mining history of Joda West Mine is since 1930 when the first lease was granted by the



then Maharaja of Keonjhar. The Joda West mining lease is located at Bichhakundi, Kundurpani, Banspani villages at Barbil tahasil in Champua sub-division of Keonjhar district in the state of Odisha. The entire lease of 1437.719ha is bounded within Latitude from 21°58'00" N to 22°02'00" N and between Longitudes: 85°23'00" E to 85°26'00" E. The area falls under survey of India Topo sheet Nos. 73 G/5 & 73 F/8 (New Topo sheet Nos. F 45N5 & F45H8). The location of the Joda West Mines is indicated in the INDEX MAP as follows:



**Fig.1 INDEX MAP**

The Joda West Iron & Manganese Mine is an opencast mechanised metal mine operational since 1930. The company has been producing the manganese ore from the mine by using shovel-dumper combinations which is used for the making of ferro-manganese at the Ferro Alloys Plant based at Joda



which is ultimately used by the company's steel operation for the making of stainless steel. The mine at present is operated for a production capacity of 180000 Tonnes Per Annum.

**Table.1: Salient Features of Joda West Iron & Mn Mine**

Project Location	
Village	Bichhakundi, Banspani, Kundurpani
Tehsil	Barbil (Champua Sub Division)
District	Kendujhar
State	Odisha
Latitude	21°58'00" N to 22°02'00" N
Longitude	85°23'00" E to 85°26'00" E
Elevation / Altitude	561 metres (1,841 feet) Approx.
Nearest Town	Barbil
Nearest City	<u>Kendujhar</u> Approx. 60 km
Nearest Road	Joda- Kendujhar, NH-215 Approx. 2 km
Nearest Highway	NH-215 Approx. 2 km
Nearest Railway Station	BARABIL Railway Station Approx. 9 km
Nearest Airport	Bhubaneswar Airport Approx. 285 km

Mining Operation at Joda West Iron & Manganese Mine is governed by various environmental and social policies, applicable permits, legislations, rules, and regulations framed by the state (Odisha) and the central Government.

An Environmental Management Cell and Safety Task Force has been established for identifying various health and safety related obligations to be fulfilled by the organization. The team has been established with prime objectives of identifying the legal compliance imperatives having their genesis from different



national and international legislations and /or commitments to which Tata is obliged.

The mine management keeps on monitoring all such aspects (Health & Safety) as per the statute guidelines and assess the status of compliance along with identifying the scope for continual improvement."

The Whole-body vibration monitoring and exposure assessment is carried out keeping in consideration with the governing legislations framed by Directorate General of Mines Safety, etc. and deliberated during National Safety Conference.

#### **Statutory References to Exposure Assessment Study:**

- ❖ **DGMS Tech Circular No.1 of 2018** (Standards and Safety Provisions of Diesel Equipment for using in belowground coal and Metalliferous mines) Ref. 1.4 **(Vibration):** The vibration exposure limits of the operator and passengers shall comply with the acceptance criteria specified in ISO 2631:2014 or its revised version or any internationally accepted standards.
- ❖ **DGMS Tech Circular No.1 of 2018** (Standards and Safety Provisions of Diesel Equipment for using in belowground coal and Metalliferous mines) Ref. 1.1.9 **(Vibration):** *The seat and it's suspension shall be so designed to reduce vibration transmitted to the operator to the lowest level that can be reasonably achieved.*
- ❖ **DGMS Standards and Safety Provisions of Diesel Equipment for using in belowground coal and Metalliferous mines (2018)** Ref. 10.7 **(Vibration):** *Non-destructive testing of all the load carrying members of the equipments, where safety of the persons is involved, and whole body vibrations study shall be conducted for operator comfort, once in every one year conforming to any internationally accepted standards, from any Govt. approved test house or NABL accredited laboratory subject to confirmation of its ability to conduct such tests.*
- ❖ **11<sup>th</sup> National safety Council Recommendation (DGMS-Reference Clause-1.10.2)** *It is imperative for undertaking machine induced vibration and associated exposure for the dumper operators, Dozer operators, sorting yard workers, Drill Operators, and others as per their occupation.*

As stated above, the company has engaged M/s Tecorfin Consultants Pvt. Ltd. for undertaking a detailed exposure assessment of such operators



engaged in various mining operations. M/s Tecorfin Consultant Pvt. Ltd (First Party) has collaborated with M/s Startech Laboratory Pvt. Ltd, having its test house recognized by DGMS, by means of subletting provisions.

### 3.0 SCOPE & METHODOLOGY

The current assessment has been outsourced for a period of one year i.e for FY 2022-2023. The Assessment shall be carried out by Startech Laboratory Private Ltd. for all the four manganese leases of the company. The assessment shall be conducted in two phases at an interval of six months. Each phase of surveillance shall cover around 5 representative HEMM operators preferable selected from all the class of HEMMs deployed on site. The agency shall undertake testing of the operators for their exposure to Whole Body Vibration as well as Hand Arm Vibration induced due to operation of the Machines. The Sampling event for one person was ensured for at least 30 minutes each for WBV and HAV. The properly calibrated equipment was used and then data collected is analyzed as per ISO 2631:2014 standards for estimation of the following parameters:

- A) Daily vibration exposure, A (8) measured in terms of acceleration i.e  $\text{m/s}^2$ ,
- B) Daily Vibration Dose Value (VDV) in  $\text{m/s}^{1.75}$ ,

**METHODOLOGY: Vibration Exposure Monitoring:** Despite modern technology, many workers who operate powered hand tools or other heavy machinery are subjected to the exposure of vibration during their normal working hours. This will lead to development of injuries and/or disorders related to vibration exposure.

Vibration exposure is of two types

1. Hand Arm Vibration
2. Whole Body Vibration

**Hand-Arm Vibration** is defined as the transmission of sinusoidal vibration from a tool to a worker's hand and arm. The amount of HAV is characterized by the acceleration level of the tool when grasped by the worker and in use. The vibration is typically measured on the handle of tool while in use to determine the acceleration levels transmitted to the worker.

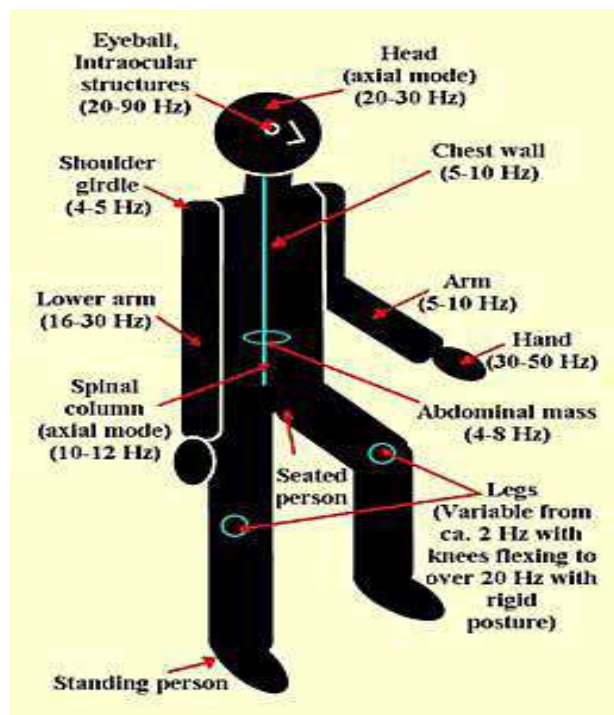
**Whole body vibration** is caused by vibration transmitted through the seat or the feet by workplace machines and vehicles. Exposure to high levels of whole-body vibration may cause risks to health and safety and are reported to cause or aggravate back injuries. The risks are greatest when the vibration magnitudes



are high, the exposure durations long, frequent, and regular, and the vibration includes severe shocks or jolts.

### 3.1 Health effects

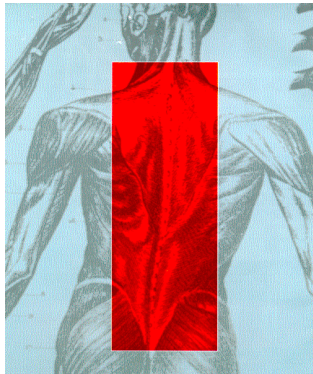
To understand why human beings are more sensitive to some frequencies than to others, it is useful to consider the human body as having sub-systems, where each sub-system has its own resonance frequency band and the interactions between sub-systems are influenced by the body's position, for example, standing or sitting.



Each part of the human body has its own resonance frequency; therefore, it reacts differently to different frequencies. Above 100 Hz, this model is not very useful, and other more complex analyses must be used. Some of the analyses show that the skull itself has a fundamental mode of vibration in the region of 300-400 Hz with resonances for higher modes around 600-900 Hz. Regular exposure to WBV may cause low back disorders such as disc herniations, may accelerate degenerative changes in the spine, and may lead to moisture loss, bucking, and slipping of the lumbar discs. Recent studies have indicated that female workers who become pregnant and are exposed to WBV can possibly have added risk factors such as miscarriages and other gynecological disorders. A prolonged exposure to vibration can adversely affect the comfort, efficiency, safety, health and wellbeing of



employees. The fig below reflects impacts on the lower back, Vertebrates and the nervous system that surrounds it.



**Other factors that can contribute to WBV injury:**

The equipment mentioned above because of continuous vibration, produces high levels of vibration that can cause permanent damage to one's back. The risk of permanent damage also depends on a number of other factors. Finally, awkward postures and manual cargo handling in addition to WBV exposure tend to exacerbate low back pain misery. Some of typical patterns of induced form of vibration causing injury are as follows:

- Low frequency vibration caused by machinery.
- High frequency vibration from engine and transmission
- Shock from running into potholes or obstacles
- Poor ergonomic design of cabs, seats and controls
- Individual susceptibility - general fitness, being overweight and choice of leisure pursuits

**3.2 SAMPLING SELECTION CRITERIA:**

The preliminary task of identifying sampling subject was ensured with the support of Mines Managers of individual mines. All the types of fleet were considered. An attempt was made to undertake at least 10% of the different class

of HEMMs. All the identified operators of the HEMMs were briefed on the procedure of sampling especially w.r.t correct posture of installation of sensors and proper care of the same during sampling. The following list of HEMMs were identified for the purpose of first phase of sampling and the same is summarized as follows:



**Table. 2: Sampling Selection Criteria**

Sl.No	SELECTED HEMM/ HEMM ID	OPERATOR's NAME GATE PASS NO.	AGE (Yrs)	WORKPLACE
01	Dumper (OD09 W 1177)	Mr. Trilochan Prusty <b>GP- TSP/647865/1121</b>	30	GG Quarry
02	Dumper (OD09 W 1177)	Mr. Shyam Sundar Karua <b>GP- TSP/554376/0821</b>	39	GG Quarry
03	Dozer (BD 85)	Mr. Shrihari Mahanta <b>GP- TSP/818598/0122</b>	43	GG Quarry
04	Loader (OD09 G 8571)	Mr. Tapas Kumar Lohar <b>GP- TSP/725318/1221</b>	23	GG Quarry
05	Driller (CD 450)	Mr. Kishore <u>Ch.</u> Mahakud <b>GP- TSP/650365/1121</b>	28	GG Quarry

All the above mentioned HEMM operators were assessed for their exposure to the machine induced vibrations and shocks for both HAV as well as WBV.

The vibration monitoring is done to assess the operator's exposure vibration hazard to which they are exposed during their operational activity. The effect of exposure sometimes is reflected in a later stage adding owes to their comfort and efficiency. This monitoring would help TATA Steel in assessing the present exposure level and accordingly identify areas for corrective actions. The emphasis was laid upon all types of activities such as OB Transportation, Ore Loading, Face Cutting, Ripping/Dozing, etc.

The assessment was carried out by forming a team of experts from Startech Laboratory Pvt. Ltd. in coordination with the Shift in Charge(s) and Sr. Manager Environment & Mines Manager.

**Sampling Team:** Mr. Y. Raghavendra Chary & Mr. G. Naveen from Startech Lab Pvt. Ltd. were engaged for sampling services on site.

#### 4.0 INSTRUMENTATION:

The HAVPro is a compact, lightweight, fully integrated 3-channel instrument for obtaining tri-axial vibration measurements. This monitor is the



ideal screening tool for quickly and simply determining the presence and magnitude of hazardous hand-arm or whole-body vibration levels. Time history data also allows insight into exposure variations over time.

The HAVPro conforms to the requirements of the latest human vibration measurement standards including the new EU Vibration Directive 2002/44/EC dated June 2002, ISO 5349-2001, ISO 2631, ISO 8041 Type 1, ANSI S3.18, ANSI S3.34, and ACGIH 2005 WBV & HAV Threshold Limit Values.

HAVPro Whole-Body Vibration Kit – Includes 072-001 HAVPro Personal Human Vibration Monitor, 072-011 3-Axis Seat Pad Accelerometer and 072-007 Sensor Cable.

Instrument	: Vibration Monitor
Make	: Quest Technologies, Inc.
Model	: HAVPro, Quest Technologies, Inc.
Serial no	: 07114, 07123 & 06011

## 5.0 TECHNICAL SPECIFICATIONS:

### 5.1 Standard Sensors

**Whole Body Sensor:** Part No. 072-011 voltage mode tri-axial seat pad accelerometer, 100mV/g sensitivity

**W-B RMS Range:** 0.001 m/s<sup>2</sup> to 500 m/s<sup>2</sup>, dependent upon gain setting

**W-B Peak Range:** 0.2 m/s<sup>2</sup> to 700 m/s<sup>2</sup>, dependent upon gain setting

### 5.2 Measurements:

**Whole body Vibration:** Arms,  $A_{min}$ ,  $A_{max}$ ,  $A_{eq}$ ,  $A_{mp}$ , PEAK,  $CF_{mp}$ , CF, VDV, Time History

**Dynamic Range:** 60dB

**Frequency Range:** 0.5 – 3000 Hz +/- 5% 0.3 – 5000 Hz +/- 10%

**Sampling Rate:** 14,400 HzF FREQUENCY WEIGHTINGS

### 5.3 Frequency Weighting: Whole-Body: Wb, Wc, Wd, We, Wg, Wj, Wk, WB

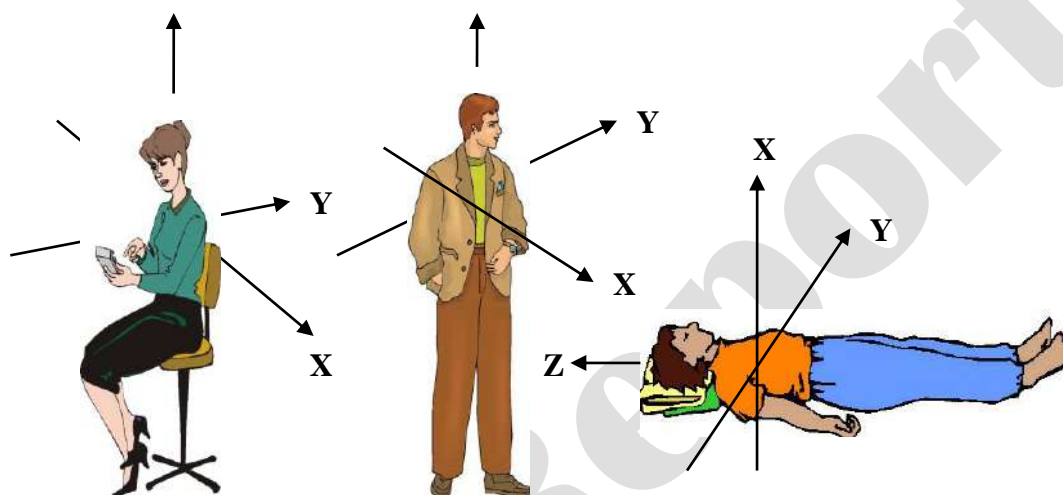
**MEMORY STORAGE:** Setups: Up to 10 User-defined setup files, Data Files: Up to 100 data files, Time History: Interval lengths of 1, 2, 5, 10, 20, 30 or 60



seconds. Up to 120 intervals per data file with Arms and PEAK/interval. Up to 240 intervals per data file with Arms or PEAK/interval, Size: 512 KB

#### 5.4 Monitoring Methodology:

- Vibration is measured in tri-axial dimension.
- At a time, vibration is possible in more than one direction,
- Vibration is produced in total of three axes of potential movement



*X – Axis Back to Chest*  
*Y – Axis Right to Left*  
*Z - Axis Foot to Head*

#### 6.0 CALIBRATION:

Calibrated on : 03rd December 2021

Calibration Due Date : 02nd December 2022

Copies of calibration certificates are attached as Annexures to this Report.

#### 7.0 ACCEPTANCE CRITERIA:

As per ACGIH (Booklet 2010 TLVs and BEIs)

Monitoring and assessment methodology adapted as per ISO 2631

**Table. 3: Applicable Standards for Vibration Exposure**

8-Hr Daily Exposure Limits	Action Value	Limit Value
Hand-Arm	2.5 m/s <sup>2</sup>	5 m/s <sup>2</sup>



8-Hr Daily Exposure Limits	Action Value	Limit Value
Whole-Body	0.5 m/s <sup>2</sup>	1.15 m/s <sup>2</sup>
Whole-Body (vibration dose)	9.1 m/s <sup>1.75</sup>	21 m/s <sup>1.75</sup>

## 9.0 DEFINITIONS:

**EAV (Exposure Action values):** A value for either a workers daily vibration exposure, A(8) of 0.5m/s<sup>2</sup>, or a workers daily VDV of 9.1m/s<sup>1.75</sup>, above which the risks from vibration exposure must be controlled.

**ELV (Exposure Limit Value):** A value for either a workers daily vibration exposure, A(8) of 1.15m/s<sup>2</sup>, or a workers daily VDV of 21m/s<sup>1.75</sup>, above which workers should not be exposed.

**VDV:** Vibration Dose Value. VDV has units of m/s<sup>1.75</sup>.

**CF:** Crest Factor ratio of peak to rms should 6 or less

**Aeq:** Is the integration time that is from Run to Reset

**Amp:** Peak level of the instantaneous weighted acceleration

**A(8):** Daily vibration exposure, expressed in (m/s<sup>2</sup>)

## BASIS OF INTERPRETATION:

For those result whose crest value are above 6, Vibration Dose Values needs to be considered. Exposure Action Limit Start at 9.1m/s<sup>1.75</sup> and Exposure limit Value is 21m/s<sup>1.75</sup> for Vibration Dose Value.

**10.0 RESULTS:** After sampling is completed, analysis of the data collected is done using HAVPro Software for estimating the parameters as defined in the sec.9.0.

The summary of the readings is summarized as follows:

**Table. 4: Whole Body Vibration Results:**

SAMPLE ID	Location	Operator Name	Activity	Axis	Aeq m/s <sup>2</sup>	A <sub>min</sub> m/s <sup>2</sup>	A <sub>max</sub> m/s <sup>2</sup>	A <sub>(8)</sub> m/s <sup>2</sup> EAV-0.5	VDV m/s <sup>1.75</sup>
1	Shovel -6	Mr. Trilochan Prusty	Shovel Operator	X	0.7187	0.0093	3.9569	0.1807	29.0674
				Y	0.6475	0.0078	3.5652	0.1628	26.2609
				Z	0.3507	0.0199	1.9282	0.0882	14.2030
				SUM	1.3990	0.0263	7.6816	0.3518	46.3371



SAMPLE ID	Location	Operator Name	Activity	Axis	Aeq m/s <sup>2</sup>	A <sub>min</sub> m/s <sup>2</sup>	A <sub>max</sub> m/s <sup>2</sup>	A <sub>(8)</sub> m/s <sup>2</sup> EAV-0.5	VDV m/s <sup>1.75</sup>
2	Dumper (OD09 W 1177)	Mr. Shyam Sundar Karua	Dumper Operator	X	0.0628	0.0082	0.3598	0.0168	2.2167
				Y	0.0619	0.0064	0.3560	0.0165	2.1929
				Z	0.0336	0.0137	0.1657	0.0090	1.0233
				SUM	0.1279	0.0206	0.7275	0.0342	3.6764
3	Dozer (BD 85)	Mr. Shrihari Mahanta	Dozer Operator	X	0.1197	0.0080	0.6564	0.0302	3.9946
				Y	0.1187	0.0063	0.6528	0.0299	3.9784
				Z	0.0587	0.0144	0.3067	0.0148	1.8716
				SUM	0.2432	0.0203	1.3324	0.0613	6.6476
4	Loader(OD09 G 8571)	Mr. Tapas Kumar Lohar	Loader Operator	X	0.0666	0.0081	0.3662	0.0169	2.2439
				Y	0.0656	0.0064	0.3613	0.0167	2.2137
				Z	0.0340	0.0139	0.1688	0.0086	1.0372
				SUM	0.1352	0.0203	0.7394	0.0344	3.7167
5	Driller (CD 450)	Mr. Kishore Chadra Mahakud	Driller Operator	X	0.0088	0.0077	0.0139	0.0023	0.0877
				Y	0.0070	0.0059	0.0127	0.0018	0.0788
				Z	0.0143	0.0137	0.0159	0.0037	0.1272
				SUM	0.0213	0.0193	0.0305	0.0055	0.1589

Table. 5: Hand Arm Vibration Results

Case No.	Location	Operator Name	Activity	Axis	Aeq m/s <sup>2</sup>	A <sub>min</sub> m/s <sup>2</sup>	A <sub>max</sub> m/s <sup>2</sup>	A(8) m/s <sup>2</sup> EAV-2.5m/s <sup>2</sup>
1	Shovel -6	Mr. Trilochan Prusty	Shovel Operator	X	0.0594	0.0420	0.1154	0.0155
				Y	0.0453	0.0285	0.0919	0.0118
				Z	0.0615	0.0383	0.1284	0.0160
				SUM	0.1213	0.0840	0.2327	0.0316
2	Dumper (OD09 W 1177)	Mr. Shyam Sundar Karua	Dumper Operator	X	0.1751	0.0399	0.4103	0.0478
				Y	0.1707	0.0380	0.3526	0.0465
				Z	0.1735	0.0311	0.3450	0.0473
				SUM	0.3838	0.0933	0.8151	0.1047
3	Dozer (BD 85)	Mr. Shrihari Mahanta	Dozer Operator	X	0.1159	0.0438	0.1749	0.0292
				Y	0.1277	0.0349	0.1894	0.0322
				Z	0.1418	0.0230	0.2493	0.0358



Case No.	Location	Operator Name	Activity	Axis	Aeq m/s <sup>2</sup>	Amin m/s <sup>2</sup>	Amax m/s <sup>2</sup>	A(8) m/s <sup>2</sup>
								EAV-2.5m/s <sup>2</sup>
				SUM	0.2800	0.0828	0.4204	0.0707
4	Loader(OD09 G 8571)	Mr. Tapas Kumar Lohar	Loader Operator	X	0.0950	0.0415	0.1735	0.0241
				Y	0.0938	0.0351	0.1907	0.0238
				Z	0.0786	0.0436	0.1397	0.0199
				SUM	0.2027	0.0877	0.3773	0.0514
5	Driller (CD 450)	Mr. Kishore Chadra Mahakud	Driller Operator	X	0.0651	0.0138	0.1465	0.0169
				Y	0.0559	0.0134	0.1297	0.0145
				Z	0.0468	0.0108	0.0965	0.0121
				SUM	0.1289	0.0295	0.2901	0.0335

## 11.0 OBSERVATIONS:

### 11.1 CASE 1: SAMPLE ID-01

The subject sample was tested for exposure assessment to both HAV & WBV. Mr. Trilochan Prusty, operator of Shovel-06 engaged in excavation work at Gangeiguda Quarry at Joda West Iron & Mn Mine was tested for estimation of Daily Exposure Value.

#### A) Whole Body Vibration:

From the Result it is observed that Daily Vibration for Whole Body vibration exposure in X, Y & Z axis are within the Exposure Action value of A(8) i.e. 0.5m/s<sup>2</sup>. With the current level of exposure, the operator may be allowed to work for a full shift which won't attract any occupational contraventions.

#### B) Hand Arm Vibration:

From the Result it is observed that daily vibration for Hand Arm Vibration exposure in X, Y & Z axis are within the Exposure Action value of A(8) i.e. 2.5m/s<sup>2</sup>. Here an Operator can work for a full shift at the same exposure level.

**Conclusion:** Based on the findings of both HAV & WBV, it can be concluded that the status of ergonomics of Shovel-06 (subject HEMM) is safe in this regard.

### 11.2 CASE 2 (SAMPLE ID-02):

The subject sample was tested for exposure assessment to both HAV & WBV. Mr. Shyamsundar Karua, operator of Dumper (OD09W1177) engaged in



transportation of operations at GG Quarry of Joda West Iron & Mn Mine was tested for estimation of Daily Exposure Value.

**A) Whole Body Vibration:**

From the Result it has been observed that daily vibration for Whole body vibration exposure in X, Y & Z axis are within the Exposure Action value of A(8) i.e.  $0.5\text{m/s}^2$ , here an Operator can work for a full shift at the same exposure level without any possibility of any occupational contraventions

**B) Hand Arm Vibration:**

From the Result it has been observed that daily vibration for Hand Arm Vibration exposure in X, Y & Z axis are within the Exposure Action value of A(8) i.e.  $2.5\text{m/s}^2$ . Here an Operator can work for a full shift at the same exposure level.

**Conclusion:** Based on the findings of both HAV & WBV, it can be concluded that the status of ergonomics of Dumper- OD09W1177 (subject HEMM) is safe in this regard.

**CASE 3 (SAMPLE ID-03):**

The subject sample was tested for exposure assessment to both HAV & WBV. Mr. Shrihari Mahanta Dozer Operator (BD-85) engaged in Dozing & Ripping operations at Joda West Iron & Mn Mine was tested for estimation of Daily Exposure Value.

**A) Whole Body Vibration:**

From the result, it has been observed that daily vibration for Whole body vibration exposure in X, Y & Z axis are within the Exposure Action value of A(8) i.e.  $0.5\text{m/s}^2$  Here an Operator can work for a full shift at the same exposure level.

**B) Hand Arm Vibration:**

From the Result it has been observed that daily vibration for Hand Arm Vibration exposure in X, Y & Z axis are within the Exposure Action value of A(8) i.e.  $2.5\text{m/s}^2$ . Here an Operator can work for a full shift at the same exposure level.

**Conclusion:** Based on the findings of both HAV & WBV, it can be concluded that the status of ergonomics of the Dozer (subject HEMM) is safe in this regard.

**11.3 CASE 4 (SAMPLE ID-04):**

The subject sample was tested for exposure assessment to both HAV & WBV. Mr. Tapas Kumar Lohar, operator of Front-End Loader (OD09G8571) engaged in



loading of ore material at Joda West Iron & Mn Mine was tested for estimation of Daily Exposure Value.

**A) Whole Body Vibration:**

From the result, it has been observed that daily vibration for Whole body vibration exposure in X, Y & Z axis are within the Exposure Action value of A(8) i.e.  $0.5\text{m/s}^2$ , here an operator can work for a full shift at the same exposure level.

**B) Hand Arm Vibration:**

From the Result it has been observed that daily vibration for Hand Arm Vibration exposure in X, Y & Z axis are within the Exposure Action value of A(8) i.e.  $2.5\text{m/s}^2$ . Here an Operator can work for a full shift at the same exposure level.

**Conclusion:** Based on the findings of both HAV & WBV, it can be concluded that the status of ergonomics of the loader (subject HEMM) is safe in this regard.

**11.4 CASE 5 (SAMPLE ID-05):**

The subject sample was tested for exposure assessment to both HAV & WBV. Mr. Kishore Chandra Mahakud, Drill Operator (CD450) engaged in drilling operations at Joda West Iron & Mn Mine was tested for estimation of Daily Exposure Value.

**A) Whole Body Vibration:**

From the result, it has been observed that daily vibration for Whole body vibration exposure in X, Y & Z axis are within the Exposure Action value of A(8) i.e.  $0.5\text{m/s}^2$ , here an operator can work for a full shift at the same exposure level.

**B) Hand Arm Vibration:**

From the Result it has been observed that daily vibration for Hand Arm Vibration exposure in X, Y & Z axis are within the Exposure Action value of A(8) i.e.  $2.5\text{m/s}^2$ . Here an Operator can work for a full shift at the same exposure level.

**Conclusion:** Based on the findings of both HAV & WBV, it can be concluded that the status of ergonomics of the Drill (subject HEMM) is safe in this regard.

**12.0 RECOMMENDATION FOR IMPROVEMENT:** From the detailed analysis of triaxial vibration exposure of all the five samples it is inferred that, the 8-hr (daily exposure value) for Hand Arm Vibration as well as Whole Body Vibration for all the five tested samples are indicating of conformance to the applicable ergonomic standard and DGMS prescribed Exposure Action Value

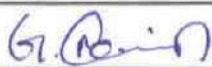



of  $2.5\text{m/s}^2$  and  $0.5\text{m/s}^2$  respectively. However, Daily Vibration Dose Value (Whole Body Vibration) as computed for all the samples are as follows:

**Sample ID 01:** VDV is observed to be  $46.3371\text{ m/s}^{1.75}$ , which is exceeding both the exposure action value of  $9.1\text{ m/s}^{1.75}$  and Exposure limit value of  $21.0\text{ m/s}^{1.75}$ . Since VDV is indicative of 24-hr exposure duration thus won't be of much consideration for the current assessment. This indicates that in no case, a person should be allowed to operate this machine beyond 8-hr duration. This being a special case wherein all the axes are observed to have dominant vibration exposure levels thus a detailed reassessment of the subject HEMM is a must for the mine management to plan for a proper ergonomic design.

- **Sample ID 02:** VDV is observed to be  $3.6764\text{ m/s}^{1.75}$ , which is well within the Exposure Action Value of  $9.1\text{ m/s}^{1.75}$ .
- **Sample ID 03:** VDV is observed to be  $6.6476\text{ m/s}^{1.75}$ , which is well within the Exposure Action Value of  $9.1\text{ m/s}^{1.75}$ .
- **Sample ID 04:** VDV is observed to be  $3.7167\text{ m/s}^{1.75}$ , which is well within the Exposure Action Value of  $9.1\text{ m/s}^{1.75}$ .
- **Sample ID 05:** VDV is observed to be  $0.1589\text{ m/s}^{1.75}$ , which is much above than that of prescribed Exposure Action Value of  $9.1\text{ m/s}^{1.75}$ .
- Based on the VDV and A(8) values the samples are indicating of conformance to the prescribed standards i.e Exposure Action value and Exposure Limit Values however in case of Sample ID 01 Mine management needs to focus on the reassessment of HEMM for a detailed ergonomic study.

**CERTIFIED BY**

Particulars	Monitored By	Authorized By
Name	G. Naveen	Y. Raghavendra Chary
Signature		
Date	01.09.2022	01.09.2022



**PHOTOGRAPHS**



**SAMPLE-01 (Mr. Trilochan Prusty)**



**SAMPLE-02 (Mr. Shyam Sundar Karua)**



**SAMPLE-03 (Mr. Shrihari Mahanta)**



**SAMPLE-04 (Mr. Tapas Kumar Lohar)**



**SAMPLE-05 (Mr. Kishore Chandra Mahakud)**



**ACKNOWLEDGEMENT**


*This "Vibration Monitoring" report is prepared by Startech Labs Pvt. Limited, Hyderabad on behalf of M/s Tecorfin Consultants Private Limited to be submitted before Joda West Iron & Manganese Mine of M/s. Tata Steel Ltd. M/s Startech Labs has conducted a detailed assessment of occupational exposure of HEMM operators of the mine to Vibration & Shocks. The Test House expresses its gratitude towards the Management of Tata Steel Ltd. for awarding this prestigious study to Startech Labs for their trust, hospitality and courtesy bestowed on our on-site project personnel during his project stay.*

*Startech Lab is indebted to Mr. Sabyasachy Mishra, Head Mine & Production Planning and Mr. Niranjana Kumar, Mines Manager (Joda West) and Mr. Sibashankar Sahu, Shift Incharge of Joda West Iron & Mn Mine for supporting us in every stage of the study and extending their co-operation and sparing their valuable time to provide us necessary guidance for the smooth execution and completion of this study.*

*Startech Lab is indebted to Mr. Arvind Dubey (proprietor of M/s Tecorfin Consultants Private Limited) for believing in us and making such a wonderful collaboration with us for this study.*

*Startech Lab is also grateful to all the employees of Tata Steel Ltd. (Joda West Iron & Manganese Mine) who have directly and indirectly extended their help and co-operation in various ways to complete this study successfully.*

*We thank and highly appreciate the concern of the Management for carrying out this study that would guide them to directly improve the working conditions and thus, generate healthy atmosphere at the workplace.*

  
**Mr. Y. Raghavendra Chary**  
**Assistant Manager, Industrial Hygiene**  
**Startech Labs Pvt. Ltd.**



## Certificate of Calibration

Calibration of HAVPro Monitor: 3<sup>rd</sup> Dec 2021

Valid Till: 1 Year from the Date of Issuance

**TSI INCORPORATED - OCONOMOWOC**1000 Corporate Centre Drive, Oconomowoc, WI53066 USA  
Tel 651 490 2811 • toll free 800 245 0779 • web www.tsi.comAn ISO 9001  
Registered Company

## Certificate of Calibration

Certificate Number: 356489659HAV06011

Model: HAVPro Vibration Monitor Date of Issue: 03-December -2021

S/N: 06011 Instrument ID: ST-EQ-IH-033

On this day of manufacture and calibration, TSI certificate that the above listed product meets  
or exceeds the performance requirements of the following acoustic standard(s)

**Test Conditions:**

Temperature: 18-25°C  
Humidity: 20-80% R.H.  
Barometric Pressure: 950-1050 mBar

**Test Procedure:** S072-001**Subassemblies:**

H-A Pro – PCB 356A67 S/N: 66819

**Reference Standard(s)****Measurement Uncertainty:****Device**Uncertainty estimated at 95% Confidence level ( $k=2$ )**Cal Due Date**

Kistler 8076K

+/- 1.8 % Vibration

2-March-2022

Fluke 45

+/- 1.4 % AC Voltage, +/-0.1% DC Voltage

2-March-2022

**Calibrated By:**  
Janet Pompe - Assembler

In order to maintain best instrument performance over time and in the event of inspection, audit or litigation, we recommend the instrument  
be recalibrated annually. Any number of factors may cause the calibration item to drift before the recommended interval has expired.  
See your manual for more information.

All equipment used in the test is traceable to NIST, and applies only to the unit identified above.  
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098-659 Rev F



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## EU Declaration of Conformity

Certificate Number: 356489659HAV06011

Product Line: Vibration Monitor

Model: HAVPro

S/N: 06011

**Directive Covered:**

- > EMC/ Council Directive 2014/53/EU on Electromagnetic Compatibility
- > Safety / Council Directive 2014/35/EU on Low Voltage Equipment Safety
- > RoHS / Council Directive 2011/65/EU on the restriction and use of certain hazardous substances
- > WEEE / Council Directive 2012/19/EU on Waste Electrical and Electronic Equipment

**The basis on which conformity is being declared:**

EN 61326-1 (2005) Electrical equipment for measurement, control and laboratory use - EMC requirements  
Group 1, Class B Equipment (emissions)

EN 61326-1 (2005) Electrical equipment for measurement control and laboratory use - EMC requirements  
Industrial location immunity

IEC 61010-1 (2010) Safety requirements for electrical equipment for measurement, control and laboratory use  
Part 1: General Requirements

CFR: 47 (2005) Code of Federal Regulations: Part 15 Subpart B - Radio Frequency Devices - Unintentional Radiators

ANSI S1.40-2006 (R2011) - Specifications and Verification Procedures for Sound Calibrators

IEC 60942:2003 / EN60942-2003 Electroacoustic Sound Calibrators / Class I

EN 50581 (2012) Technical documentation for the assessment of electrical and electronic products with respect  
to the restriction of hazardous substances

Note: This certification applies to all standard options and accessories supplied with the instrument.

At the end of its life cycle, this product, and any internal lithium cell, must be sent to a WEEE recycling center, and is marked accordingly.

The technical construction file required by this directive is maintained in Oconomowoc, WI USA



Tom Jacobson - Vice President - Engineering, TSI, Inc.



## Annexures-1

	<b>TSI INCORPORATED - OCONOMOWOC</b> 1000 Corporate Centre Drive, Oconomowoc, WI 53066 USA Tel 651 490 2811 + toll free 800 245 0779 + web www.tsi.com	An ISO 9001 Registered Company
<b>Certificate of Calibration</b> Certificate Number: 356489658HAV07123		
Model:	HAVPro Vibration Monitor	Date of Issue: 03-December -2021
S/N:	07123	Instrument ID: ST-EQ-IH-032
On this day of manufacture and calibration, TSI certificate that the above listed product meets or exceeds the performance requirements of the following acoustic standard(s)		
<b>Test Conditions:</b>		
Temperature:	18-25°C	
Humidity:	20-80% R.H.	
Barometric Pressure:	950-1050 mBar	
<b>Test Procedure:</b>	S072-001	
<b>Subassemblies:</b>		
H-A Pro – PCB 356A67 S/N: 66819		
<b>Reference Standard(s)</b>	<b>Measurement Uncertainty:</b>	<b>Cal Due Date</b>
<b>Device</b>	Uncertainty estimated at 95% Confidence level (k=2)	
Kistler 8076K	+/- 1.8 % Vibration	2-March-2022
Fluke 45	+/- 1.4 % AC Voltage, +/-0.1% DC Voltage	2-March-2022
<b>Calibrated By:</b>  Janet Pompe - Assembler		
In order to maintain best instrument performance over time and in the event of inspection, audit or litigation, we recommend the instrument be recalibrated annually. Any number of factors may cause the calibration item to drift before the recommended interval has expired. See your manual for more information.		
All equipment used in the test is traceable to NIST, and applies only to the unit identified above. This report must not be reproduced except in its entirety, without the written approval of TSI, Inc.		
098-659 Rev F		



## Annexures-1



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Tel 851.490.2811 + toll free 800.245.0779 + web www.tsi.com

An ISO 9001  
Registered Company

## EU Declaration of Conformity

Certificate Number: 356489658HAV07123

Product Line: Vibration Monitor      Model: HAVPro      S/N: 07123

**Directive Covered:**

- > EMC/ Council Directive 2014/53/EU on Electromagnetic Compatibility
- > Safety / Council Directive 2014/35/EU on Low Voltage Equipment Safety
- > RoHS / Council Directive 2011/65/EU on the restriction and use of certain hazardous substances
- > WEEE / Council Directive 2012/19/EU on Waste Electrical and Electronic Equipment

**The basis on which conformity is being declared:**

EN 61326-1 (2005) Electrical equipment for measurement, control and laboratory use - EMC requirements  
Group 1, Class B Equipment (emissions)

EN 61326-1 (2005) Electrical equipment for measurement control and laboratory use - EMG requirements  
Industrial location immunity

IEC 61010-1 (2010) Safety requirements for electrical equipment for measurement, control and laboratory use  
Part 1: General Requirements

CFR: 47 (2005) Code of Federal Regulations: Part 15 Subpart B - Radio Frequency Devices - Unintentional Radiators

ANSI S1.40-2006 (R2011) - Specifications and Verification Procedures for Sound Calibrators

IEC 60942:2003 / EN60942-2003 Electroacoustic Sound Calibrators / Class I

EN 50581 (2012) Technical documentation for the assessment of electrical and electronic products with respect  
to the restriction of hazardous substances

Note: This certification applies to all standard options and accessories supplied with the instrument.  
At the end of its life cycle, this product, and any internal lithium cell, must be sent to a WEEE recycling center, and is marked accordingly.

The technical construction file required by this directive is maintained in Oconomowoc, WI USA



Tom Jacobson – Vice President – Engineering, TSI, Inc.



**Annexure-2****RAW DATA SHEET**  
**(SYSTEM GENERATED DATA SHEET)****List of Enclosures:**

Sl.No	Sample ID	Name of Worker	Report Title
01	SAMPLE ID-01	Mr. Trilochan Prusty (Shovel Operator)	Whole Body Vibration
			Hand Arm Vibration
02	SAMPLE ID-02	Mr. Shyamsundar Karua, Dumper Operator	Whole Body Vibration
			Hand Arm Vibration
03	SAMPLE ID-03	Mr. Shrihari Mahanta Dozer Operator	Whole Body Vibration
			Hand Arm Vibration
04	SAMPLE ID-04	Mr. Tapas Ku Lohar, Loader Operator	Whole Body Vibration
			Hand Arm Vibration
05	SAMPLE ID-05	Mr. Kishore Ch. Mahakud, Drill Operator	Whole Body Vibration
			Hand Arm Vibration



# Whole Body Vibration Study Report

## General Data Panel

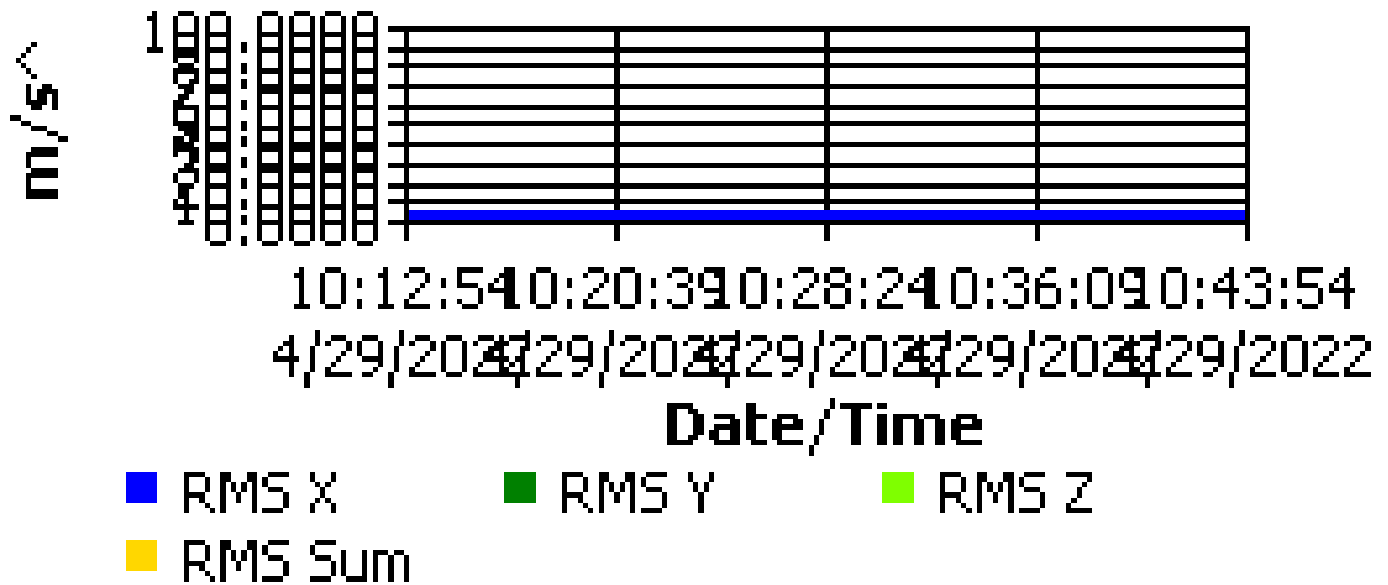
<u>Description</u>	<u>Meter</u>	<u>Value</u>	<u>Description</u>	<u>Meter</u>	<u>Value</u>
Gain	X	20dB	SumFactor	X	1.40
Weighting	X	Wd	Output	X	AC Weighted
Sensitivity	X	1.000000e+002	Gain	Y	20dB
SumFactor	Y	1.40	Weighting	Y	Wd
Output	Y	AC Weighted	Sensitivity	Y	1.000000e
+002					
Gain	Z	20dB	SumFactor	Z	1.00
Weighting	Z	Wk	Output	Z	AC Weighted
Sensitivity	Z	1.000000e+002	Mode		WholeBody
Averaging		60s	StoreTime		1 s
Accelerometer		ICP	DisplayUnits		m/s
DBReference		1e^-6	Integration		None
Auto Save		True	SecondHistory		None
PrintLoggingOn		False	SetupFileName		
Calibration Level		1.000000e+000	ExposureReference		2.8 m/s
VDV	X	29.067360 m/s^1.75	Amin	X	0.009316 m/
s^2					
Amax	X	3.956912 m/s^2	Aeq	X	0.718688 m/
s^2					
VDV	Y	26.260887 m/s^1.75	Amin	Y	0.007791 m/
s^2					
Amax	Y	3.565203 m/s^2	Aeq	Y	0.647543 m/
s^2					
VDV	Z	14.203012 m/s^1.75	Amin	Z	0.019910 m/
s^2					
Amax	Z	1.928215 m/s^2	Aeq	Z	0.350693 m/
s^2					
VDV	Sum	54.995818 m/s^1.75	Amin	Sum	0.026349 m/
s^2					
Amax	Sum	7.681597 m/s^2	Aeq	Sum	1.395197 m/
s^2					

## Information Panel

Location Shovel (V-19)  
 Name Mr. Trilochan Prusty  
 Comments Operator  
 Start Time Friday, April 29, 2022 10:11:46  
 Stop Time Friday, April 29, 2022 10:45:16



## Logged Data Chart



## Exposure Calculator

( \* measurements use k factor )

Run Time 00:33:30

Measurement	X	Y	Z	Sum	Units
VDV	29.0674	26.2609	14.2030	46.3371*	m/s <sup>1.75</sup>
Amin	0.0093	0.0078	0.0199		m/s <sup>2</sup>
Amax	3.9569	3.5652	1.9282		m/s <sup>2</sup>
Aeq	0.7187	0.6475	0.3507	1.3990*	m/s <sup>2</sup>
A(1)	0.5111	0.4605	0.2494	0.9950*	m/s <sup>2</sup>
A(2)	0.3614	0.3257	0.1764	0.7036*	m/s <sup>2</sup>
A(4)	0.2556	0.2303	0.1247	0.4975*	m/s <sup>2</sup>
A(8)	0.1807	0.1628	0.0882	0.3518*	m/s <sup>2</sup>
Cfmp					
K Factor	1.4	1.4	1.0		
Max RMS	1.0062*				m/s <sup>2</sup>
A(8), Max RMS	0.3542*			0.3518*	m/s <sup>2</sup>
Max VDV	40.6943*				m/s <sup>1.75</sup>

## RMS Calculated Values

Action Value Criterion 0.50 m/s<sup>2</sup> (8 hours)

Limit Value Criterion 1.15 m/s<sup>2</sup> (8 hours)

Exposure Time 08:00 hh:mm

	X	Y	Z	Sum	Units
EAV	01:58*	02:26*	16:15*	01:01*	hh:mm
ELV	10:27*	12:52*	>24*	05:24*	hh:mm
A(8)	1.0062*	0.9066*	0.3507*	1.3990*	m/s <sup>2</sup>



**VDV Calculated Values**Action Value Criterion 9.10 m/sec<sup>1.75</sup> (8 hours)Limit Value Criterion 21.00 m/sec<sup>1.75</sup> (8 hours)

Exposure Time 08:00 hh:mm

	<b><u>X</u></b>	<b><u>Y</u></b>	<b><u>Z</u></b>	<b><u>Sum</u></b>	<b><u>Units</u></b>
EAV	00:00*	00:00*	00:05*	00:00*	hh:mm
ELV	00:02*	00:03*	02:25*	00:01*	hh:mm
eVDV	13.1074	11.8099	6.3959	25.5149*	m/s <sup>1.75</sup>



# Hand Arm Vibration Study Report

5/3/2022

## Information Panel

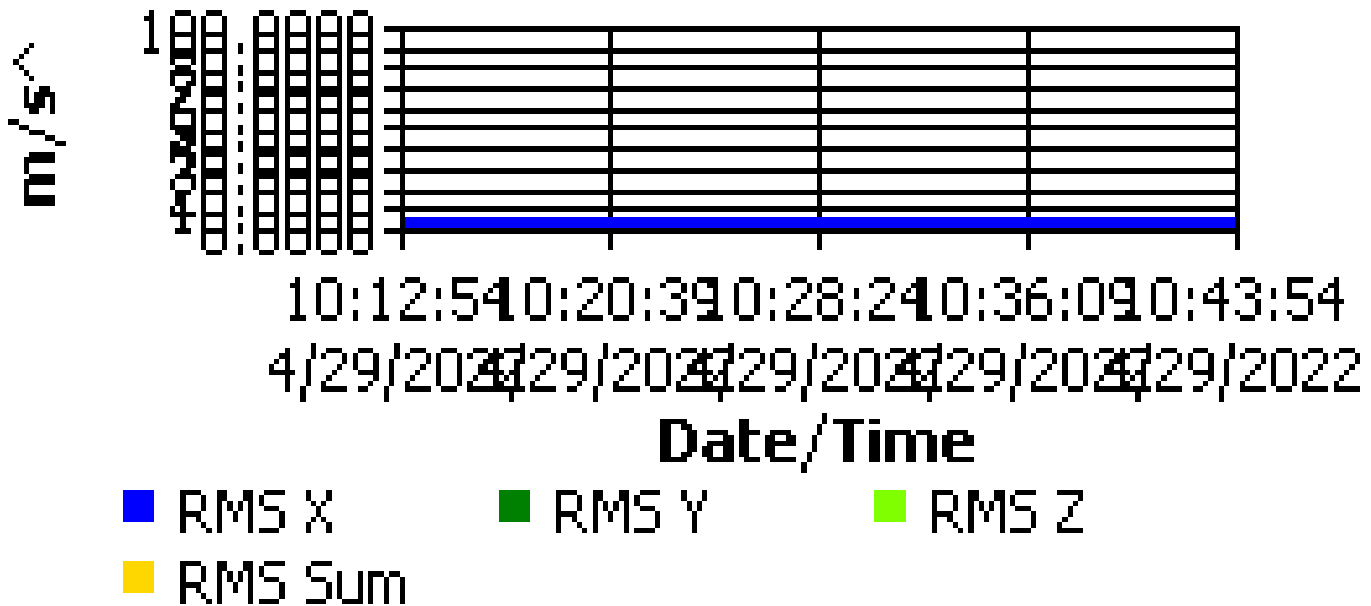
Location	Shovel-06
Name	Mr. Trilochan Prusty
Comments	Operator
Start Time	Friday, April 29, 2022 10:11:46
Stop Time	Friday, April 29, 2022 10:45:41

## General Data Panel

Description	Meter	Value	Description	Meter	Value
Gain	X	20dB	SumFactor	X	1.40
Weighting	X	Wh	Output	X	AC Weighted
Sensitivity	X	1.000000e+002	Gain	Y	20dB
SumFactor	Y	1.40	Weighting	Y	Wh
Output	Y	AC Weighted	Sensitivity	Y	1.000000e
+002					
Gain	Z	20dB	SumFactor	Z	1.00
Weighting	Z	Wh	Output	Z	AC Weighted
Sensitivity	Z	1.000000e+002	Mode		HandArm
Averaging		60s	StoreTime		1 s
Accelerometer		ICP	DisplayUnits		m/s
DBReference		1e^-6	Integration		None
Auto Save		True	SecondHistory		None
PrintLoggingOn		False	SetupFileName		
Calibration Level		1.000000e+000	ExposureReference		2.8 m/s
Amin	X	0.041978 m/s^2	Amax	X	0.115404 m/
s^2					
Aeq	X	0.059366 m/s^2	Amp	X	2.510762 m/
s^2					
Amin	Y	0.028463 m/s^2	Amax	Y	0.091928 m/
s^2					
Aeq	Y	0.045284 m/s^2	Amp	Y	1.804454 m/
s^2					
Amin	Z	0.038338 m/s^2	Amax	Z	0.128431 m/
s^2					
Aeq	Z	0.061493 m/s^2	Amp	Z	2.198804 m/
s^2					
Amin	Sum	0.083956 m/s^2	Amax	Sum	0.232691 m/
s^2					
Aeq	Sum	0.121168 m/s^2	Amp	Sum	4.291739 m/
s^2					



## Logged Data Chart



## Exposure Calculator

( \* measurements use k factor )

Run Time 00:33:55

Measurement	X	Y	Z	Sum	Units
Amin	0.0420	0.0285	0.0383		m/s <sup>2</sup>
Amax	0.1154	0.0919	0.1284		m/s <sup>2</sup>
Aeq	0.0594	0.0453	0.0615	0.1213*	m/s <sup>2</sup>
Amp	2.5108	1.8045	2.1988		m/s <sup>2</sup>
A(1)	0.0437	0.0334	0.0453	0.0894*	m/s <sup>2</sup>
A(2)	0.0309	0.0236	0.0320	0.0632*	m/s <sup>2</sup>
A(4)	0.0219	0.0167	0.0227	0.0447*	m/s <sup>2</sup>
A(8)	0.0155	0.0118	0.0160	0.0316*	m/s <sup>2</sup>
CFmp	42.2929	39.8472	35.7571		
K Factor	1.4	1.4	1.0		
Max RMS	0.0831*				m/s <sup>2</sup>
A(8), Max RMS	0.0303*			0.0316*	m/s <sup>2</sup>

## RMS Calculated Values

Action Value Criterion 0.50 m/s<sup>2</sup> (8 hours)

Limit Value Criterion 1.15 m/s<sup>2</sup> (8 hours)

Exposure Time 08:00 hh:mm

	X	Y	Z	Sum	Units
EAV	>24*	>24*	>24*	>24*	hh:mm
ELV	>24*	>24*	>24*	>24*	hh:mm
A(8)	0.0831*	0.0634*	0.0615*	0.1213*	m/s <sup>2</sup>



# Whole Body Vibration Study Report

5/3/2022

## Information Panel

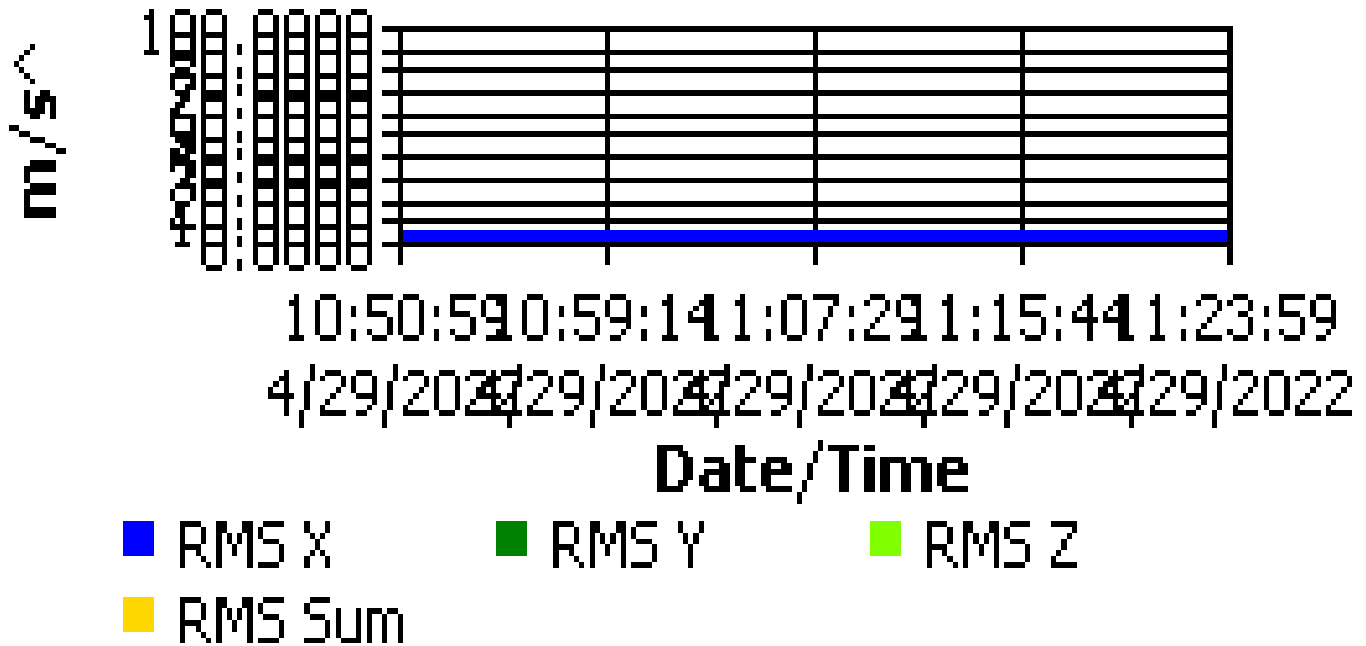
Location	Dumper (OD09 W 1177)
Name	Mr. Shyam Sundar Karua
Comments	Operator
Start Time	Friday, April 29, 2022 10:50:59
Stop Time	Friday, April 29, 2022 11:25:16

## General Data Panel

Description	Meter	Value	Description	Meter	Value
Gain	X	20dB	SumFactor	X	1.40
Weighting	X	Wd	Output	X	AC Weighted
Sensitivity	X	1.000000e+002	Gain	Y	20dB
SumFactor	Y	1.40	Weighting	Y	Wd
Output	Y	AC Weighted	Sensitivity	Y	1.000000e
+002					
Gain	Z	20dB	SumFactor	Z	1.00
Weighting	Z	Wk	Output	Z	AC Weighted
Sensitivity	Z	1.000000e+002	Mode		WholeBody
Averaging		60s	StoreTime		1 s
Accelerometer		ICP	DisplayUnits		m/s
DBReference		1e^-6	Integration		None
Auto Save		True	SecondHistory		None
PrintLoggingOn		False	SetupFileName		
Calibration Level		1.000000e+000	ExposureReference		2.8 m/s
VDV	X	2.216737 m/s^1.75	Amin	X	0.008225 m/
s^2					
Amax	X	0.359831 m/s^2	Aeq	X	0.062754 m/
s^2					
Amp	X	2.417369 m/s^2	VDV	Y	2.192858 m/
s^1.75					
Amin	Y	0.006411 m/s^2	Amax	Y	0.355955 m/
s^2					
Aeq	Y	0.061911 m/s^2	Amp	Y	2.391329 m/
s^2					
VDV	Z	1.023282 m/s^1.75	Amin	Z	0.013739 m/
s^2					
Amax	Z	0.165655 m/s^2	Aeq	Z	0.033620 m/
s^2					
Amp	Z	1.135709 m/s^2	VDV	Sum	4.481751 m/
s^1.75					
Amin	Sum	0.020567 m/s^2	Amax	Sum	0.727498 m/
s^2					
Aeq	Sum	0.127910 m/s^2	Amp	Sum	4.887384 m/
s^2					



## Logged Data Chart



## Exposure Calculator

( \* measurements use k factor )

Run Time 00:34:17

Measurement	X	Y	Z	Sum	Units
VDV	2.2167	2.1929	1.0233	3.6764*	m/s <sup>1.75</sup>
Amin	0.0082	0.0064	0.0137		m/s <sup>2</sup>
Amax	0.3598	0.3560	0.1657		m/s <sup>2</sup>
Aeq	0.0628	0.0619	0.0336	0.1279*	m/s <sup>2</sup>
Amp	2.4174	2.3913	1.1357		m/s <sup>2</sup>
A(1)	0.0474	0.0468	0.0254	0.0967*	m/s <sup>2</sup>
A(2)	0.0335	0.0331	0.0180	0.0684*	m/s <sup>2</sup>
A(4)	0.0237	0.0234	0.0127	0.0483*	m/s <sup>2</sup>
A(8)	0.0168	0.0165	0.0090	0.0342*	m/s <sup>2</sup>
CFmp	38.5211	38.6256	33.7806		
K Factor	1.4	1.4	1.0		
Max RMS	0.0879*				m/s <sup>2</sup>
A(8), Max RMS	0.0329*			0.0342*	m/s <sup>2</sup>
Max VDV	3.1034*				m/s <sup>1.75</sup>

## RMS Calculated Values

Action Value Criterion 0.50 m/s<sup>2</sup> (8 hours)

Limit Value Criterion 1.15 m/s<sup>2</sup> (8 hours)

Exposure Time 08:00 hh:mm

	X	Y	Z	Sum	Units
EAV	>24*	>24*	>24*	>24*	hh:mm
ELV	>24*	>24*	>24*	>24*	hh:mm
A(8)	0.0879*	0.0867*	0.0336*	0.1279*	m/s <sup>2</sup>



**VDV Calculated Values**Action Value Criterion 9.10 m/sec<sup>1.75</sup> (8 hours)Limit Value Criterion 21.00 m/sec<sup>1.75</sup> (8 hours)

Exposure Time 08:00 hh:mm

	<b><u>X</u></b>	<b><u>Y</u></b>	<b><u>Z</u></b>	<b><u>Sum</u></b>	<b><u>Units</u></b>
EAV	>24*	>24*	>24*	21:26*	hh:mm
ELV	>24*	>24*	>24*	>24*	hh:mm
eVDV	1.1445	1.1291	0.6132	2.3329*	m/s <sup>1.75</sup>



# Hand Arm Vibration Study Report

5/3/2022

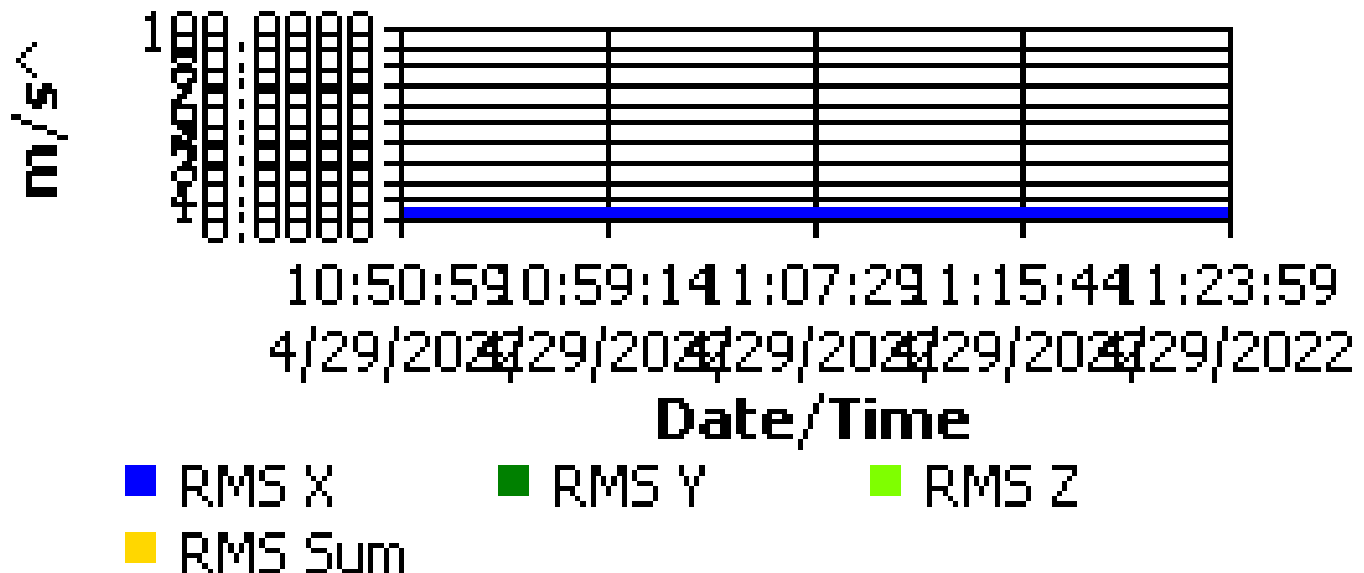
## Information Panel

Location Dumper (OD09 W 1177)  
 Name Mr. Shyam Sundar Karua  
 Comments Operator  
 Start Time Friday, April 29, 2022 10:50:25  
 Stop Time Friday, April 29, 2022 11:25:16

## General Data Panel

Description	Meter	Value	Description	Meter	Value
Gain	X	20dB	SumFactor	X	1.40
Weighting	X	Wh	Output	X	AC Weighted
Sensitivity	X	1.000000e+002	Gain	Y	20dB
SumFactor	Y	1.40	Weighting	Y	Wh
Output	Y	AC Weighted	Sensitivity	Y	1.000000e
+002					
Gain	Z	20dB	SumFactor	Z	1.00
Weighting	Z	Wh	Output	Z	AC Weighted
Sensitivity	Z	1.000000e+002	Mode		HandArm
Averaging		60s	StoreTime		1 s
Accelerometer		ICP	DisplayUnits		m/s
DBReference		1e^-6	Integration		None
Auto Save		True	SecondHistory		None
PrintLoggingOn		False	SetupFileName		
Calibration Level		1.000000e+000	ExposureReference		2.8 m/s
Amin	X	0.039927 m/s^2	Amax	X	0.410326 m/
s^2					
Aeq	X	0.175109 m/s^2	Amin	Y	0.038028 m/
s^2					
Amax	Y	0.352597 m/s^2	Aeq	Y	0.170663 m/
s^2					
Amin	Z	0.031123 m/s^2	Amax	Z	0.345042 m/
s^2					
Aeq	Z	0.173458 m/s^2	Amin	Sum	0.093307 m/
s^2					
Amax	Sum	0.815116 m/s^2	Aeq	Sum	0.383470 m/
s^2					

## Logged Data Chart





## Exposure Calculator

( \* measurements use k factor )

Run Time 00:34:51

<u>Measurement</u>	<u>X</u>	<u>Y</u>	<u>Z</u>	<u>Sum</u>	<u>Units</u>
Amin	0.0399	0.0380	0.0311		m/s <sup>2</sup>
Amax	0.4103	0.3526	0.3450		m/s <sup>2</sup>
Aeq	0.1751	0.1707	0.1735	0.3838*	m/s <sup>2</sup>
A(1)	0.1351	0.1316	0.1338	0.2960*	m/s <sup>2</sup>
A(2)	0.0955	0.0931	0.0946	0.2093*	m/s <sup>2</sup>
A(4)	0.0675	0.0658	0.0669	0.1480*	m/s <sup>2</sup>
A(8)	0.0478	0.0465	0.0473	0.1047*	m/s <sup>2</sup>
CFmp					
K Factor	1.4	1.4	1.0		
Max RMS	0.2452*				m/s <sup>2</sup>
A(8), Max RMS	0.0936*			0.1047*	m/s <sup>2</sup>

### RMS Calculated Values

Action Value Criterion 0.50 m/s<sup>2</sup> (8 hours)

Limit Value Criterion 1.15 m/s<sup>2</sup> (8 hours)

Exposure Time 08:00 hh:mm

	<u>X</u>	<u>Y</u>	<u>Z</u>	<u>Sum</u>	<u>Units</u>
EAV	>24*	>24*	>24*	13:34*	hh:mm
ELV	>24*	>24*	>24*	>24*	hh:mm
A(8)	0.2452*	0.2389*	0.1735*	0.3838*	m/s <sup>2</sup>



# Whole Body Vibration Study Report

5/3/2022

## Information Panel

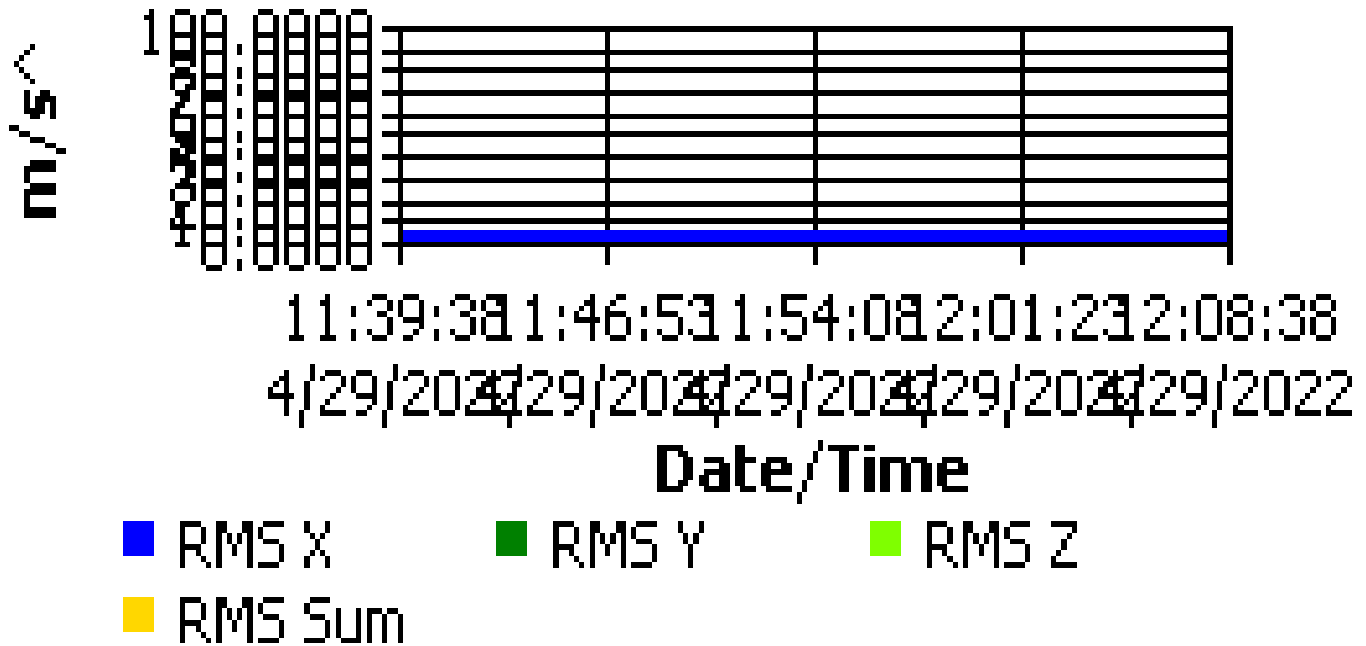
Location	Dozer -01
Name	Mr. Shrihari Mahanta
Comments	Operator
Start Time	Friday, April 29, 2022 11:39:38
Stop Time	Friday, April 29, 2022 12:10:06

## General Data Panel

Description	Meter	Value	Description	Meter	Value
Gain	X	20dB	SumFactor	X	1.40
Weighting	X	Wd	Output	X	AC Weighted
Sensitivity	X	1.000000e+002	Gain	Y	20dB
SumFactor	Y	1.40	Weighting	Y	Wd
Output	Y	AC Weighted	Sensitivity	Y	1.000000e
+002					
Gain	Z	20dB	SumFactor	Z	1.00
Weighting	Z	Wk	Output	Z	AC Weighted
Sensitivity	Z	1.000000e+002	Mode		WholeBody
Averaging		60s	StoreTime		1 s
Accelerometer		ICP	DisplayUnits		m/s
DBReference		1e^-6	Integration		None
Auto Save		True	SecondHistory		None
PrintLoggingOn		False	SetupFileName		
Calibration Level		1.000000e+000	ExposureReference		2.8 m/s
VDV	X	3.994588 m/s^1.75	Amin	X	0.008049 m/
s^2					
Amax	X	0.656369 m/s^2	Aeq	X	0.119700 m/
s^2					
Amp	X	4.481751 m/s^2	VDV	Y	3.978398 m/
s^1.75					
Amin	Y	0.006300 m/s^2	Amax	Y	0.652824 m/
s^2					
Aeq	Y	0.118732 m/s^2	Amp	Y	4.518304 m/
s^2					
VDV	Z	1.871632 m/s^1.75	Amin	Z	0.014426 m/
s^2					
Amax	Z	0.306705 m/s^2	Aeq	Z	0.058727 m/
s^2					
Amp	Z	2.088548 m/s^2	VDV	Sum	8.109041 m/
s^1.75					
Amin	Sum	0.020291 m/s^2	Amax	Sum	1.332433 m/
s^2					
Aeq	Sum	0.242993 m/s^2	Amp	Sum	9.135010 m/
s^2					



## Logged Data Chart



## Exposure Calculator

(\* measurements use k factor)

Run Time 00:30:28

Measurement	X	Y	Z	Sum	Units
VDV	3.9946	3.9784	1.8716	6.6476*	m/s <sup>1.75</sup>
Amin	0.0080	0.0063	0.0144		m/s <sup>2</sup>
Amax	0.6564	0.6528	0.3067		m/s <sup>2</sup>
Aeq	0.1197	0.1187	0.0587	0.2432*	m/s <sup>2</sup>
Amp	4.4818	4.5183	2.0885		m/s <sup>2</sup>
A(1)	0.0853	0.0846	0.0418	0.1733*	m/s <sup>2</sup>
A(2)	0.0603	0.0598	0.0296	0.1226*	m/s <sup>2</sup>
A(4)	0.0426	0.0423	0.0209	0.0867*	m/s <sup>2</sup>
A(8)	0.0302	0.0299	0.0148	0.0613*	m/s <sup>2</sup>
CFmp	37.4414	38.0546	35.5640		
K Factor	1.4	1.4	1.0		
Max RMS	0.1676*				m/s <sup>2</sup>
A(8), Max RMS	0.0591*			0.0613*	m/s <sup>2</sup>
Max VDV	5.5924*				m/s <sup>1.75</sup>

## RMS Calculated Values

Action Value Criterion 0.50 m/s<sup>2</sup> (8 hours)

Limit Value Criterion 1.15 m/s<sup>2</sup> (8 hours)

Exposure Time 08:00 hh:mm

	X	Y	Z	Sum	Units
EAV	>24*	>24*	>24*	>24*	hh:mm
ELV	>24*	>24*	>24*	>24*	hh:mm
A(8)	0.1676*	0.1662*	0.0587*	0.2432*	m/s <sup>2</sup>



**VDV Calculated Values**Action Value Criterion 9.10 m/sec<sup>1.75</sup> (8 hours)Limit Value Criterion 21.00 m/sec<sup>1.75</sup> (8 hours)

Exposure Time 08:00 hh:mm

	<b><u>X</u></b>	<b><u>Y</u></b>	<b><u>Z</u></b>	<b><u>Sum</u></b>	<b><u>Units</u></b>
EAV	03:33*	03:37*	>24*	01:46*	hh:mm
ELV	>24*	>24*	>24*	>24*	hh:mm
eVDV	2.1831	2.1654	1.0711	4.4361*	m/s <sup>1.75</sup>



# Hand Arm Vibration Study Report

5/3/2022

## Information Panel

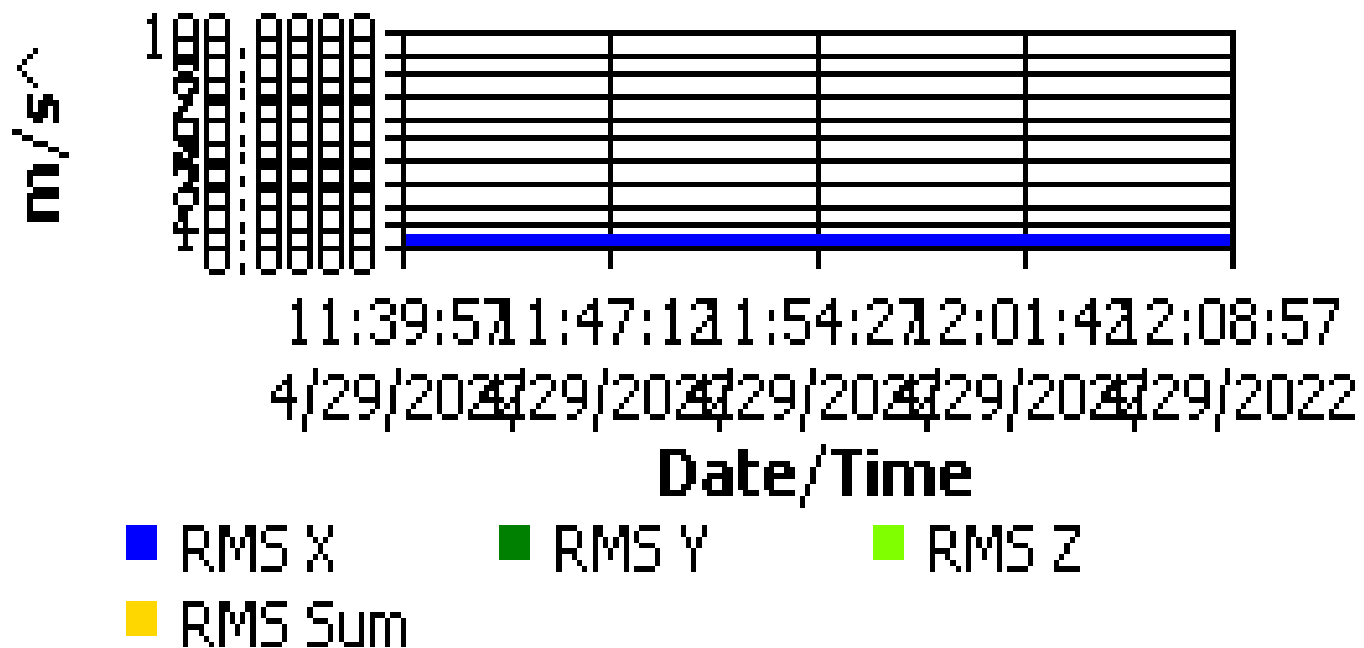
Location	Dozer-01
Name	Mr. Shrihari Mahanta
Comments	Operator
Start Time	Friday, April 29, 2022 11:39:57
Stop Time	Friday, April 29, 2022 12:10:32

## General Data Panel

Description	Meter	Value	Description	Meter	Value
Gain	X	20dB	SumFactor	X	1.40
Weighting	X	Wh	Output	X	AC Weighted
Sensitivity	X	1.000000e+002	Gain	Y	20dB
SumFactor	Y	1.40	Weighting	Y	Wh
Output	Y	AC Weighted	Sensitivity	Y	1.000000e
+002					
Gain	Z	20dB	SumFactor	Z	1.00
Weighting	Z	Wh	Output	Z	AC Weighted
Sensitivity	Z	1.000000e+002	Mode		HandArm
Averaging		60s	StoreTime		1 s
Accelerometer		ICP	DisplayUnits		m/s
DBReference		1e^-6	Integration		None
Auto Save		True	SecondHistory		None
PrintLoggingOn		False	SetupFileName		
Calibration Level		1.000000e+000	ExposureReference		2.8 m/s
Amin	X	0.043837 m/s^2	Amax	X	0.174872 m/
s^2					
Aeq	X	0.115874 m/s^2	Amp	X	2.157522 m/
s^2					
Amin	Y	0.034919 m/s^2	Amax	Y	0.189413 m/
s^2					
Aeq	Y	0.127737 m/s^2	Amp	Y	1.588834 m/
s^2					
Amin	Z	0.023013 m/s^2	Amax	Z	0.249324 m/
s^2					
Aeq	Z	0.141772 m/s^2	Amp	Z	7.807408 m/
s^2					
Amin	Sum	0.082827 m/s^2	Amax	Sum	0.420448 m/
s^2					
Aeq	Sum	0.279730 m/s^2	Amp	Sum	8.491018 m/
s^2					



## Logged Data Chart



## Exposure Calculator

(\* measurements use k factor)

Run Time 00:30:35

Measurement	X	Y	Z	Sum	Units
Amin	0.0438	0.0349	0.0230		m/s <sup>2</sup>
Amax	0.1749	0.1894	0.2493		m/s <sup>2</sup>
Aeq	0.1159	0.1277	0.1418	0.2800*	m/s <sup>2</sup>
Amp	2.1575	1.5888	7.8074		m/s <sup>2</sup>
A(1)	0.0827	0.0912	0.1012	0.1999*	m/s <sup>2</sup>
A(2)	0.0585	0.0645	0.0716	0.1414*	m/s <sup>2</sup>
A(4)	0.0414	0.0456	0.0506	0.1000*	m/s <sup>2</sup>
A(8)	0.0292	0.0322	0.0358	0.0707*	m/s <sup>2</sup>
CFmp	18.6196	12.4383	55.0703		
K Factor	1.4	1.4	1.0		
Max RMS		0.1788*			m/s <sup>2</sup>
A(8), Max RMS		0.0632*		0.0707*	m/s <sup>2</sup>

## RMS Calculated Values

Action Value Criterion 0.50 m/s<sup>2</sup> (8 hours)

Limit Value Criterion 1.15 m/s<sup>2</sup> (8 hours)

Exposure Time 08:00 hh:mm

	X	Y	Z	Sum	Units
EAV	>24*	>24*	>24*	>24*	hh:mm
ELV	>24*	>24*	>24*	>24*	hh:mm
A(8)	0.1622*	0.1788*	0.1418*	0.2800*	m/s <sup>2</sup>



# Whole Body Vibration Study Report

5/3/2022

## Information Panel

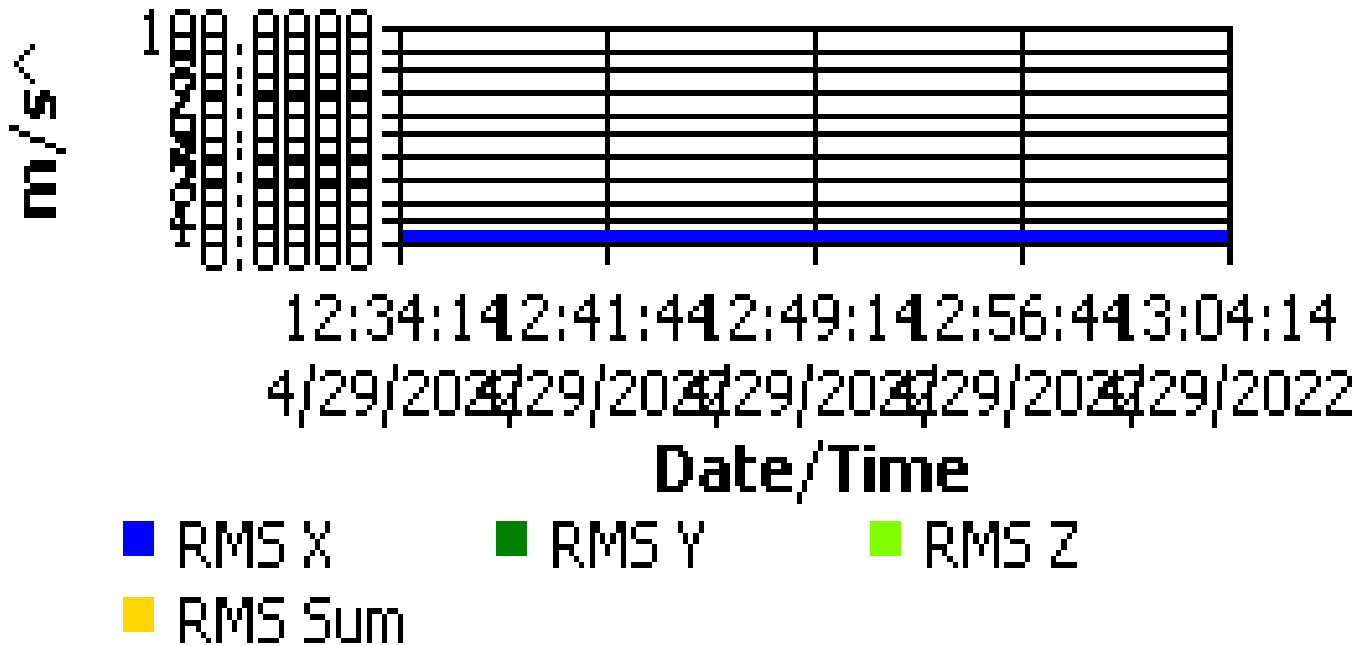
Location	Loader (OD09 G 8571)
Name	Mr. Tapas Kumar Lohar
Comments	Operator
Start Time	Friday, April 29, 2022 12:34:14
Stop Time	Friday, April 29, 2022 13:05:17

## General Data Panel

Description	Meter	Value	Description	Meter	Value
Gain	X	20dB	SumFactor	X	1.40
Weighting	X	Wd	Output	X	AC Weighted
Sensitivity	X	1.000000e+002	Gain	Y	20dB
SumFactor	Y	1.40	Weighting	Y	Wd
Output	Y	AC Weighted	Sensitivity	Y	1.000000e
+002					
Gain	Z	20dB	SumFactor	Z	1.00
Weighting	Z	Wk	Output	Z	AC Weighted
Sensitivity	Z	1.000000e+002	Mode		WholeBody
Averaging		60s	StoreTime		1 s
Accelerometer		ICP	DisplayUnits		m/s
DBReference		1e^-6	Integration		None
Auto Save		True	SecondHistory		None
PrintLoggingOn		False	SetupFileName		
Calibration Level		1.000000e+000	ExposureReference		2.8 m/s
VDV	X	2.243911 m/s^1.75	Amin	X	0.008136 m/
s^2					
Amax	X	0.366220 m/s^2	Aeq	X	0.066606 m/
s^2					
Amp	X	2.410832 m/s^2	VDV	Y	2.213738 m/
s^1.75					
Amin	Y	0.006411 m/s^2	Amax	Y	0.361295 m/
s^2					
Aeq	Y	0.065622 m/s^2	Amp	Y	2.391329 m/
s^2					
VDV	Z	1.037229 m/s^1.75	Amin	Z	0.013945 m/
s^2					
Amax	Z	0.168824 m/s^2	Aeq	Z	0.033986 m/
s^2					
Amp	Z	1.148076 m/s^2	VDV	Sum	4.530554 m/
s^1.75					
Amin	Sum	0.020346 m/s^2	Amax	Sum	0.739413 m/
s^2					
Aeq	Sum	0.135028 m/s^2	Amp	Sum	4.887384 m/
s^2					



## Logged Data Chart



## Exposure Calculator

(\* measurements use k factor)

Run Time 00:31:03

Measurement	X	Y	Z	Sum	Units
VDV	2.2439	2.2137	1.0372	3.7167*	m/s <sup>1.75</sup>
Amin	0.0081	0.0064	0.0139		m/s <sup>2</sup>
Amax	0.3662	0.3613	0.1688		m/s <sup>2</sup>
Aeq	0.0666	0.0656	0.0340	0.1352*	m/s <sup>2</sup>
Amp	2.4108	2.3913	1.1481		m/s <sup>2</sup>
A(1)	0.0479	0.0472	0.0244	0.0973*	m/s <sup>2</sup>
A(2)	0.0339	0.0334	0.0173	0.0688*	m/s <sup>2</sup>
A(4)	0.0240	0.0236	0.0122	0.0486*	m/s <sup>2</sup>
A(8)	0.0169	0.0167	0.0086	0.0344*	m/s <sup>2</sup>
CFmp	36.1954	36.4412	33.7806		
K Factor	1.4	1.4	1.0		
Max RMS	0.0932*				m/s <sup>2</sup>
A(8), Max RMS	0.0332*			0.0344*	m/s <sup>2</sup>
Max VDV	3.1415*				m/s <sup>1.75</sup>

## RMS Calculated Values

Action Value Criterion 0.50 m/s<sup>2</sup> (8 hours)

Limit Value Criterion 1.15 m/s<sup>2</sup> (8 hours)

Exposure Time 08:00 hh:mm

	X	Y	Z	Sum	Units
EAV	>24*	>24*	>24*	>24*	hh:mm
ELV	>24*	>24*	>24*	>24*	hh:mm
A(8)	0.0932*	0.0919*	0.0340*	0.1352*	m/s <sup>2</sup>



**VDV Calculated Values**Action Value Criterion 9.10 m/sec<sup>1.75</sup> (8 hours)Limit Value Criterion 21.00 m/sec<sup>1.75</sup> (8 hours)

Exposure Time 08:00 hh:mm

	<b><u>X</u></b>	<b><u>Y</u></b>	<b><u>Z</u></b>	<b><u>Sum</u></b>	<b><u>Units</u></b>
EAV	>24*	>24*	>24*	18:35*	hh:mm
ELV	>24*	>24*	>24*	>24*	hh:mm
eVDV	1.2148	1.1968	0.6198	2.4665*	m/s <sup>1.75</sup>



# Whole Body Vibration Study Report

5/3/2022

## General Data Panel

Description	Meter	Value	Description	Meter	Value
Gain	X	20dB	SumFactor	X	1.40
Weighting	X	Wd	Output	X	AC Weighted
Sensitivity	X	1.000000e+002	Gain	Y	20dB
SumFactor	Y	1.40	Weighting	Y	Wd
Output	Y	AC Weighted	Sensitivity	Y	1.000000e
+002					
Gain	Z	20dB	SumFactor	Z	1.00
Weighting	Z	Wk	Output	Z	AC Weighted
Sensitivity	Z	1.000000e+002	Mode		WholeBody
Averaging		60s	StoreTime		1 s
Accelerometer		ICP	DisplayUnits		m/s
DBReference		1e^-6	Integration		None
Auto Save		True	SecondHistory		None
PrintLoggingOn		False	SetupFileName		
Calibration Level		1.000000e+000	ExposureReference		2.8 m/s
VDV	X	0.087673 m/s^1.75	Amin	X	0.007666 m/
s^2					
Amax	X	0.013851 m/s^2	Aeq	X	0.008837 m/
s^2					
Amp	X	0.094323 m/s^2	VDV	Y	0.078781 m/
s^1.75					
Amin	Y	0.005943 m/s^2	Amax	Y	0.012650 m/
s^2					
Aeq	Y	0.007039 m/s^2	Amp	Y	0.096388 m/
s^2					
VDV	Z	0.127219 m/s^1.75	Amin	Z	0.013665 m/
s^2					
Amax	Z	0.015924 m/s^2	Aeq	Z	0.014309 m/
s^2					
Amp	Z	0.119377 m/s^2	VDV	Sum	0.188135 m/
s^1.75					
Amin	Sum	0.019273 m/s^2	Amax	Sum	0.030498 m/
s^2					
Aeq	Sum	0.021304 m/s^2	Amp	Sum	0.180159 m/
s^2					

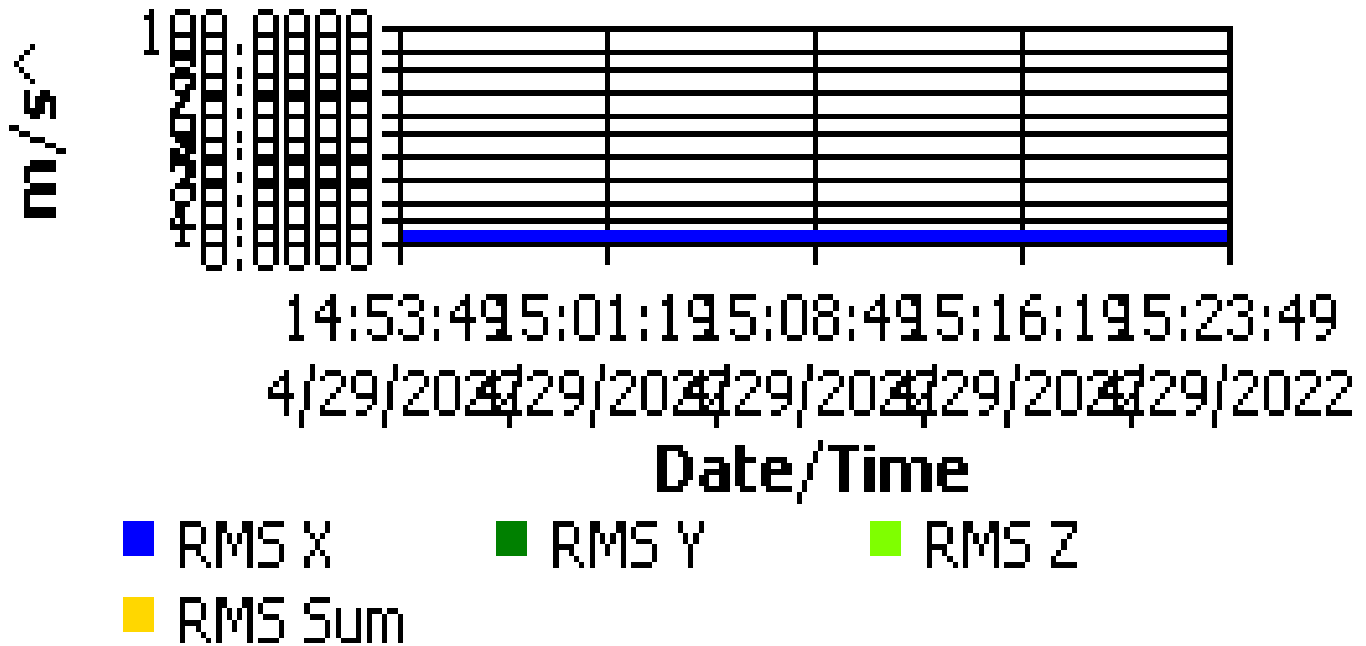
## Information Panel

Location  
 Name  
 Comments  
 Start Time  
 Stop Time

Driller (CD 450)  
 Mr. Kishore Chandra Mahakud  
 Operator  
 Friday, April 29, 2022 14:53:49  
 Friday, April 29, 2022 15:26:12



## Logged Data Chart



## Exposure Calculator

(\* measurements use k factor)

Run Time 00:32:23

Measurement	X	Y	Z	Sum	Units
VDV	0.0877	0.0788	0.1272	0.1589*	m/s <sup>1.75</sup>
Amin	0.0077	0.0059	0.0137		m/s <sup>2</sup>
Amax	0.0139	0.0127	0.0159		m/s <sup>2</sup>
Aeq	0.0088	0.0070	0.0143	0.0213*	m/s <sup>2</sup>
Amp	0.0943	0.0964	0.1194		m/s <sup>2</sup>
A(1)	0.0065	0.0052	0.0105	0.0157*	m/s <sup>2</sup>
A(2)	0.0046	0.0037	0.0074	0.0111*	m/s <sup>2</sup>
A(4)	0.0032	0.0026	0.0053	0.0078*	m/s <sup>2</sup>
A(8)	0.0023	0.0018	0.0037	0.0055*	m/s <sup>2</sup>
CFmp	10.6739	13.6932	8.3429		
K Factor	1.4	1.4	1.0		
Max RMS			0.0143*		m/s <sup>2</sup>
A(8), Max RMS			0.0037*	0.0055*	m/s <sup>2</sup>
Max VDV			0.1272*		m/s <sup>1.75</sup>

## RMS Calculated Values

Action Value Criterion 0.50 m/s<sup>2</sup> (8 hours)

Limit Value Criterion 1.15 m/s<sup>2</sup> (8 hours)

Exposure Time 08:00 hh:mm

	X	Y	Z	Sum	Units
EAV	>24*	>24*	>24*	>24*	hh:mm
ELV	>24*	>24*	>24*	>24*	hh:mm
A(8)	0.0124*	0.0099*	0.0143*	0.0213*	m/s <sup>2</sup>



**VDV Calculated Values**Action Value Criterion 9.10 m/sec<sup>1.75</sup> (8 hours)Limit Value Criterion 21.00 m/sec<sup>1.75</sup> (8 hours)

Exposure Time 08:00 hh:mm

	<b><u>X</u></b>	<b><u>Y</u></b>	<b><u>Z</u></b>	<b><u>Sum</u></b>	<b><u>Units</u></b>
EAV	>24*	>24*	>24*	>24*	hh:mm
ELV	>24*	>24*	>24*	>24*	hh:mm
eVDV	0.1612	0.1284	0.2610	0.3890*	m/s <sup>1.75</sup>



# Hand Arm Vibration Study Report

5/3/2022

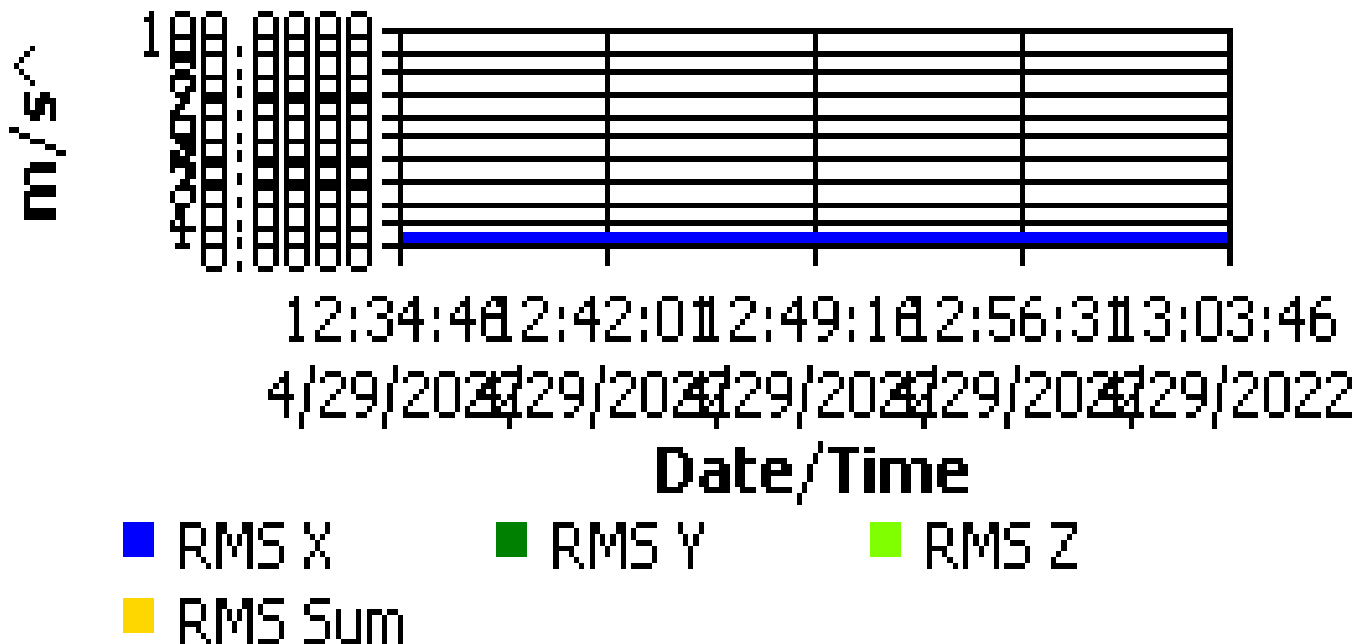
## Information Panel

Location	Loader (OD09 G 8571)
Name	Mr. Tapas Kumar Lohar
Comments	Operator
Start Time	Friday, April 29, 2022 12:34:46
Stop Time	Friday, April 29, 2022 13:05:40

## General Data Panel

Description	Meter	Value	Description	Meter	Value
Gain	X	20dB	SumFactor	X	1.40
Weighting	X	Wh	Output	X	AC Weighted
Sensitivity	X	1.000000e+002	Gain	Y	20dB
SumFactor	Y	1.40	Weighting	Y	Wh
Output	Y	AC Weighted	Sensitivity	Y	1.000000e
+002					
Gain	Z	20dB	SumFactor	Z	1.00
Weighting	Z	Wh	Output	Z	AC Weighted
Sensitivity	Z	1.000000e+002	Mode		HandArm
Averaging		60s	StoreTime		1 s
Accelerometer		ICP	DisplayUnits		m/s
DBReference		1e^-6	Integration		None
Auto Save		True	SecondHistory		None
PrintLoggingOn		False	SetupFileName		
Calibration Level		1.000000e+000	ExposureReference		2.8 m/s
Amin	X	0.041526 m/s^2	Amax	X	0.173458 m/
s^2					
Aeq	X	0.094963 m/s^2	Amin	Y	0.035061 m/
s^2					
Amax	Y	0.190700 m/s^2	Aeq	Y	0.093813 m/
s^2					
Amin	Z	0.043600 m/s^2	Amax	Z	0.139676 m/
s^2					
Aeq	Z	0.078568 m/s^2	Amin	Sum	0.087673 m/
s^2					
Amax	Sum	0.377291 m/s^2	Aeq	Sum	0.202404 m/
s^2					

## Logged Data Chart





## Exposure Calculator

( \* measurements use k factor )

Run Time 00:30:54

<u>Measurement</u>	<u>X</u>	<u>Y</u>	<u>Z</u>	<u>Sum</u>	<u>Units</u>
Amin	0.0415	0.0351	0.0436		m/s <sup>2</sup>
Amax	0.1735	0.1907	0.1397		m/s <sup>2</sup>
Aeq	0.0950	0.0938	0.0786	0.2027*	m/s <sup>2</sup>
A(1)	0.0681	0.0673	0.0564	0.1455*	m/s <sup>2</sup>
A(2)	0.0482	0.0476	0.0399	0.1029*	m/s <sup>2</sup>
A(4)	0.0341	0.0337	0.0282	0.0727*	m/s <sup>2</sup>
A(8)	0.0241	0.0238	0.0199	0.0514*	m/s <sup>2</sup>
CFmp					
K Factor	1.4	1.4	1.0		
Max RMS	0.1329*				m/s <sup>2</sup>
A(8), Max RMS	0.0472*			0.0514*	m/s <sup>2</sup>

### RMS Calculated Values

Action Value Criterion 0.50 m/s<sup>2</sup> (8 hours)

Limit Value Criterion 1.15 m/s<sup>2</sup> (8 hours)

Exposure Time 08:00 hh:mm

	<u>X</u>	<u>Y</u>	<u>Z</u>	<u>Sum</u>	<u>Units</u>
EAV	>24*	>24*	>24*	>24*	hh:mm
ELV	>24*	>24*	>24*	>24*	hh:mm
A(8)	0.1329*	0.1313*	0.0786*	0.2027*	m/s <sup>2</sup>



# Hand Arm Vibration Study Report

5/3/2022

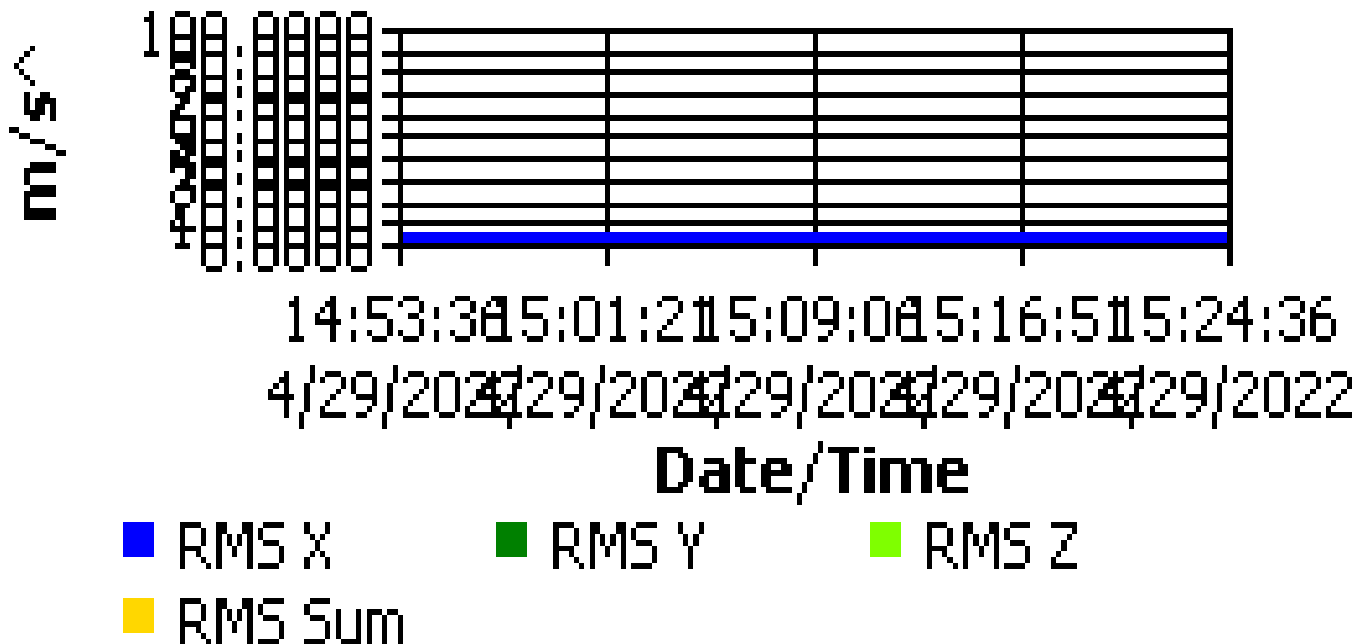
## Information Panel

Location	Driller (CD 450)
Name	Mr. Kishore Chandra Mahakud
Comments	Operator
Start Time	Friday, April 29, 2022 14:53:36
Stop Time	Friday, April 29, 2022 15:25:58

## General Data Panel

Description	Meter	Value	Description	Meter	Value
Gain	X	20dB	SumFactor	X	1.40
Weighting	X	Wh	Output	X	AC Weighted
Sensitivity	X	1.000000e+002	Gain	Y	20dB
SumFactor	Y	1.40	Weighting	Y	Wh
Output	Y	AC Weighted	Sensitivity	Y	1.000000e
+002					
Gain	Z	20dB	SumFactor	Z	1.00
Weighting	Z	Wh	Output	Z	AC Weighted
Sensitivity	Z	1.000000e+002	Mode		HandArm
Averaging		60s	StoreTime		1 s
Accelerometer		ICP	DisplayUnits		m/s
DBReference		1e^-6	Integration		None
Auto Save		True	SecondHistory		None
PrintLoggingOn		False	SetupFileName		
Calibration Level		1.000000e+000	ExposureReference		2.8 m/s
Amin	X	0.013833 m/s^2	Amax	X	0.146454 m/
s^2					
Aeq	X	0.065091 m/s^2	Amin	Y	0.013409 m/
s^2					
Amax	Y	0.129654 m/s^2	Aeq	Y	0.055933 m/
s^2					
Amin	Z	0.010753 m/s^2	Amax	Z	0.096519 m/
s^2					
Aeq	Z	0.046780 m/s^2	Amin	Sum	0.029483 m/
s^2					
Amax	Sum	0.290145 m/s^2	Aeq	Sum	0.128779 m/
s^2					

## Logged Data Chart





## Exposure Calculator

( \* measurements use k factor )

Run Time 00:32:22

<u>Measurement</u>	<u>X</u>	<u>Y</u>	<u>Z</u>	<u>Sum</u>	<u>Units</u>
Amin	0.0138	0.0134	0.0108		m/s <sup>2</sup>
Amax	0.1465	0.1297	0.0965		m/s <sup>2</sup>
Aeq	0.0651	0.0559	0.0468	0.1289*	m/s <sup>2</sup>
A(1)	0.0478	0.0411	0.0344	0.0947*	m/s <sup>2</sup>
A(2)	0.0338	0.0290	0.0243	0.0670*	m/s <sup>2</sup>
A(4)	0.0239	0.0205	0.0172	0.0473*	m/s <sup>2</sup>
A(8)	0.0169	0.0145	0.0121	0.0335*	m/s <sup>2</sup>
CFmp					
K Factor	1.4	1.4	1.0		
Max RMS	0.0911*				m/s <sup>2</sup>
A(8), Max RMS	0.0331*			0.0335*	m/s <sup>2</sup>

### RMS Calculated Values

Action Value Criterion 0.50 m/s<sup>2</sup> (8 hours)

Limit Value Criterion 1.15 m/s<sup>2</sup> (8 hours)

Exposure Time 08:00 hh:mm

	<u>X</u>	<u>Y</u>	<u>Z</u>	<u>Sum</u>	<u>Units</u>
EAV	>24*	>24*	>24*	>24*	hh:mm
ELV	>24*	>24*	>24*	>24*	hh:mm
A(8)	0.0911*	0.0783*	0.0468*	0.1289*	m/s <sup>2</sup>