

By-Email

Ref.No.: MGM/P&E/ 226 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 Bamebari 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-11015/85/2003-IA. II(M) dated 17th November 2005.

2) MoEFCC's notification vide S.O-5845 (E), dated 28th 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-11015/85/2003-IA. II(M) dated 17<sup>th</sup> November 2005 in respect of Bamebari 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.

We believe the above submission is in order.

Thanking You,

Yours Faithfully,

F: TATA STEEL LTD.

Head (Planning),

Bamebari Iron & Manganese Mines,

Ferro Alloys Mineral Division

Encl: As above. Copy To:

 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

Your (Environment Clearance) application has been Submitted with following details						
Proposal No	IA/OR/MIN/11660/2005					
Compliance ID	71233432					
Compliance Number(For Tracking)	EC/M/COMPLIANCE/71233432/2024					
Reporting Year	2024					
Reporting Period	01 Jun(01 Oct - 31 Mar)					
Submission Date	27-05-2024					
IRO Name	ARTATRANA MISHRA					
IRO Email	jhk109@ifs.nic.in					
State	ODISHA					
IRO Office Address	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

Proposal Name	Bamebari Manganese Ore Mine of M/s Tata Steel, ML Area: 464 ha {Production Capacity: 0.832 LTPA}
Name of Entity / Corporate Office	Tata Steel
Village(s)	N/A
District	KENDIJIHAD

### District KENDUJHAR

Proposal No.	IA/OR/MIN/11660/2005
Plot / Survey / Khasra No.	N/A
State	ODISHA
MoEF File No.	No.J-11015/85/2004- IA.II(M)No.J- 11015/85/2004-IA.II(M)

Category	Non-Coal Mining
Sub-District	N/A
Entity's PAN	NA
Entity name as per PAN	NA

### **Compliance Reporting Details**

**Reporting Year** 2024

> Six Monthly EC Compliance Report in respect of Bamebari Iron & Mn Mine Project Type:

Mining (Open Cast) Mineral: Manganese Ore (83200 Tonnes per annum)

01 Jun(01 Oct - 31 Mar) **Reporting Period** 

### **Details of Production and Project Area**

Name of Entity / **Corporate Office** 

Remarks (if any)

Tata Steel

	Project Area as per EC Granted	<b>Annual Project Area in Possession</b>
Private	0	15.503
Revenue Land	67.165	0.102
Forest	382.269	448.395
Others	14.566	0
Total	464	463.9999999999994

### **Production Capacity**

Sr. no	Product Name	units	Valid Upto	Capacity	Production last year	Capacity as per CTO	
1	Manganese Ore	Tons per Annum (TPA)	31/03/2025	83200	82885	83200	

### **Conditions**

### **Specific Conditions**

Sr.No.	<b>Condition Type</b>	Condition Details
1	Statutory compliance	Mining shall not be undertaken in areas of forestland within the lease without the necessary approvals / forestry clearance.

### PPs Submission: Complied

The present leasehold area of Bamebari Iron & Manganese Mine is 464.0 ha. Out of which, forest land and non-forest land prevails over 448.395 ha and 15.605 ha. respectively. Stage-II Forest clearance has been accorded vide letter no 8-72/2004-FC dt 25.01.2007 for 145.329 ha of forest land. FC for balance forest area of 303.066 ha (Sabik Forest & Balance HAL Forest) has been applied. Presently, Mining is carried out in restricted manner within the extent of stage-II diverted area of 145.329 ha, non-forestland of 15.605 ha and some portions of the broken-up forestland (broken up prior to 1980).

Date: 27/05/2024

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.

### PPs Submission: 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: 27/05/2024

3 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.

### PPs Submission: 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 is enclosed herewith.

Date: 27/05/2024

4 WASTE MANAGEMENT

Minerals rejects shall be stacked separately at earmarked site/dump only.

PPs Submission: Complied

The mineral rejects generated during manual processing of manganese ore (i.e. sorting, dressing and

Date:

sizing) has been stacked separately at earmarked site. The designated site for mineral storage is indicated in the surface plan which is updated on quarterly basis.

27/05/2024

5 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.

### **PPs Submission:** 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 desilted 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 mine pit to store the water and also recharge the ground water table.

Date: 27/05/2024

6 WATER QUALITY
6 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: 27/05/2024

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.

### PPs Submission: Complied

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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 <a href="enclosed herewith">enclosed herewith</a>.

Date: 27/05/2024

8 AIR QUALITY
8 MONITORING AND
PRESERVATION

Mineral and OB transportation shall be 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.

### **PPs Submission:** Complied

Mineral Transportation is ensured by tippers and all the trucks are covered with tarpaulins before 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 form 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

Date: 27/05/2024

9 GREENBELT

A green belt of adequate width should be raised by planting the

native species around ML area. Plantation should also be carried out along roads, OB dump sites etc. in consultation with the local DFO/Agriculture Department. The density of the trees should be not less than 2500 plants per ha.

### PPs Submission: 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 57.971 hectares of area (including waste dump, safety zone, back filled area and avenue plantation zones) have been covered under plantation with 287220 nos of saplings (approx.). In the process of afforestation, the mine has ensured rehabilitation of around 35.129 hectares over OB dump and 1.5 ha of backfilled area where the saplings have attained self-sustaining stage. Glimpses of Dump management and associated afforestation measures undertaken at mine level is enclosed herewith.

Date: 27/05/2024

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Statutory compliance

Groundwater shall not be used for mine operations. Prior approval of CGWA shall be obtained for using groundwater.

### **PPs Submission:** 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/2/2023/8486 which is valid till 22nd July 2024. Copy of the said NOC is enclosed herewith.

Date: 27/05/2024

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MINING PLAN

Mining will not intersect groundwater. Prior permission of the MOEF and CGWA shall be taken to mine below water table.

### PPs Submission: 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 intersect the regional ground water table; however at Joribar bar pit, seepage was evidenced during FY23 mainly attributed to some localised aquifer which was identified during a detailed hydrogeological investigation carried out by engaging a CGWA empanelled agency and with the help of ground water modelling studies, it was estimated that peak seepage for Joribar would be around 482KLD. Based on the above said studies and deliberations at CGWA, NOC was granted to Bamebari mine for the Abstraction of 130 KLD (from bore wells) and 482 KLD from Mine pits (as seepage) vide NOC no. CGWA/NOC/MIN/REN/2/2023/8486 valid till 22nd July 2024.

Date: 27/05/2024

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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 & Central Ground Water Authority quarterly.

### **PPs Submission:** 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 enclosed herewith

Date: 27/05/2024

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WATER QUALITY

Trace metals such as Fe, Cr+6, Cu, Se, As, Cd, Hg, Pb, Zn and Mn

### MONITORING AND PRESERVATION

at specific locations for both surface water downstream and in ground water at lower elevations from mine area, shall be periodically monitored 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.

### PPs Submission: 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 enclosed herewith.

Date: 27/05/2024

14

Statutory compliance

"Consent to Operate" should be obtained from SPCB before expanding mining activities.

### PPs Submission: 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. 544/IND/I/CON/189 dated 07-01-2022 which is valid up to 31/03/2025. A copy of the valid CTO is enclosed herewith.

Date: 27/05/2024

15

Statutory compliance

A 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, Bhubaneshwar.

### **PPs Submission:** Complied

A site specific wildlife conservation plan has been approved by PCCF, Bhubaneswar, Odisha and Chief Wildlife Warden Odisha vide memo no. 7743 / 1 WL-SSP -01/2015 dated 01.09.2015. Following funds have been deposited by PP to State Forest Dept till date for – • Rs. 4,69,81,000/- for the implementation of various provisions of site-Specific wildlife conservation plan like avifauna monitoring, solar fencing and other • Rs 166.10 Lakhs for activities to be implemented by the user agency in the project impacted area A copy of the approval of site-specific wildlife conservation plan is enclosed herewith.

Date: 27/05/2024

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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.

### 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. 11.59165 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/696/20 dated 01.10.2020.

Date: 27/05/2024

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General	<b>Conditions</b>

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.						

### **PPs Submission:** 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 Corporate Environmental Responsibility

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 Bhubaneshwar.

### PPs Submission: 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. 219.6 Lakhs • FY-2022-23: Rs. 218.33 Lakhs • FY-2023-24: Rs. 302.7 Lakhs

Date: 27/05/2024

3 MISCELLANEOUS

The Regional Office of this Ministry located at Bhubaneshwar 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.

### PPs Submission: Complied

The company has been extending full co-operation to the officers of the Regional Office and other statutory agencies by furnishing the requisite data / information / monitoring reports as and when required. The same shall be continued in future as well.

Date: 27/05/2024

4

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.

### PPs Submission: Complied

The clearance letter has been uploaded on the website of the Company. Copy of the clearance letter marked to Sarpanch, Gram Panchayat, Palasa on 12.01.2006.

Date: 27/05/2024

5

Corporate Environmental Responsibility

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.

### **PPs Submission:** 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.

Date: 27/05/2024

6 Statutory compliance

The project authorities should advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular 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 Web Site of the Ministry of Environment & Forests at

http://envfor.nic.in. and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar. Date: PPs Submission: Complied 27/05/2024 A copy of Environmental Clearance with regard to Joda West Manganese Mine was published in Oriya News Papers Anupam Bharat & Aam Khabar on 10.01.2006. No change in the calendar plan including excavation, quantum of 7 MINING PLAN manganese ore and waste should be made. **PPs Submission:** Complied Date: Production and excavation quantum is regulated by the Mine Plan approved by Indian bureau of 27/05/2024 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 0.832 Lakh tonnes per annum. Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO2, NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features, and environmentally AIR QUALITY and ecologically sensitive targets in consultation with the State 8 MONITORING AND Pollution Control Board. Data on ambient air quality (RPM, SPM, **PRESERVATION** SO2 & NOx) should be regularly submitted to the Ministry including its Regional office at Bhubaneshwar and the State Pollution Control Board/Central Pollution Control Board once in six. Months. **PPs Submission:** Complied In consultation with Regional Office, State Pollution Control Board (Keonjhar Region), 04 nos of dedicated Ambient Air Quality monitoring station have been established and regular monitoring is Date: being carried out twice a week. Photographs of fixed type platforms properly geotagged with the 27/05/2024 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 enclosed herewith. AIR QUALITY Drills should be wet operated or with dust extractors and controlled 9 MONITORING AND blasting should be practiced. **PRESERVATION** PPs Submission: Complied Wet drilling concept is already in place and practiced. Exploratory drills have been provided with Date: inbuilt DE system. Controlled blasting technique with NONEL is in practice. Ground vibrations are 27/05/2024 being checked for every blasts 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. Fugitive dust emissions from all the sources should be controlled AIR QUALITY regularly monitored and data recorded properly. Water spraying 10 MONITORING AND arrangements on haul roads, wagon loading, dumpers/trucks, loading **PRESERVATION** & unloading points should be provided and properly maintained. **PPs Submission:** Complied Following measures are ensured for containment of fugitive dust emission: 1. Mobile water tanker Date: (cap-10Kl) for Haul Roads, Dump yards and other locations) 2. Mist Canons (30 LPH) for sorting 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 enclosed herewith. Adequate measures should be taken for control of noise levels 11 Noise Monitoring & Prevention below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operations of HEMM should be provided

with ear plugs/ muffs.

### PPs Submission: Complied

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 enclosed herewith.

Date: 27/05/2024

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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.

### **PPs Submission:** Complied

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. 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

13

**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.

### **PPs Submission:** Complied

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

14

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.

### PPs Submission: Complied

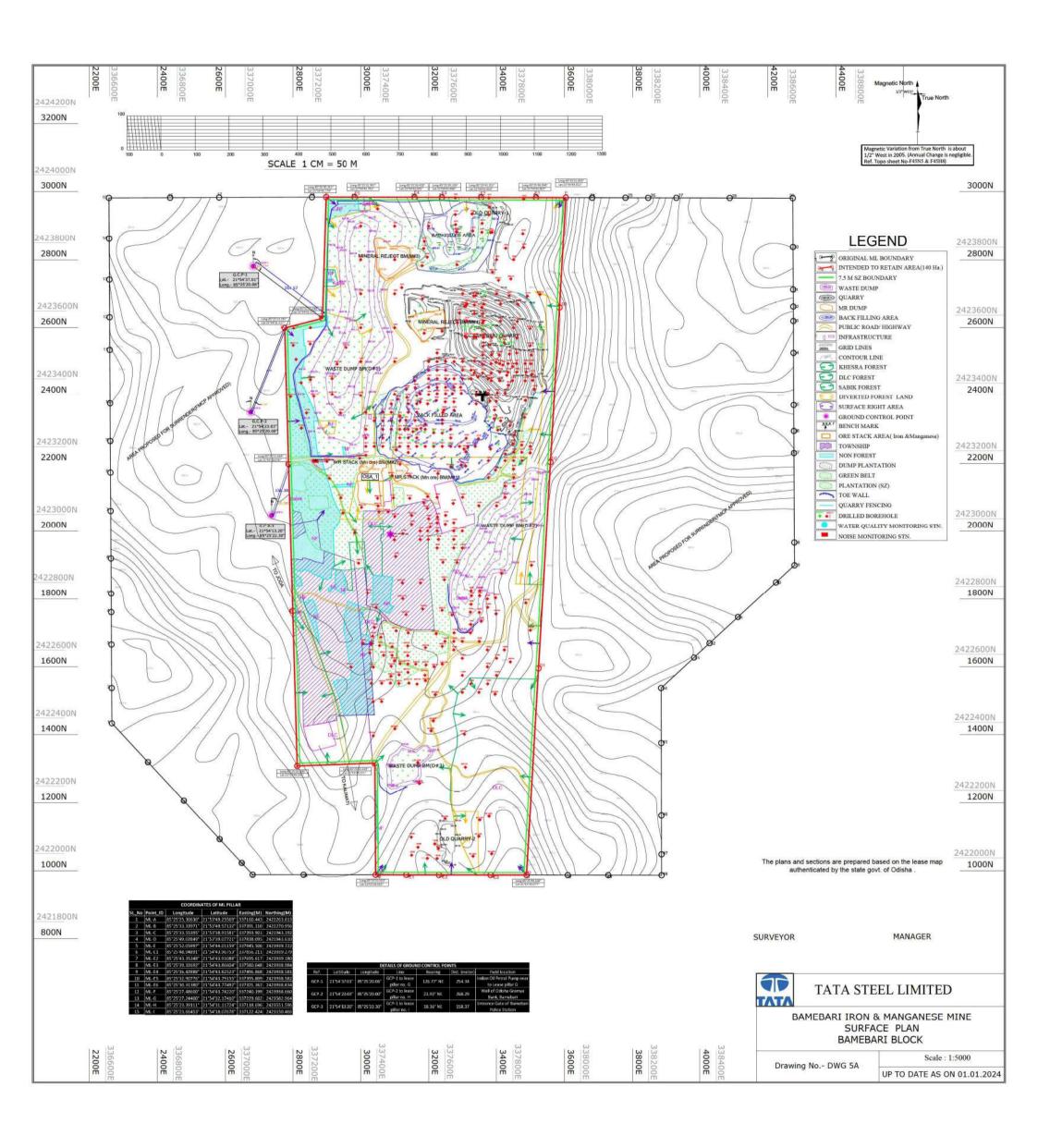
Personnel Protective Equipment's (PPEs) are being mandatorily used by all the workers as per applicability. It is regularly ensured at the entry points. Safe Operating Procedure based training is imparted to all the workers apart from the initial VT training. Periodical Medical Examination of employees (departmental & contractual) are conducted as per prescribed norms of Mines Rule, 1955. Besides, Occupational health surveillance assessment as mentioned below are also carried out: 1. Personal Dust Sampling & Free Silica exposure assessment by a DGMS approved agency. 2. Hand-Arm Vibration & Whole Body Vibration Exposure Assessment report by a DGMS approved laboratory 3. Mn Poisoning test (periodic) by a medical laboratory. Copy of the Manganese Testing report carried out in July 2023 and the Vibration Exposure Assessment are enclosed herewith.

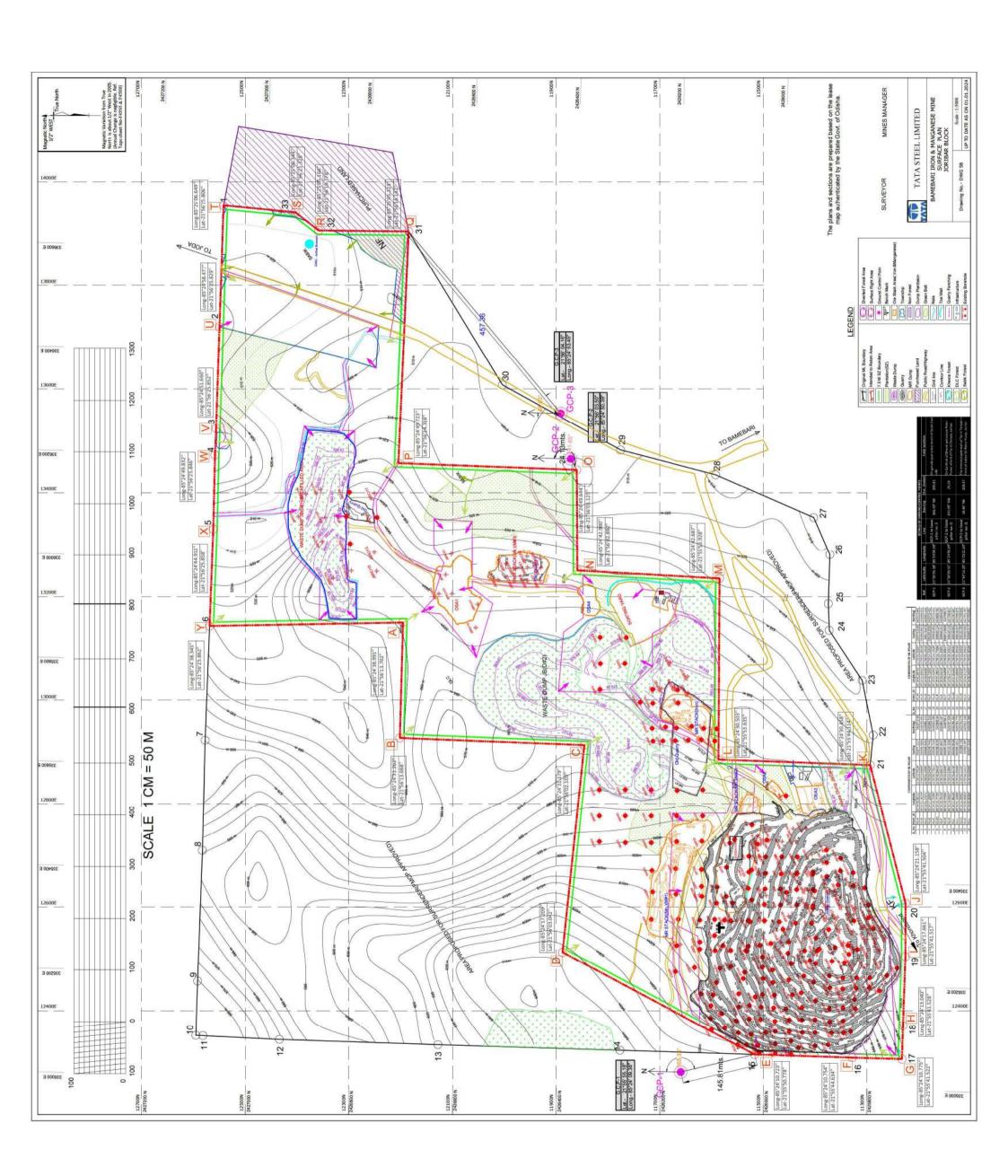
Date: 27/05/2024

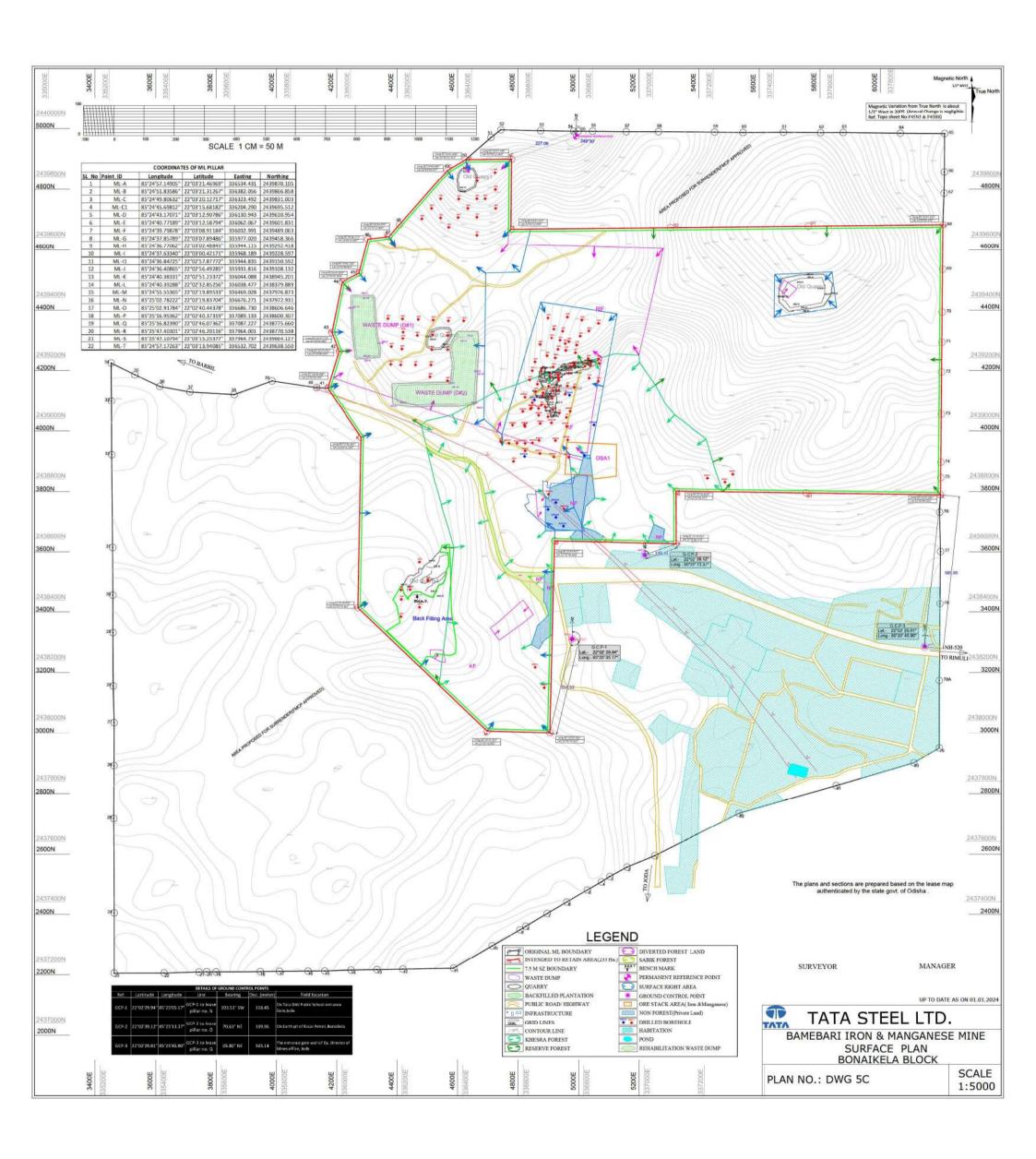
15 Corporate Environmental Responsibility

A separate environmental management cell with suitable qualified personnel should be set up under the control of a Senior Executive,

who wi	ll report directly to the Head of the Organizatio	n.								
PPs Submission: 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 & Production Planning), Head (Environment), Senior Manager - Mine Planning, Area Manager (RM Environment), Environment Engineer, Chemists, etc.										
Visit Remarks										
ast Site Visit Report Date: N/A										
dditional Remarks:										







### DUST FALL ANALYSIS RESULT ABSTRACT-BAMEBARI IRON & MN MINE of M/s TATA STEEL LIMITED

	DUST FALL	ANALYSIS (S	SUMMER SEASO	N-MAY'23 to	IUNE'23)					
	Dust F	all Rate for	Particles	Heavy Metal Concentration (mg/Kg) or PPM						
Location		gm/m2/mo	nth)							
	Insoluble	Soluble	Total Dust	Lead	Ni	Co	Hg	As		
Nr. Project Office (Bamebari)	0.22	0.34	0.56	< 0.005	0.21	0.05	BDL	0.008		
Nr. Sorting Yard (Joribar)	0.23	0.29	0.52	< 0.005	0.26	0.08	BDL	0.006		
Nr. Dumping Yard (Bamebari block)	1.34	0.49	1.83	< 0.005	0.12	0.14	BDL	0.018		
Bamebari Village (Nr. High School)	0.48	0.25	0.73	< 0.005	BDL	0.05	BDL	0.020		
Palasa-Ka Village	0.71	0.26	0.97	<0.005	BDL	0.04	BDL	0.018		
Jadibahal Village (Playground)	0.42	0.27	0.69	< 0.005	BDL	0.04	BDL	0.018		
DUS			ER SEASON-JAN	UARY'23 to I						
Location		all Rate for gm/m2/mo				Metal Concer mg/Kg) or Pl				
Location	Insoluble	Soluble	Total Dust	Lead	Ni	Со	Hg	As		
Nr. Project Office (Bamebari)	0.34	0.23	0.57	<0.005	0.14	0.31	BDL	0.005		
Nr. Sorting Yard (Joribar)	0.36	0.28	0.64	< 0.005	0.16	0.24	BDL	BDL		
Nr. Dumping Yard (Bamebari block)	0.58	0.29	0.87	< 0.005	0.19	0.25	BDL	BDL		
Bamebari Village (Nr. High School)	0.49	0.36	0.85	< 0.005	0.34	0.08	BDL	0.022		
Palasa-Ka Village	0.71	0.39	1.1	< 0.005	BDL	BDL	BDL	BDL		
Jadibahal Village (Playground)	1.23	0.43	1.66	< 0.005	<0.005 BDL		BDL	BDL		
			MONSOON -OCT	OBER'23 to I				•		
		all Rate for gm/m2/mo		Heavy Metal Concentration (mg/Kg) or PPM						
Location		gm/m////////				llig/Rgj 01 F I				
	Insoluble	Soluble	Total Dust	Lead	Ni	Со	Hg	As		
Nr. Project Office (Bamebari)	0.43	0.26	0.69	BDL	0.26	0.32	BDL	BDL		
Nr. Sorting Yard (Joribar)	1.04	0.32	1.36	0.32	0.16	0.22	BDL	0.022		
Nr. Dumping Yard (Bamebari block)	1.02	0.26	1.28	BDL	0.15	0.18	BDL	BDL		
Bamebari Village (Nr. High School)	0.68	0.31	0.99	0.22	0.24	0.08	BDL	0.024		
Palasa-Ka Village	0.52	0.35	0.87	0.14	BDL	BDL	BDL	BDL		
Jadibahal Village (Playground)	0.38	0.29	0.67	0.08	BDL	BDL	BDL	BDL		

### DUMP MANAGEMENT PRACTICES AT BAMEBARI IRON & MANGANESE MINE OF M/s TATA STEEL LIMITED

Fig.1 Check Dam in Series

Fig.2 Garland Drain with Toe Wall



Fig.3 & 4 Rain Passes for slope protection



Fig.5 Coir Matting of Dump Slopes for stabilization



Fig.6 Vetiver Plantation on Dump slope



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

Pr	Project Name:				Bame	Bamebari Iron And Manganese Mine												
Pr	oject Addre	ess:				bari Ird : Barb						Tata Stee	l Ltd., /	At./p	o : Baı	mebari,,	Tahsil /	
Vi	llage:				Palas	Palasa					Bloc	ock: Champua						
District: Kendujha						ujhar					State	e: Oc	lisha					
Pi	n Code:											100	1	Ò				
Co	ommunicati	on Addre	ess:		Office	At/po-	- Bich	hakun	ďi, P.s	s-jod	a, 75	of M/s Tat 8034 (ked ha, Joda,	onjhar,	Odis	sha), F	erro All	oys	
Ac	ddress of C	GWB Re	gional	Office								stern Reg a, Odisha			Bhaw	an, Kha	ndagiri	
1. NOC No.: CGWA/NOC/MIN						EN/2/2	2023/8	3486	1	2.	Dat	e of Issu	ence	02/	11/202	23		
3.	Application	n No.:	21-4	/1194/0	PR/MIN/	R/MIN/2017 4.						regory: Safe VRE 2022)						
5.	5. Project Status: Existing With Addition Requirment						ditional Ground Water 6. NO					ОС Туре:			Renewal			
7.	Valid fron	n:	23/0	7/2022		(	7			8.	Val	lid up to: 22/07/2024						
9.	Ground W	ater Abs	tractio	n Permi	tted:													
	Fresh	Water			Saline	Wate	r			De	wate	ring			Т	otal		
	m³/day	m³/y	ear	m³	/day	'day m³/year			r m³/day			m³/year		m³/day m³/ye		/year		
	130.00	47450	0.00	0-	( )				482.00 175930.			175930.0	0					
10.	Details of	ground w	ater a	bstracti	on /Dew	/aterino	g stru	ctures										
			Tot	al Exis	ting No	.:4						T	otal P	ropo	osed N	lo.:0		
			1,	DW	DCB	BW	TW	MF	N	1Pu	D۷	V DCB	BV	V	TW	MP	MPu	
	Abstraction	Structur	e*	0	0	3	0	0		0	0	0	0		0	0	0	
	Dewatering			0	0	0	0	1		0	0	-	0		0	0	0	
	/- Dug Well; D									t;MPı	ı-Mine	Pumps						
11.	Ground W	ater Abst	tractio	n/Resto	ration C	harges	s paid	I (Rs.):	(Rs.): 1098523.00									
12.	Environme	ent Comp	ensati	ion (if a	pplicable	e) paid	(Rs.)	):						0.0	00			
13.	Number of constructe							No. o	f Piez	ome	ters		Monito	oring	g Mech	anism		
												Manual	DWLF	₹*	* DWLR With Telemetry			
	**DWLR - Di	gital Water	Level R	ecorder		2						0	1			1		

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

### (Compliance Conditions given overleaf)

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

### 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.
- 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
- 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) within one year from the date of issue of this NOC
- 8) Industries abstracting ground water in excess of 100 m 3 /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.
- 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
- 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.
- quirement 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 CPCB 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 m3/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
- 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.
- 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).

  31) In the self-compliance report, the PP shall submit details of Drilling Agency/ Agencies, which has/ have constructed BW(s)/ TW(s) along with undertaking to the effect that all necessary measures have been taken as per directions of Hon'ble Supreme Court provided in Annexure-VII of guidelines dated 24.09.2020 in respect of abandoned/ failed BW(s)/ TW(s)/Piezometer(s), if any. The PP is advised to engage registered drilling agency/ agencies. In the event of any mishap/ unfortunate incident due to negligence in taking measures for prevention of accident due to falling in Bore Well, both PP and concerned drilling agency shall jointly be held responsible and penal action as per extant Government rules shall be taken.

(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

> पानी बचाये – जीवन बचाये SAVE WATER - SAVE LIFE



Chemist:->

### Anacon Laboratories

Village Khondbond

OMC Colony

17/10/2023

(Mr. Mothua Munda) Dugwell near road

0.50

2.77

2.94

3.61

Anacon Laboratories Pvt. Ltd. Nagpur Lab

Presservity 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

No.

-	0	_		1					
Khondbond	Guruda Village	Ganua Village	Village Name						
17/10/2023	17/10/2023	17/10/2023	Date of Measurement			0	C	5	IMI/S I
Dugwell in field	Dugwell near Club	Dugwell near road (Mr. Keshar Patra)	Details of location	<u>o</u>	Ground Wat	State - O	District	(M/s TAT	Nnonabona II
3.64	4.26	3.81	Static Water Level from Measuring Point i.e.  Measuring Point in MP distance above ground level in Mtrs. (Level in mbmp) (magl)	October-2023	<b>Ground Water Table Measurement</b>	State - Odisha-758 034.	District - Kendujhar,	(M/s TATA Steel Limited)	M/S Knondbond Iron & Manganese Mine
0.70	0.65	0.53	Measuring Point i.e. MP distance above ground level in Mtrs. (magl)		ment	9			e Mine

Authorized Signatory

Mtrs. = mbmp - magl

Water level Below Ground Level in

3.28



S

Khondbond

Guruda Village

Ganua Village

Village

OMC Colony

17/11/2023

(Mr. Mothua Munda) Dugwell near road

0.50

0.70

3.08

0.65

3.88

3.40

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### Test Report

No.

Village Name

Measurement 17/11/2023 17/11/2023 17/11/2023 Date of M/s Khondbond Iron & Manganese Mine Dugwell near Club Details of location Dugwell near road (Mr. Keshar Patra) Dugwell in field Ground Water Table Measurement State - Odisha-758 034. (M/s TATA Steel Limited) District - Kendujhar, November-2023 Static Water Level from Mtrs. (Level in mbmp) Measuring Point in 4.53 3.93 ground level in Mtrs. Measuring Point i.e. MP distance above

-End of Report----

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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

magl

Mtrs. = mbmp · magl Water level Below Ground Level in

0.53



Chemist:- S

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### Anacon Laboratories Pvt. Ltd. Nagpur Lab

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### Test Report

No

M/s Khondbond Iron & Manganese Mine (M/s TATA Steel Limited)

State - Odisha-758 034. District - Kendujhar,

December-2023

Ground Water Table Measurement

	Date of	Details of location	Static Water Level from Measuring Point in	Measuring Point i.e. MP distance above	Water level Below Ground Level in
o. Village Name	Me	Details of location	Measuring Fount in ground level in Mtrs. (Level in mbmp) (magl)	ground level in Mtrs. (magl)	Mtrs. = mbmp - magl
Canua Village	75/12/2023	Dugwell near road	4.16	0.53	3.63
		(IVII. INCOLURI I acra)		The state of the s	100 Mg 100
Guruda Village	age 15/12/2023	Dugwell near Club	4.72	0.65	4.07
Khondbond	15/12/2023	Dugwell in field	3.91	0.70	3.21
Village	10/12/2020	(Mr. Mothua Munda)	3		
OMC Colony	y 15/12/2023	Dugwell near road	3.84	0.50	3.34

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-- End of Report---

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Sl. No.

N

M/s Khondbond Iron & Manganese Mine (M/s TATA Steel Limited)

State - Odisha-758 034. District - Kendujhar,

## **Ground Water Table Measurement**

## January-2024

7	F F	3	(7)	
OMC Colony	Khondbond Village	Guruda Village	Ganua Village	Village Name
20/01/2024	20/01/2024	20/01/2024	20/01/2024	Date of Measurement
Dugwell near road	Dugwell in field (Mr. Mothua Munda)	Dugwell near Club	Dugwell near road (Mr. Keshar Patra)	Details of location
3.92	4.16	5.14	4.57	Static Water Level from Measuring Point in Mtrs. (Level in mbmp)
0.50	0.70	0.65	0.53	Measuring Point i.e. MP distance above ground level in Mtrs. (magl)
3.42	3.46	4.49	4.04	Water level Below Ground Level in Mtrs. = mbmp - mag

**Authorized Signatory** 

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

Laboratories Andcon





OMC Colony

No

Village Name

Guruda Village

Khondbond

Ganua Village

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# M/s Khondbond Iron & Manganese Mine

(M/s TATA Steel Limited) District - Kendujhar,

### **Ground Water Table Measurement** State - Odisha-758 034.

February-2024

Date of Measurement	Details of location	Static Water Level from Measuring Point i.e.  Measuring Point in MP distance above ground level in Mtrs. (Level in mbmp) (magl)	Measuring Point.i.e. MP distance above ground level in Mtrs. (magl)	Water level Below Ground Level in Mtrs. = mbmp - magl
13/02/2024	Dugwell near road (Mr. Keshar Patra)	4.62	0.53	4.09
13/02/2024	Dugwell near Club	5.47	0.65	4.82
13/02/2024	Dugwell in field (Mr. Mothua Munda)	4.26	0.70	3.56
13/02/2024	Dugwell near road	4.19	0.50	3.69

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M/s Khondbond Iron & Manganese Mine

(M/s TATA Steel Limited) District - Kendujhar, Ground Water Table Measurement

State - Odisha-758 034.

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Test Report

		2		
Water level Below Ground Level in Mtrs. = mbmp - magl	4.15	4.86	3.67	3.76
Measuring Point i.e. MP distance above ground level in Mtrs. (magl)	0.53	0.65	0.70	0.50
Static Water Level from Measuring Point i.e.  Measuring Point i.e.  Measuring Point i.e.  Mrs. (Level in mbmp) ground level in Mtrs.  (magl)	4.68	5.51	4.37	4.26
Details of location	Dugwell near road (Mr. Keshar Patra)	Dugwell near Club	Dugwell in field (Mr. Mothua Munda)	Dugwell near road
Date of Measurement	20/03/2024	20/03/2024	20/03/2024	20/03/2024
Sl. No. Village Name	Ganua Village	2 Guruda Village	Khondbond Village	4 OMC Colony
Sl. No.	П	7	ю	4



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Ramjan Hutting

4

Banaikala Basti

w

Hudi Sahi Basti

Komar Joda Basti

Khuntapani Basti

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### Test Report

No.

Village Name

State - Odisha-758 034. District - Kendujhar, M/s Joda East Iron Mine

(M/s TATA Steel Limited)

## **Ground Water Table Measurement** October-2023

	16/10/2023 Go	16/10/2023 (Mr. Ja	16/10/2023 Dugs	16/10/2023 Dugw	Date of Measurement Detai
Dugwell	Gov. Dugwell	Dugwell (Mr. Jagbandhu Nayar)	Dugwell near Road	Dugwell near School	Details of location
4.27	3.52	5.16	4.97	4.16	Static Water Level from Measuring Point in Mtrs. (Level in mbmp)
0.50	0.70	0.80	0.80	0.80	Measuring Point i.e. MP distance above ground level in Mtrs. (magl)
3.77	2.82	4.36	4.17	3.36	Water level Below Ground Level in Mtrs. = mbmp - magl

-- End of Report----

Chemist: > 15

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Chemist: -- > () }"

### Anacon Laboratories

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Ramjan Hutting

16/11/2023

Dugwell

0.50

0.70

3.11

0.80

4.59

0.80

4.36

4

Banaikala Basti

16/11/2023

S

Hudi Sahi Basti

6/11/2023

2

Komar Joda Basti

Khuntapani Basti

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### Test Report

No.

Village Name

Date of

Measurement 16/11/2023 16/11/2023 Mr. Jagbandhu Nayar) Dugwell near School Details of location Dugwell near Road **Ground Water Table Measurement** Gov. Dugwell Dugwell November-2023 Static Water Level from Measuring Point in Mtrs. (Level in mbmp) 3.81 5.16

above ground level in Mtrs. (magl)

Mtrs. = mbmp - magi

0.80

3.68

Measuring Point i.e. MP distance

Water level Below Ground Level in

## M/s Joda East Iron Mine

State - Odisha-758 034 (M/s TATA Steel Limited) District - Kendujhar,

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----End of Report----



5

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### Test Report

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No.

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

## Ground Water Table Measurement December-2023

village Name	Date of Measurement	Details of location	Static Water Level from Measuring Point in Mirs	Measuring Point i.e. MP distance	Water level Below
Khiintanan: B			(Level in mbmp)	-	Ground Level in
14/12/2023	14/12/2023	Dugwell near School	160	m Mtrs. (magl)	mus momp - magl
Komar Ioda Basti	14/10/0000	Tocalogi	4.62	0.80	3.82
Heng mast	14/12/2023	Dugwell near Road	л 30		. 0.01
Hudi Sahi Basti	14/12/2023	Dugwell	0.00	0.80	4.58
		(Mr. Jagbandhu Navar)	5.47	0 80	
Banaikala Basti	14/12/2023	Cov D		. 0.00	4.67
Ramian Hutting		Cov. Dugwell	4.16	0.70	
Ract:	14/12/2023	:		0.70	3.46
Dasti	C70717111	Dugwell	4.79	0.50	4 29
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Mo Test	Rep	<u>ort</u>			
Water level Below Ground Level in Mtrs. = mbmp - ma	3.93	5.14	5.01	4.06	4.42
Measuring Point i.e. MP distance above ground level in Mtrs. (magl)	0.80	0.80	0.80	0.70	0.50

4.92

Dugwell

18/01/2024

Ramjan Hutting

Basti

Banaikala Basti

4

## Ground Water Table Measurement

January-2024

M/s Joda East Iron Mine

(M/s TATA Steel Limited)

District - Kendujhar,

State - Odisha-758 034.

Static Water Level from Measuring Point in Mtrs. (Level in mbmp)	4.73	5.94	5.81	4.76
Details of location	Dugwell near School	Dugwell near Road	Dugwell (Mr. Jagbandhu Nayar)	Gov. Dugwell
Date of Measurement	18/01/2024	18/01/2024	18/01/2024	18/01/2024

-- End of Report----

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Khuntapani Basti

Village Name

SI.

Komar Joda Basti

Hudi Sahi Basti



Banaikala Basti

12/02/2024

Ramjan Hutting

12/02/2024

Dugwell

Anacon Laboratories Pvt. Ltd. Nagpur Lab

♥ FP-34, 35, Food Park, Five Star Industrial Estate, MIDC Butibori, Nagpur, Maharashtra, India - 441 122 4 + 91 8045685558 ■ Email: info@anacon.in https://www.anaconlaboratories.com

### Test Report

Komar Joda Basti

12/02/2024

Dugwell near Road

Hudi Sahi Basti

12/02/2024

(Mr. Jagbandhu Nayar)

Dugwell

5.92

0.80

5.12

81

0.70

4.11

0.50

4.62

6.03

0.80

.23

4.82

0.80

4.02

Gov. Dugwel

Khuntapani Basti

12/02/2024

Dugwell near School

No.

Village Name

Measurement

Date of

Details of location

Static Water Level from Measuring Point in Mtrs. (Level in mbmp)

above ground level in Mtrs. (magl)

Mtrs. = mbmp - magl Water level Below Ground Level in

ound Water Table Measure	State - Odisha-758 034.	District - Kendujhar,	(M/s TATA Steel Limited)
Irei			

M/s Joda East Iron Mine

# Measuring Point i.e. MP distance

	0
	5/
**	{
+	-6

--- End of Report----



### Anacon Laboratories Pvt. Ltd. Nagpur Lab

PFP-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**

### **March-2024**

S1. 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

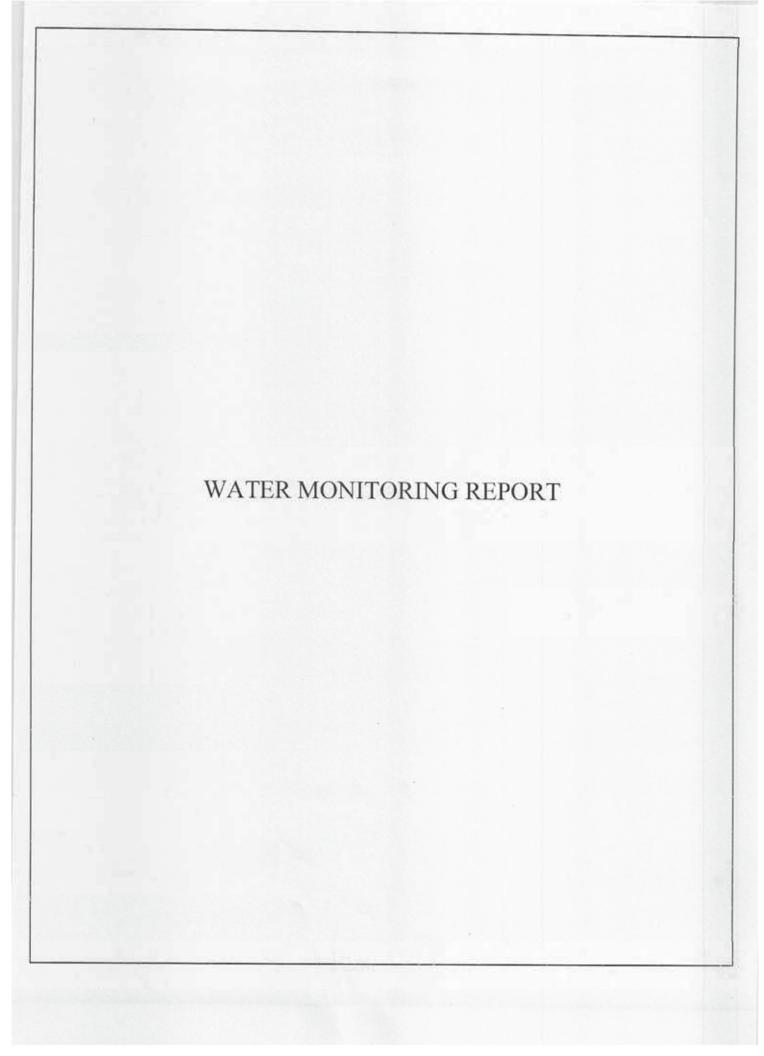
Verified by

Snehal Raut Deputy Technical Manager

----End of Report----

Authorized Signatory

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



Address of Laboratory:

Building No. P-48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

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





Doc No.: MSK/GEN/19/07

TESTING . INSPECTION

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MSKPL/FD/2023-24/211CA8

MSKNB/FD/2023-24/03/WYABCJ

ULR: TC-695024000004746F

### 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:

08/03/2024 - 21/03/2024 Permanent Facility

08/03/2024

21/03/2024

3000156017/056, Date - 16/09/2023

Chemical

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

1. Group	Water & Residue in Water	
2. Description of sample		
Unique Identification of sample(if any)	Drinking Water NA	
4. Date of sampling	07/03/2024	
5. Place of sampling		
6. Environmental conditions during sampling & Transport	Joribar pit office (BIMM)	
7. Sampling Plan & Method used	(2-5) deg C Cold chain maintained	
8. Identification of the personnel performing sampling by MSK	IS:17614( P-5) 2022 Akash Kumar Shethy, Mukesh Haiburu	

Report No.: MSKPL/FD/2023-24/211CA8

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

### RESULT

Chemical						
SI 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:0.00
2	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	0.05	No relaxation	1
3	Silver as Ag	mg/l	IS 3025 (Part 2)	0.1	No Relaxation	BDL(DL:0.01 BDL(DL:0.00
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)	0.01	No relaxation	BDL(DL:0.00
6	Mercury as Hg	mg/l	IS 3025 (Part 48)	0.001	No relaxation	BDL(DL:0.00
7	Zinc as Zn	mg/l	IS 3025 (Part 2)	5	15	2) BDL(DL:0.02
8	Colour	Hazen	IS 3025 (Part 4)	5	15	
9	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	0.05	No relaxation	BDL(DL:1.0)
10	Fluoride as F	mg/l	IS 3025 (Part 60)	1.0		BDL(DL:0.02
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500- NO3- B	45	1.5 No Relaxation	0.65
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:0.00
14	Manganese as Mn	mg/i	IS 3025 (Part 2)	0.1	0.3	PDI (DI -0 00)
15	Lead as Pb	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BDL(DL:0.005 BDL(DL:0.005
16	Copper as Cu	mg/l	IS 3025 (Part 2)	0.05	1.5	BDL(DL:0.02)

Reviewed By:

Designation : Sr. Exe. Chemist Executive Chemist

Authorized Signatory

Lab In charge

Head Office:

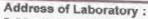
Strachi Centre (5th Floor), 748, A.J.C. Bose Road, Kelkata -700016, West Bengel, India: Tel.: 91 33 40143000 / 22650007 Fax: 91 33 22650008

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

Page 1 of 2

Doc No.: MSK/GEN/18/07





Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

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





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ULR: TC-695024000004746F

Opinion:

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

Statement of Conformity

- END ---

Reviewed By:

Signiflure

Ms. Arayee Sahs, Ms. Pasi Garquiy

Designation Sr Eve. Chemist, Executive Chemist

Apraget Sam

Authorized Signatory:

Dissignation

Lati in charge

The results relate only to the gam(s) leased.

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The results of supply to the gam(s) for chemical analysis (Non - permission of Mare S.K. Private Limited.

The results of supply to the gam(s) for chemical analysis (Soil & Liquid Waste) shall be retained for 15 days from the date of issue of the Test Report. The results of sumply(s) for chemical analysis (Soil & Liquid Waste) shall be retained for 15 days as per CPCB guidarns & (Air) 1 month from the date of issue of the Test Report.

The results related for 15 days from the date of issue of the Test Report.

Page 2 of 2

Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata ~700016, West Bengal, India: Tel. 91 33 40143000 / 22650007 Fax: 91 33 22650008

Ernall: Info@mitrask.com Website: www.mitrask.com

Page 2 of 2

### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkala 700015 West Bengal Tel.: +91 7044036120

Email: udayanlab@mitrask.com





Doc No.: MSK/GEN/19/07

Scan for Portal

ULR: TC-695024000004746F

### 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/2023-24/211CA8

21/03/2024

MSKNB/FD/2023-24/03/WYABCJ

08/03/2024

08/03/2024 - 09/03/2024

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	Drinking Water	
Unique Identification of sample(if any)	NA NA	
4. Date of sampling	07/03/2024	
5. Place of sampling		
6. Environmental conditions during sampling & Transport	Joribar pit office (BIMM)	
7. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained	
8. Identification of the personnel performing sampling by MSK	IS:17614( P-25) 2022	
or the personner performing sampling by MSK	Akash Kumar Shethy, Mukesh Haiburu	

Report No.: MSKPL/FD/2023-24/211CA8

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

### RESULT

Micro Biology								
SI No.	Parameter	NOM	Method	Acceptable Limit	Permissible Limit			
1	Total coliform	/100ml	IS 15185	Not Detectable	THE STATE OF	Result		
2	E. coli	/100ml	IS 15185		Not Applicable	Not Detected		
		7100101	10 10100	Not Detectable	Not Applicable	Not Detected		

Opinion:

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

Statement of Conformity

- END ---

Reviewed By:

Signature

Designation

Mr. Maitreyee Chakraborty

Executive Microbiologist

Authorized Signatory

Ms. Maitrivee Chekrishovi,

Executive Microbiologist

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

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

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. Perishable sample(s) shall be retained 2 days.

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

Head Office:

Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India. Tel.: 91 33 40143000 / 22650007 Fax: 91 33 22650008

Page 1 of 1

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/202	3-24/005495	D
	Date: 25.03.2024	
Name of the Client	ANALYSIS REPORT OF DRINKING WATER  M/s. TATA STEEL LIMITED	
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)	
Date of sampling	07.03.2024 BIMM)	
Location	Joribar Pit Office R O Water (BIMM)	

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

SI. No.	Test Parameters	Unite	Method	Norms as per IS: 10500- 2012		
				Desirable Limit	Permissible Limit	Results
	Ammonical Nitrogen	mg/l	APHA (24thEdition),4500-NH3-F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition),3500 Ca B	75	200	5,510
3	Chloride (as Cl )	mg/l	APHA (24th Edition),4500 -CI B	250	1000	26
4	Odour	Hazen	3025 (Part-5)-1983;Rffm:2012	Agreeable	2000000	10
5	Electrical conductivity	us/cm	APHA (24th Edition),2510B	Agreeable	Agreeable	Agreeable
6	Iron (as Fe)	mg/l	APHA (24th Edition),3500 Fe B	0.0		209
7	Magnesium (as Mg)	377	THE STATE OF THE S	0.3	No Relaxation	< 0.05
97		mg/l	APHA (24th Edition), 3500 Mg B	30	100	5.8
8	Phenolic Compound (asC6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 KB			<1.0
10	Salinity	PSU	APHA (24th Edition), 2520B			100000
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B			0.107
12	Sulphate ( as SO4 )	mg/l	APHA (24th Edition) 4500 SO42-E	200		5.2
13	Taste	None	IS 3025 (Part 8)-1983 Rffm:2012_(0)		400	3.1
14	Total Alkalinity (as CaCO3)	0-20	THE COLD IN COLD SECTION OF THE PARTY OF THE	Agreeable	Agreeable	Agreeable
15		mg/l	APHA (24th Edition), 2320B	200	600	92
01.0	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	124
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	88
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D			NAME OF TAXABLE PARTY.
18	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	<2.5
19	pH value at 25 deg C	None	APHA 24th Edition, 2023,4500,H+B	131		<1.0
	ACCOUNT OF THE PARTY OF THE PAR			6.5-8.5	No Relaxation	7.38

Checked by:- (8)

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

Name & Address of Customer:

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

Tata Steel Ltd.(MGM)\_Joda West







Doc No.: MSK/GEN/19/07



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ULR: TC-695024000004745F

### 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/T11CAW

21/03/2024

MSKNB/FD/2023-24/03/SCGBF1

08/03/2024

08/03/2024 - 21/03/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

We hereby certify that the following sample Drawn by us has been analyzed with the follow-

1, Group	Water & Residue in Water
2. Description of sample	Delation Mail Availer
3. Unique Identification of sample(if any)	Drinking Water
4. Date of sampling	NA NA
5. Place of sampling	07/03/2024
6 Environmental and the	Joribar Shorting Yard (BIMM)
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 Kumar Shethy, Mukesh Haiburu
Report No · MSKPI /ED/2023 24/7440 AV	THE THE PARTY IN T

Report No.: MSKPL/FD/2023-24/T11CAW

Sample No.: MSKNB/FD/2023-24/03/SCGBF1

#### RESULT

Chemical						
SI No.	Parameter	UOM	Method	Acceptable Limit	Barrio Maria	1 200
1	Cadmium as Cd	mg/l	IS 3025 (Part 2)		Permissible Limit	Result
2	Total Chromium as Cr	mg/l		0.003	No Relaxation	BDL(DL:0.0
3	Silver as Ag	11007	IS 3025 (Part 2)	0.05	No relaxation	BDL(DL:0.0
4	Silica (as SiO2)	mg/l	IS 3025 (Part 2)	0.1	No Relaxation	BDL(DL:0.0
5		mg/l	IS 3025 (Part 35)	Not Specified	Not Specified	BDL(DL:0.
	Selenium as Se	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BDL(DL:0.0
6	Mercury as Hg	mg/l	IS 3025 (Part 48)	0.001	No selevette	BDL(DL:0.0
7	Zinc as Zn	mg/l	IS 3025 (Part 2)		No relaxation	2)
8	Colour	Hazen	IS 3025 (Part 4)	5	15	BDL(DL:0.0
9	Cyanide as CN	mg/I	IS 3025 (Part 27) Sec1	5	15	BDL(DL:1.
10	Fluoride as F	mg/l	IS 3025 (Part 60)	0.05	No relaxation	BDL(DL:0.0
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-	1.0	1.5	0.25
12	Nickel (as Ni)		NO3-B	45	No Relaxation	0.74
13		mg/l	IS 3025 (Part 2)	0.02	No Relaxation	BDL(DL:0.0
100	Arsenic as As	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.00
14	Manganese as Mn	mg/l	IS 3025 (Part 2)	0.1	0.3	BDI (DI -C a)
15	Lead as Pb	mg/l	IS 3025 (Part 2)	0.01		BDL(DL:0.02
16	Copper as Cu	mg/l	IS 3025 (Part 2)		No relaxation	)
	307		To ooco (r arr z)	0.05	1.5	BDL(DL:0.02

Raviewed By:

Atrayer Sour Ma. Albayoo Saha, Ma. Pieli Gariga

Designation : Sr. Exe Chemist Executive Chemist

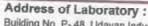
Authorized Signatory

Danignation

Lab in charge

DOC No. MSK/GEN/19/07





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





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ULR: TC-695024000004745F

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

Statement of Conformity

-- END ---

Reviewed By:

Signature

Name

Afrayer Sam

Ms. Atrayon Saha, Ms. Plas Ganguly

Designation Sr. Exe Chemist, Executive Chemist

Authorized Signatory

Signature

Designation

: Laty 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. Parishable sample(s) shall be retained 2 days.

The reserved part of complete the Test Report.

The reserved part of sample(s) for chareleal analysis (Soil, Solid & Liquid Walta) shell 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: Structu Centre (5th Floor), 74B, A.J.C. Bose Road, Kolluta - 700016, West Bergal, 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





Doc No: MSK/GEN/19/07

TESTING \* INSPECTION

Sean for Portal

ULR: TC-695024000004745F

### 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/T11CAW

21/03/2024

MSKNB/FD/2023-24/03/SCGBF1

08/03/2024

08/03/2024 - 09/03/2024

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	Drinking Water	
3. Unique Identification of sample(if any)	NA .	
4. Date of sampling	07/03/2024	
5. Place of sampling	Joribar Shorting Yard (BIMM)	
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 Kumar Shethy, Mukesh Haiburu	

Report No.: MSKPL/FD/2023-24/T11CAW

Sample No.: MSKNB/FD/2023-24/03/SCGBF1

#### RESULT

Micro Biology								
SI No.	Parameter	NOM	Method	Acceptable Limit	Permissible Limit	Result		
1	Total coliform	/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

Ma. Mailreyon Chekraborty

Authorized Signisory

Ms. Mailreyee Chakrabony

Designation

Executive Microbiologist

The results relate only to the item(s) tested

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 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.

Head Office:

Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700015, West Bengal, India. Tel.: 91 33 40143000 / 22650007 Fax: 91 33 22650008. 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 75269

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

Report No. MSKGL/ED/2023-24/005501		Date: 25.03.2024
Name of the Client	ANALYSIS REPORT OF DRINKING WATER  M/s. TATA STEEL LIMITED	
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)	
Date of sampling	07.03.2024	
Location	Joribar Shorting Yard R O Water (BIMM)	

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

Sl. No.	Test Parameters	Unite	Method		per IS: 10500- 2012	Results
11.51		350000	Piction	Desirable Limit	Permissible Limit	
1	Ammonical Nitrogen	mg/l	APHA (24thEdition),4500-NH3-F	0.5	No Relaxation	< 0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition),3500 Ca B	75	200	37
3	Chloride (as CI )	mg/I	APHA (24th Edition),4500 -Cl B	250	1000	12
4	Odour	Hazen	3025 (Part-5)-1983;Rffm:2012	Agreeable	Agreeable	Agreeable
5	Electrical conductivity	us/cm	APHA (24th Edition),2510B		***	243
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	6.7
8	Phenolic Compound (asC6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 KB	***	***	<1.0
10	Salinity	PSU	APHA (24th Edition), 2520B		***	0.124
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B			5.4
12	Sulphate ( as SO4 )	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	5.3
13	Taste	None	IS 3025 (Part 8)-1983 Rffm:2012_(0)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	112
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	146
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	120
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	170.54
19	pH value at 25 deg C	None	APHA 24th Edition, 2023,4500,H+B	6.5-8.5	No Relaxation	<1.0 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





Doc No.: MSK/GEN/19/07

Scan for Portal

ULR: TC-695024000004741F

### 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/S11C94

21/03/2024

MSKNB/FD/2023-24/03/12BC05

08/03/2024

08/03/2024 - 21/03/2024

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	Drinking Water	
Unique Identification of sample(if any)	NA Vater	
4. Date of sampling	07/03/2024	
5. Place of sampling	Barnebari 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 Kumar Shethy, Mukesh Haiburu	

Report No.: MSKPL/FD/2023-24/S11C94

Sample No.: MSKNB/FD/2023-24/03/12BC05

#### RESULT

Chemical						
SI No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Colour	Hazen	IS 3025 (Part 4)	5	15	BDL(DL-1.0)
2	Cyanide as CN	mg/ī	IS 3025 (Part 27) Sec1	0.05	No relaxation	BDL(DL:0.02
3	Mercury as Hg	mg/l	IS 3025 (Part 48)	0.001	No relaxation	BDL(DL:0.00
4	Silica (as SiO2)	mg/l	IS 3025 (Part 35)	Not Specified	Not Specified	BDL(DL:0.1)
5	Fluoride as F	mg/l	IS 3025 (Part 60)	1.0	1.5	0.28
6	Zinc as Zn	mg/l	IS 3025 (Part 2)	5	15	BDL(DL:0.02)
7	Selenium as Se	mg/l	IS 3025 (Part 2)	0.01	No relaxation	BDL(DL:0.005
8	Cadmium as Cd	mg/l	IS 3025 (Part 2)	0.003	No Relaxation	BDL(DL:0.001
9	Silver as Ag	mg/l	IS 3025 (Part 2)	0.1	No Relaxation	BDL(DL:0.005
10	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	0.05	No relaxation	BDL(DL:0.01)
11	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500- NO3- B	45	No Relaxation	0.80
12	Nickel (as Ni)	mg/I	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)

Reviewed By:

AtrayeeSam Mr. Atrayee Sahe, Mr. Pieli Ganguly

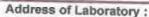
Sr. Eve. Chemist. Executive Chemist.

Authorized Signatory

Lab in charge

Doc No.: MSK/GEN/19/07





Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

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





ULR: TC-695024000004741F

Opinion:

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

Statement of Conformity

-- END ---

Reviewed By:

Signature

Atraya Sam P. Gaynly Ms. Altrayer Saha, Ms. Plat Ganguly

Designation Sr. Exe. Chemist, Executive Chemist

Authorized Signatory:

Signature

Name

Designation

Lab in charge

The reserved part of semple(s) for themical analysis (Non - perel-side) shall be retained for 15 days from the date of issue of the Test Report. Parishable sample(s) shall be retained 2 days from the date of issue of the Test Report. Parishable 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 (Still, Solid & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) I minor from the date of issue of the Test Report. The reserved part of sample(s) for Microbiological analysis (Non - perinable sample(s) Food, Sesied Water, Sesied food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Strachi Centre (5th 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 Website: www.mitrask.com

Page 2 of 2

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

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





Scan for Portal

ULR: TC-695024000004741F

Doc No : MSK/GEN/19/07

### 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/S11C94

21/03/2024

MSKNB/FD/2023-24/03/12BC05

08/03/2024

08/03/2024 - 11/03/2024

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	Drinking Water	
3. Unique Identification of sample(if any)	NA Valei	
4. Date of sampling	07/03/2024	
5. Place of sampling		
6. Environmental conditions during sampling & Transport	Bamebari WTP-INLET	
7. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained	
8. Identification of the personnel performing sampling by MSK	IS:17614( P-25) 2022	
are personner performing sampling by MSK	Akash Kumar Shethy, Mukesh Halburu	

Report No.: MSKPL/FD/2023-24/S11C94

Sample No.: MSKNB/FD/2023-24/03/12BC05

#### RESULT

Micro Biology							
SI No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Dogist	
1	Total coliform	/100ml	IS 15185	Not Detectable	The state of the s	Result	
2	E coli	/100ml		The state of the s	Not Applicable	Detected	
		rioumi	IS 15185	Not Detectable	Not Applicable	Not Detected	

Opinion:

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

Statement of Conformity NA

- END -

Raviewed By:

Signeture Name

Ms. Maitreyee Chakraborty

Designation Executive Microscologist

Authorized Signatory

Signature

Ms. Malireyee Chakrabony

Name Designation

Executive Microbiologist

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

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This 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 (Non - peranace sample(s) root, vinite) analysis from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Soild & 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.

Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India. Tel.: 91 33 40143000 / 22550007 Fax: 91 33 22650006 Email: Info@mitrask.com Website: www.mitrask.com Head Office:

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



Report No. MSKGL/ED/202	Report No. MSKGL/ED/2023-24/005499	
ANALYSIS REPORT OF DRINKING WATER		Date: 25.03.2024
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)	
Date of sampling	07.03.2024 (BIMM)	
Location	Bamebari WTP Inlet (BIMM)	

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

SI. No.	Test Parameters	Unite	Method	Norms as per IS: 10500- 2012		
1		25.0000		Desirable Limit	Permissible Limit	Results
	Ammonical Nitrogen	mg/l	APHA (24thEdition),4500-NH3-F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition),3500 Ca B	75	200	24
3	Chloride (as Cl )	mg/l	APHA (24th Edition),4500 -Cl B	250	1000	
4	Odour	Hazen	3025 (Part-5)-1983;Rffm:2012	Agreeable	January St.	8
5	Electrical conductivity	us/cm	APHA (24th Edition),2510B		Agreeable	Agreeable
6	Iron (as Fe)		The same of the sa		***	190
	NOW THE WASHINGTON	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	6.7
8	Phenolic Compound (asC6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 KB			-10
10	Salinity	PSU	APHA (24th Edition), 2520B			<1.0
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B			0.097
12	Sulphate ( as SO4 )	Section 1		***	***	3.4
13	Taste	mg/l	APHA (24th Edition) 4500 SO42 E	200	400	5.2
1000		None	IS 3025 (Part 8)-1983 Rffm:2012_(0)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	88
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200		116
17	Total Suspended Solid (as TSS)	77.02		200	600	88
18	Turbidity	mg/l	APHA (24th Edition),2540D			<2.5
	10 - 5 10 5 N	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	6.23

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





DOC NO.: MSK/GEN/19/07

TESTING = INSPECTION



ULR: TC-695024000004740F

### **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

Discipline:

Reference No. & Date :

MSKPL/FD/2023-24/Z11C9H

21/03/2024

MSKNB/FD/2023-24/03/0ZGBEV

08/03/2024

08/03/2024 - 21/03/2024

Permanent Facility

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	Water & Residue in Water	
2. Description of sample	Drinking Water	
Unique Identification of sample(if any)	NA NA	
4. Date of sampling	07/03/2024	
5. Place of sampling	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 Kumar Shethy, Mukesh Haiburu	

Report No.: MSKPL/FD/2023-24/Z11C9H

Sample No.: MSKNB/FD/2023-24/03/0ZGBEV

#### RESULT

Chemical						
SI 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:0.00
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:0.00
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)	0.01	No relaxation	BDL(DL:0.00
6	Mercury as Hg	mg/l	IS 3025 (Part 48)	0.001	No relaxation	BDL(DL:0.00
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 NO3	mg/I	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:0.01
13	Arsenic as As	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.00
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)

Atrayer Som Ma. Atrayee Sana, Mr. Pieli Garguty

Sr. Exe. Chemist, Executive Chemist

**Authorized Signatory** 

Lab In charu

Doc No.: MSK/GEN/19/07





Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

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







Sean for Portal

ULR: TC-695024000004740F

Opinion:

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

Statement of Conformity

- END -

Reviewed By:

**Bigneture** 

Atrayee Sana

Ms Athyee Saha Ms Pial Genguly

Designation Sr. Eve. Chemist, Evecusive Chemist.

Authorized Signatory:

Designation

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 2 days. 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.

Head Office:

Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kokata - 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





Doc No.: MSK/GEN/19/07

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MSKPL/FD/2023-24/Z11C9H

08/03/2024 - 09/03/2024

MSKNB/FD/2023-24/03/0ZGBEV

ULR: TC-695024000004740F

### 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:

Permanent Facility

3000156017/056, Date - 16/09/2023

21/03/2024

08/03/2024

Biological

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

1. Group	260 with the following results:	
2. Description of sample	Water & Residue in Water	
Unique Identification of sample(If any)	Drinking Water	
4. Date of sampling	NA NA	
5. Place of sampling	07/03/2024	
6 Faultonia 1 to 1	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 Kumar Shethy, Mukesh Haiburu	_

Report No.: MSKPL/FD/2023-24/Z11C9H

Sample No.: MSKNB/FD/2023-24/03/0ZGBEV

#### RESULT

Micro Biolo	gy					
SI No.	Parameter	NOM	Method	Acceptable Limit	B. C.	200
4	Total coliform	/100ml	IS 15185		Permissible Limit	Result
2	E coli	/100ml		Not Detectable	Not Applicable	Not Detected
		/ Tooms	IS 15185	Not Detectable	Not Applicable	Not Detected

Opinion:

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

Statement of Conformity

END -

Reviewed By

Signature

Ms. Mailreyen Chakraborty

Designation Executive Microbiologist

Authorized Signatory

Signature

: Ms. Maitreyee Chakraborty

Designation : Executive Microbiologist

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

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

The reserved part of sample(s) for chamical analysis (Soil, Soild & 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, Sessed Water, Seated food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Strachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016; West Bengel, India. Tel.: 91 33 40143000 / 22850007 Fax: 91 33 22650006 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 75269

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

Report No. MSKGL/ED/202		Date:25.03.2024
	ANALYSIS REPORT OF DRINKING WATER	24123,03.2024
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)	
Date of sampling	07.03.2024	
Location	Bamebari WTP Outlet (BIMM)	

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

SI. No.	Trant Demonstrate	Unite	Method	Norms as		
1		nical Nitrogon		Desirable Limit	Permissible Limit	Results
		mg/l	APHA (24thEdition),4500-NH3-F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition),3500 Ca B	75	200	
3	Chloride (as Cl )	mg/l	APHA (24th Edition),4500 -Cl B	250	A-10-2	29
4	Odour	Hazen		DESIGN	1000	10
5	Electrical conductivity	us/cm	3025 (Part-5)-1983;Rffm:2012	Agreeable	Agreeable	Agreeable
	Iron (as Fe)		APHA (24th Edition),2510B	+++	***	210
6	THE CASE OF THE CA	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	100000
8	Phenolic Compound (asC6H5OH)	mg/I	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	7.7 <0.001
9	Potassium (as K)	mg/I	APHA (24th Edition), 3500 KB	***		
10	Salinity	PSU	APHA (24th Edition), 2520B			<1.0
11	Sodium (as Na)	mg/l			***	0.107
12	Sulphate ( as SO4 )	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	APHA (24th Edition), 3500 Na B	***		3.7
13	Taste	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	5.9
200	(#12)(#X	None	IS 3025 (Part 8)-1983 Rffm:2012_(0)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	96
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C			128
17	Total Suspended Solid (as TSS)	mg/l	TOTAL MERCHANISM MERCHANISM	200	600	104
18	Turbidity		APHA (24th Edition),2540D			<2.5
19		N.T.U	APHA (24th Edition), 2130B	1	5	<1.0
	pH value at 25 deg C	None	APHA 24th Edition, 2023,4500,H+B	6.5-8.5	No Relaxation	6.91

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





Doc No.: MSK/GEW/19/07

TESTING . INSPECTION

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ULR: TC-695024000002275F

### 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:

3000156017/056, Date - 16/09/2023

03/02/2024 - 12/02/2024

Permanent Facility

MSKPL/FD/2023-24/2MFA50

MSKNB/FD/2023-24/02/VFL21M

Chemical

12/02/2024

03/02/2024

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 NA	
4. Date of sampling	02/02/2024	
5. Place of sampling	Jalhari Nala, Jaroli	
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained	
7. Sampling Plan & Method used	IS 17614 (P-23) 2021	
B. Identification of the personnel performing sampling by MSK	Mukesh Halburu, Akash Ku. Sethy, Pratik Ku. Mantri	

Report No.: MSKPL/FD/2023-24/2MFA50

Sample No.: MSKNB/FD/2023-24/02/VFL21M

#### RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
1	Arsenic as As	mg/l	(S 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)	0.24
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	0.63
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

NA NA

Statement of Conformity

END .

Renewed By:

Signature

Designation

Morayer Sann

Ms. Alleyee Gette, Ms. Piali Garguly

Sr Eve Clymist Executive Chanust

Authorized Signatory

Signature

Lab In charp

Head Office:

Shrachi Centre (5th Floor), 748, A.J.C. Bose Road, Kolkala - 700015, West Bengal, India. Tel. - 91 S3 40143000 / 22550007 Fas : 91 S3 22550006 Eroal I Info@mitresk.com Website , www.mitresk.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





Doc No.: MSK/GEN/19/07

TESTING . INSPECTION

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ULR: TC-695024000002275F

Environd By:

Atrager Sava P. Gonz Ms. Arrayen Saha, Ms. Plati Ganguly

lame rollanguation

Sr. Exe. Chemist, Executive Chemist

Authorized Signatory:

Signature

Designation Lab in charge

Treasity intails only to the finings) temper.

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Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700015. West Bengal, India. Tel. 91:33:40143000 / 22650007 Fax: 91:33:22650006 Emeli inte@mitrask.com Website: www.mitrask.com

Page 2 of 2

### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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ULR: TC-695024000002275F

Doc No: MSKIGENHOUT

TESTING . INSPECTION

### 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/2023-24/2MFA50

12/02/2024

MSKNB/FD/2023-24/02/VFL21M

03/02/2024

03/02/2024 - 08/02/2024

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 NA
4. Date of sampling	02/02/2024
5. Place of sampling	Jalhari Nala, Jaroli
6. Environmental conditions during sampling & Transport 7. Sampling Plan & Method used	(2 - 5 ) deg C Cold chain maintained
3. Identification of the assessment	IS 17614 (P-25) 2022
3. Identification of the personnel performing sampling by MSK	Mukesh Haiburu, Akash Ku. Sethy, Pratik Ku. Mantri

Report No.: MSKPL/FD/2023-24/2MFA50

Sample No.: MSKNB/FD/2023-24/02/VFL21M

#### RESULT

ficro Biology					
SI No.	Paraméter	UOM	Method	47.5	
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edth,	Result	
			9221B	14	

Opinion:

NA.

Statement of Conformity

NA

END

Rinversed By:

Signature

Designation

Ms. Maitreyee Chakraporty

Executive Microbiologist

Authorized Signistan

Ms. Malireyee Chairsborty

Designation

Executive Microbiologist

e remails relate only to the item(s) tested

e framula reside only to an awriting service.

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In Test Report of sample(s) for cherology enablysis (Non - pershable sample(s) Food, Water) small be reliazed for 15 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days.

The date of laster of the Test Report.

a reserved part of semplets) for chiercoll enterprise (Non - perioduce semplets) Podd, years) areas or meaning and semplets of the Test Report, in the date of semplets for discuss of the Test Report, and the Test Report of semplets for discussion of the Test Report of semplets for Microbiological enterprise (Non - perioducite semplets) Food, Seeled Water, Seeled Violet, Seeled food) shall be retained for 15 days from the date of issue of the Test Report of semplets).

Shradhi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bergel, India. Tel.: B1 33 40143000 / 72650007 Feb:: 91 33 22650008

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

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



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

	3-24/005035 Date: 16.02.20
Name of the Client	ANALYSIS REPORT OF SURFACE WATER
Name of the Mines	M/s. TATA STEEL LIMITED
Date of sampling	Tiringpahar Iron & Manganese Mines (TIMM) 02.02.2024
Location	Jalhari Nala Jurudi (TIMM)

### CHEMICAL ANALYSIS OF WATER

SL. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	CPCB	
2	Calcium (as CaCo3)			30	<2.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 2340 C		32
4	Chloride (as CI )	mg/l	APHA (24th Edition), 5220B	250	<4.0
5	DO DO	mg/l	APHA (24th Edition), 4500 -CI B	+	12
6		mg/l	APHA 24th Edition, 2023 4500-O-C/G		
7	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		5.2
	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	157
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	3	0.3
9	Odour	mg/l	APHA (24th Edition), 2150B	_	10.6
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	Agreeable	Agreeable
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C	10	<5.0
12	Salinity		(Chloroform Extraction)	1	< 0.001
13	Sulphate ( as SO4 )	PSU	APHA (24th Edition), 2520B		0.081
14		mg/l	APHA (24th Edition), 4500 SO42-E		1.1
15	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	-	76
16	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	/+++ l	
	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	-	94
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	64
8	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	19.8

Checked by:-

For Mitra S. K. Private Limited

Baudhan

Authorized Signatory

Address of Laboratory:

Bullding No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

West Bengal Tel.: +91 7044036120

Email: udayanlab@mitrask.com





Doc No.: MSK/GEN/19/07

TESTING + INSPECTION

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ULR: TC-695024000002273F

### 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/KXFA5D

12/02/2024

MSKNB/FD/2023-24/02/6FJ24Z

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:

2. Description of sample	Water & Residue in Water
3. Unique Identification of sample(if any)	Surface Water
4. Date of sampling	NA NA
5. Place of sampling	02/02/2024
6. Environmental conditions during sampling & Transport	Tindharia baltarani River Up Stream
7. Sampling Plan & Method used	(2 - 5 ) deg C Cold chain maintained
B. Identification of the personnel performing sampling by MSK	IS 17614 (P-23) 2021
of the personner performing sampling by MSK	Mukesh Haiburu, Akash Ku. Sethy, Pratik Ku. Mantri

Report No.: MSKPL/FD/2023-24/KXFA5D

Sample No.: MSKNB/FD/2023-24/02/6FJ24Z

#### RESULT

SI No.	Parameter			
1		MON	Method	Result
2	Arsenic as As	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
4	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
5	Colour Copper as Cu	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
6	Cyanide as CN	mg/l	IS 3025 (Part 2)	BDL(DL:0,02)
7	Fluoride as F	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
8	Hexavalant Chromium (as Cr+6)	mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
9	Lead as Pb	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
9	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
11	Mercury as Hg	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Nitrate as NO3	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
13	Zinc as Zn	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.4)
	MAIO 00 211	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

NA.

Statement of Conformity

END -

Revenued By

resignation - Sr. Exe. Chemist, Executive Chemist

Ms. Atrayee Saha, Ms. Piali Ganguly

Authorized Signatory

Designation

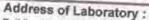
Lab in charge

ead Office:

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DOC NO. MSKIGEN/19/07





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





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ULR: TC-695024000002273F

Inviewed By:

ignature lame

Atrayeesawa P. gmg - Ms. Alrayon Seria, Ms. Pleli Ganguly

esignation - Sr. Exe. Chemist, Executive Chemist

Authorized Signatory

Signature

Designation

Lab in charge

restants relate only to the fluency brains.

I Test Report shall not be reproduced except in full, without the permansion of Mitra 5 K. Private Limited.

reserved part of samples(s) for cherical analysis (slow - personation samples(s) Food, Water) shall be retained for 15 days from the date of financ of the Test Report.

restance part of samples(s) for cherical analysis (slow) or personation samples(s) Food, Water) shall be retained for 15 days from the date of financ of the Test Report.

restance part of samples(s) for Microbiological analysis (Mon - personation samples(s) Food, Sesied Water, Sesied food) used for manual for 15 days from the date of same of the Test Report.

or of the Test Report.

ead Office:

#### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Tel, : +91 7044036120

Email: udayanlab@mitrask.com





Doc No: MSP/GEN/16/07

TESTING . INSPECTION

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ULR: TC-695024000002273F

### 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/KXFA5D

12/02/2024

MSKNB/FD/2023-24/02/6FJ24Z

03/02/2024

03/02/2024 - 08/02/2024 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 2. Description of sample	Water & Residue in Water
3. Unique Identification of sample(if any)	Surface Water
4. Date of sampling	NA NA
5. Place of sampling	02/02/2024
5. Environmental conditions during sampling & Transport	Tindharia baitarani River Up Stream
7. Sampling Plan & Method used	(2 - 5) deg C Cold chain maintained
8. Identification of the personnel performing sampling by MSK	IS 17614 (P-25) 2022
or the personner performing sampling by MSK	Mukesh Haiburu, Akash Ku. Sethy, Pratik Ku, Mantri

Report No.: MSKPL/FD/2023-24/KXFA5D

Sample No.: MSKNB/FD/2023-24/02/6FJ24Z

#### RESULT

licro Biology		TILOULI		
SI No.	Parameter	UOM	Mental	
		-	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 92218	6.8

Opinion:

NA

Statement of Conformity

NA

END

Designation -

Executive Microbiologist

Ms. Maibwyse Chestabony

Authorized Signisory

Designation

Executive Microbiologist

e results relate only to the item(s) tested in Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited is reserved part of sample(s) for chanteal analysis (Non - penishable sample(s) Food, Weter) shall be retained for 15 days from the date of issue of the Test Report. Penahable sample(s) shall be retained 2 days in the date of issue of the Test Report.

In reserved part of sample(s) for chemical analysis (Soil, Soild & Liquid Waste) areal be retained for 15 days as per CPCB guideline & (Air) 1 moret from the date of issue of the Test Report is reserved part of sample(s) for Microbiological analysis (Non - perichable sample(s) Food, Sested Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report. sad Office: Shvachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India. Tel., 91 33 40143000 / 22550007 Fax: 91 33 22650008

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

	3-24/005024 Date: 16.02.2
N	ANALYSIS REPORT OF SURFACE WATER
or the chefit	M/s. TATA STEEL LIMITED
Name of the Mines	Tiringnahar Iron & Manager
Date of sampling	Tiringpahar Iron & Manganese Mines (TIMM) 02.02.2024
Location	Tindharia Up Stream Baitarani River (TIMM)

### CHEMICAL ANALYSIS OF WATER

SI. No.		Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/I	APHA (24th Edition), 5210B	CPCB	
2	Calcium (as CaCo3)	mg/l		30	<2.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 2340 C		12
4	Chloride (as CI )	-	APHA (24th Edition), 5220B	250	<4.0
5	DO	mg/l	APHA (24th Edition), 4500 -CI B		10
6		mg/l	APHA 24th Edition, 2023 4500-0-C/G	***	6.2
7	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	_	70
8	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		0.4
9	Odour	mg/l	APHA (24th Edition), 2150B	America 63	5.8
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	Agreeable 10	Agreeable
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C	10	<5.0
12	Salinity	-	(Chloroform Extraction)	1	< 0.001
13	Sulphate ( as SO4 )	PSU mad	APHA (24th Edition), 2520B	-	0.038
14	Total Alkalinity	mg/l	APHA (24th Edition), 4500 SO42-E		2.2
5			APHA (24th Edition), 5210B	1444	24
6	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		42
7	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	PH-1	36
8	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	2.5
	pH value at 25 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.82

Checked by:

For Mitra S. K. Private Limited

Blandhany

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





Doc No.: MSK/GEN/19/07



ULR: TC-695024000002274F

MSKPL/FD/2023-24/H3FA56

03/02/2024 - 12/02/2024

MSKNB/FD/2023-24/02/P4R23A

### 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:

Permanent Facility

12/02/2024

03/02/2024

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	Markey 9 Pounts 1 1 1
2. Description of sample	Water & Residue in Water
Unique Identification of sample(if any)	Surface Water
4. Date of sampling	NA .
	02/02/2024
5. Place of sampling	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	
annihmig by more	Mukesh Halburu, Akash Ku. Sethy, Pratik Ku. Mantri

Report No.: MSKPUFD/2023-24/H3FA56

Sample No.: MSKNB/FD/2023-24/02/P4R23A

#### RESULT

Chemical				
SI No.	Parameter	UOM	Method	
1	Arsenic as As	5.00	10.00.01.00	Result
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
4		mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
5	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	
7	Fluoride as F	mg/l	(S 3025 (Part 60)	BDL(DL:0.02)
8	Hexavalent Chromium (as Cr+5)	mg/l		BDL(DL:0.2)
g	Lead as Pb	1000	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0,005)
11	Mercury as Ho	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12		mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
13	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.52
13	Zinc as Zn	mg/i	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

NA

Statement of Conformity

END .

Reviewed By

Signature Name

Howell Same Mx Alrayon Saha Ma Pinii Ganguly

Designation

Sr. Exe. Chemist, Executive Chemist.

Authorized Signatory

Lab In charge

lead Office:

Shrachs Certre (5th Floor), 74B, A.J.C. Bose Road, Kofialis - 700015, Wasi Bergal, India. Tel : 91 33 40143000 / 22650007 Fax : 91 33 22650006 Email : info@mitrask.com Webste : 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







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ULR: TC-695024000002274F

divisived By:

lame resignation - Ms. Althrysie Saha, Ms. Piell Ganguly Sr. Exe. Chemist, Executive Chemist

Abaycesour P.G.

Authorized Signatory

Signature

Designation

Lab in charge

I Treat Report shall not be represented except in fail, restrout the germenation of failure 5 K. Private Limited.

Treat Report shall not be represented except in fail, restrout the germenation of failure 5 K. Private Limited.

Treat Report of sample(s), for claiming anything (four - penaluration sample(s) Froot, Water) shall be entained for 18 days from the date of issue of the Test Report.

Treat Private of and of sample(p) for Microbiological analysis (four of sample(p) Froot, Sessied Water, Sessied Bood, shall be remained for 18 days from the date of issue of the Test Report.

Intervel part of sample(p) for Microbiological analysis (Man - perchable sample(p) Food, Sessied Water, Sessied Bood, shall be remained for 18 days from the date of issue of the Test Report.

In of the Test Report.

ead Office:

Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolista - 700016, West Bengal, India-Tel. 91:33:401430007/2850007 Fax: 91:33:22850008 Email: info@mtrask.com Webste: www.mitrask.com

Page 2 of 2

#### Address of Laboratory:

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Tel :+91 7044036120

Email: udayanlab@mitrask.com





Doc No.: MSK/GEN/19/07

TESTING . INSPECTION

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ULR: TC-695024000002274F

### TEST REPORT

### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonihar, 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/H3FA56

12/02/2024

MSKNB/FD/2023-24/02/P4R23A

03/02/2024

03/02/2024 - 08/02/2024

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:

Group     Description of sample	Water & Residue in Water
3. Unique Identification of sample(if any)	Surface Water
4. Date of sampling	NA .
5. Place of sampling	02/02/2024
6. Environmental conditions during sampling & Transport	Gurubeda Baitarani River
7. Sampling Plan & Method used	(2 - 5 ) deg C Cold chain maintained
B. Identification of the personnel media	IS 17614 (P-25) 2022
3. Identification of the personnel performing sampling by MSK	Mukesh Haiburu, Akash Ku. Sethy, Pratik Ku. Mantri

Report No.: MSKPL/FD/2023-24/H3FA5B

Sample No.: MSKNB/FD/2023-24/02/P4R23A

#### RESULT

Micro Biology				
SI No.	Parameter	UOM	Method	-
1	Total coliform	MPN/100ml	Standard methods for the examination	Result
		WIP TO TOOM!	of water & waste water, 24th edtn, 9221B	17

Opinion:

NA

Statement of Conformity

END

REVIEWED BY

Signature

Mr. Matreyes Chalcaborty

designation

Executive Micropiologist

**Authorized Signatory** 

Name

Ms. Mailreyee Chakrabony

Debignation

Executive Microbiologist

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Is real report areas not de reproduces except in lus, wender, the permission of ments of the Test Report. 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 date of issue of the Test Report.

It the date or issue of the Test Report.

Treserved part of sample(s) for chemical analysis (Soil, Soild & Liquid Witsis) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

Preserved part of sample(s) for Microbiological analysis (Non - paristrable sample(s) Food, Sealed Water, Sealed (bod) shall be ratialized 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/202	The state of the s	Date: 16.02.2024
ANALYSIS REPORT OF SURFACE WATER		10.02.2029
of the cheff	M/s. TATA STEEL LIMITED	
Name of the Mines	Tiringpahar Iron & Manganese Mines (TIMM)	
Date of sampling	02.02.2024 (TIMM)	
Location	Gurubeda Baitarani River (TIMM)	

### CHEMICAL ANALYSIS OF WATER

SL. No.		Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/L	APHA (24th Edition), 5210B	CPCB	
2	Calcium (as CaCo3)	mg/l		30	<2.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 2340 C		12
4	Chloride (as Cl.)	-	APHA (24th Edition), 5220B	250	<4.0
5	DO	mg/l	APHA (24th Edition), 4500 -CI B	777	10
6		mg/l	APIIA 24th Edition, 2023 4500-O-C/G	***	6.9
7	Electrical conductivity	us/cm	APHA (Z4th Edition), 2510B	-	116
8	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.60
9	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		0.500-0
9	Odour	mg/I	APHA (24th Edition), 2150B	Agentalia	2.9
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	Agreeable 10	Agreeable
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C	10	<5.0
12	Salinity	-	(Chloroform Extraction)	1	< 0.001
13	Sulphate ( as SO4 )	PSU	APHA (24th Edition), 2520B	1444	0.06
14	Total Alkalinity	mg/l	APHA (24th Edition), 4500 SO42-E	1944	3.7
5			APHA (24th Edition), 5210B	-	36
6	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		68
7	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		24
8	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	
d	pH value at 19.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.9

Checked by:-

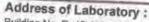
For Mitra S. K. Private Limited

Blandham

Authorized Signatory

DOC NO MSKIGEN/19/07





Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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ULR: TC-695024000002272F

### 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/2023-24/54FA53

12/02/2024

MSKNB/FD/2023-24/02/4KD204

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:

Group     Description of sample	Water & Residue in Water
3. Unique Identification of sample(if any)	Surface Water
Date of sampling	NA NA
5. Place of sampling	02/02/2024
S. Environmental conditions during sampling & Transport	Tindharia baitarani River Down Stream
. Sampling Plan & Method used	(2 - 5) deg C Cold chain maintained
I Identification of the personnel performing sampling by MSK	IS 17614 (P-23) 2021
or the personnel performing sampling by MSK	Mukesh Haiburu, Akash Ku. Sethy, Pratik Ku. Mantri

Report No. : MSKPL/FD/2023-24/54FA53

Sample No.: MSKNB/FD/2023-24/02/4KD204

#### RESULT

Chemical		KEGUL		
SI No.	Parameter	UOM		
4	Arsenic as As		Method	Result
2	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
-4	Colour	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
5	Copper as Cu	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
6	Cyanide as CN	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
7	Fluoride as F	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02)
8		mg/l	IS 3025 (Part 60)	BDL(DL:0.2)
9	Hexavalent Chromium (as Cr+6)	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
10	Lead as Pb	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
11	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.003)
12	Mercury as Hg	mg/l	IS 3025 (Part 48)	
13	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	BDL(DL:0.0002)
19	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.4)
			TO SUED (FBILZ)	BDL(DL:0.02)

Opinion:

NA

Statement of Conformity

END.

Mix Athlysie Saha, Mr. Piali Genguly

Sir Exir Chamist Executive Chemist

Authoritist Signatory

Designation

lead Office:

Direignation

Shrach/ Centré (Sith Fiber), 748, A.J.C. Bose Road, Koltata - 700016, West Borget, India. Tel.: 91 33.40143000 / 22650007 Fax: 91.33 22650006 Email: info@mitrals.com Website: www.mitrals.com

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West Bengal Tel.: +91 7044036120

Email: udayanlab@mitrask.com







Doc No. MSK/GEN/19/07

TESTING + INSPECTION

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ULR: TC-695024000002272F

Signature

Name

Designation

Ms. Alrayou Saha, Ms. Pieli Garquiy Sr Exe Chemist, Executive Chemist

Afraylesam P.g.

Authorized Signatory:

Signature

Designation

Lab in charge

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The reserved part of sample(s) for Overficial enabytic (Sor. Build & Ciquit Waters) shall be retained for 15 days from the date of issue of the Test Report.

The Report of sample(s) for Microbiological enabytic (Non - permission sample(s) Food, Sealled Water, Sealed Water, Sealed body shall be retained for 15 days from the date of issue of the Test Report. Penallable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The Report of the Test Report.

lead Office:

Shrachi Centre (Str) Floor), 74B, A.J.C. Bose Roed, Kalkata -700016, Wint Bangal, India. Tal.: 91-33-40143000 / 22650007 Fax: 91-33-22650006 Email: info@mitrask.com Website: www.mitrask.com

Page 2 of 2

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Tel.: +91 7044036120

Email: udayanlab@mitrask.com

Name & Address of Customer:

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

Tata Steel Ltd.(MGM)\_Joda West







Doc No : MSK/GEN/19/07

TESTING \* INSPECTION

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ULR: TC-695024000002272F

### TEST REPORT

Report No.:

Date:

MSKPL/FD/2023-24/54FA53 12/02/2024

Sample No. :

MSKNB/FD/2023-24/02/4KD204

Date of receipt of sample:

03/02/2024

Date(s) of performance:

03/02/2024 - 08/02/2024

Location of performance of

Permanent Facility

Reference No. & Date :

Discipline:

3000156017/056, Date - 16/09/2023

Biological

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

2. Description of sample	Water & Residue in Water
Unique Identification of sample(If any)	Surface Water
4. Date of sampling	NA NA
5. Place of sampling	02/02/2024
5. Environmental conditions during sampling & Transport	Tindharia baitarani River Down Stream
, Sampling Plan & Method used	(2 - 5 ) deg C Cold chain maintained
3. Identification of the personnel performing sampling by MSK	IS 17614 (P-25) 2022
or the personner performing sampling by MSK	Mukesh Haiburu, Akash Ku. Sethy, Pratik Ku. Mantri

Report No.: MSKPL/FD/2023-24/54FA53

Sample No.: MSKNB/FD/2023-24/02/4KD204

#### RESULT

licro Biology		RESULT		
SI No.	Parameter	UOM	1 1000	
1	Tabel andfa		Method Standard methods for the examination	Result
	Total coliform	MPN/100ml	of water & waste water, 24th edth, 92218	6.8

Opinion:

NA NA

Statement of Conformity

END

Reviewed By:

Signidure

Ms. Maitreyee Chakrabony

Designation

Executive Microbiologian

Authorized Signatory:

Signature

Executive Microbiologist

te results relate only to the item(s) tested

to results relate only to the reproduced except in full, without the permission of Mitra S.K. Private Limited, to restrict on a sample(s) for chemical energies (Non - pershable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Pershable sample(s) shall be retained 2 days in the date of the Test Report.

im the date of saue of the Test Report.

The reserved part of sample(s) for chemical enalysis (Soit, Solid & Liquid Waste) analysis for nearred for 15 days as per CPCB guideline & (Air) 1 morth from the date of issue of the Test Report is reserved part of sample(s) for Microbiological enalysis (Non - penelsible sample(s) Food, Sealed Water, Sealed lixed) shall be retained for 15 days from the date of issue of the Test Report.

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ANALYSIS REPORT OF SUPER STATE		16.02.2024
Name of the Client	ANALYSIS REPORT OF SURFACE WATER	
Name of the Mines	M/s. TATA STEEL LIMITED	
Date of sampling	Tiringpahar Iron & Manganese Mines (TIMM) 02.02.2024	
Location	Tindharia Down Stream Baitarani River (TIMM)	

### CHEMICAL ANALYSIS OF WATER

SI. No.		Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/I	APHA (24th Edition), 5210B	CPCB	
2	Calcium (as CaCo3)	mg/l		30	<2.0
3	Chemical Oxygen Demand (COD)	-	APHA (24th Edition), 2340 C	-	16
4	Chloride (as CI )	mg/l	APHA (24th Edition), 5220B	250	<4.0
5	DO DO	mg/l	APHA (24th Edition), 4500 -Cl B	-	8
6		mg/l	APHA 24th Edition, 2023 4500-O-C/G	***	
7	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		6.5
	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	124
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	3	0.49
9	Odour	mg/l	APHA (24th Edition), 2150B		4.8
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	Agreeable	Agreeable
11	Phenolic Compounds ( as C6H5OH)			10	<5.0
12	Salinity Salinity	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	< 0.001
3		PSU	APHA (24th Edition), 2520B	4	0.064
4	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	1444	
5	Total Alkalinity	mg/I	APHA (24th Edition), 5210B		2.8
	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		36
6	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C	100	72
7	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50.00	36
8	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	50/100	4.2
				5.5-9.0	7.75

Checked by: 659

For Mitra S. K. Private Limited

(Shau Chang

Authorized Signatury

Address of Laboratory:

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





DOC NO. MSK/GEN/10/07



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TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/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/NEFA50

17/02/2024

MSKNB/FD/2023-24/02/QHL4DC

07/02/2024

07/02/2024 - 17/02/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

We hareby 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	
3. Unique Identification of sample(if any)	Surface Water NA
4. Date of sampling	06/02/2024
5. Place of sampling	Beitarani River Kilandra Village JWIMM
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	Kshitish Kr Mohanty

Report No.: MSKPL/FD/2023-24/NEFA50

Sample No.: MSKNB/FD/2023-24/02/QHL4DC

#### RESULT

hemical				
St No.	Parameter	UOM	Method	b
1	Arsenic as As	mg/l	1170159	Result
2	Boron as B		IS 3025 (Part 2)	BDL(DL:0.005)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
4		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)	
8	Hexavalent Chromium (as Cr+6)	mg/l		0.41
9	Lead as Pb		IS 3025 (Part 52) Sec2	BDL(DL:0.01)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
11		mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
12	Nilrate as NO3	mg/I	APHA (24th EDITION) 4500-NO3- B	1.89
13	Zinc as Zn	rng/l	IS 3025 (Part 2)	BDL(DL:0.02)

: noinigC

NA

Statement of Conformity NA

END -

Reviewed By

Personation

Mr. Atrayee Saha, Ms. Piet Ganguly Sr. Eile. Chemist, Executive Chemist **Authorized Signatory** 

Designation

ead Office:

Straichi Centre (5th Ficor), 748, A.J.C. Bose Road, Kolketa -700016. West Bengat, India. Tel. | 91-33-40143000 / 22850007 Fax ; 91-33-22850008 Email : info@mitrask.com Website : www.mstrask.com

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









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ULR: TC-895024000002539F

Reviewed By:

Signature

Assaya Saun 1 · Mr. Attayee Sahs, Ms. Pieli Ganguly

Designation

5 Sr. Exe. Chemist, Executive Chemist

Authorized Signatory.

Stantiture

Name

Dr. Source

Designation Last in charge

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The reserved part of sample(s) for themical analysis (Sol, Sold & Liquid Wester) shall be retained in the Test Report.

The reserved part of sample(s) for Microtiological analysis (Sol, Sold & Liquid Wester) shall be retained for 15 days from the date of issue of the Test Report.

The reserved part of sample(s) for Microtiological analysis (Non - personable sample(s) Food, Sealed Water, Sosied Sood) shall be retained for 15 days from the date of same of the Test Report.

Personable sample(s) shall be retained analysis (Sol, Sold & Liquid Wester) shall be retained as a sample of the Test Report.

Address of Laboratory:

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





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ULR: TC-695024000002539F

Dico No.: MSK/GEN/19/07

### 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/NEFA50

17/02/2024

MSKNB/FD/2023-24/02/QHL4DC

07/02/2024

07/02/2024 - 12/02/2024

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		
3. Unique Identification of sample(if any)	Surface Water	
4. Date of sampling	NA N	
5. Place of sampling	06/02/2024	
6. Environmental conditions during sampling & Transport	Baitarani River Kilandra Village JWIMM	
7. Sampling Plan & Method used	(2 - 5) deg C Cold chain maintained	
8. Identification of the personnel performing sampling by MSK	JS 17614 (P-25) 2022	
an paradimer performing sampling by MSK	Kshitish Kr Mohanty	

Report No.: MSKPL/FD/2023-24/NEFA50

Sample No.: MSKNB/FD/2023-24/02/QHL4DC

#### RESULT

or M	District Charles			
SI No.	Parameter	NOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edfn, 9221B	11

Opinion:

NA

Statement of Conformity

END

Roystowad By

Ms. Matroyee Chakroborty **Executive Microbiologist** 

**Authorized Signate** 

Signature Nome

Ms Manreyon Chakraborty

Designation

Executive Microbiologist

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

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AVP.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/20	Date: 20.03 a	024
	ANALYSIS REPORT OF SURFACE WATER	.02.2
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 MANGAINESE MINES (JWIMM)	
Location	Baitarni River Kandra Village (JWIMM)	

### CHEMICAL ANALYSIS OF WATER

SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per	Results
1	Biochemical Oxygen Demand (as BOD)	mg/I	APHA (24th Edition), 5210B	СРСВ	0.0
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	30	<2.0
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	TT-	11
4	Chloride (as CI )	mg/l	APHA (24th Edition), 4500 -Cl B	250	<4.0
5	DO	mg/l		-	4
6	Electrical conductivity	us/cm	APHA 24th Edition, 2023 4500-0-C/G		6.8
7	Iron (as Fe)		APHA (24th Edition), 2510B	1444	138
8	The state of the s	mg/l	APHA (24th Edition), 3500 Fe B	3	<0.05
9	Magnesium (as Mg) Odour	mg/l	APHA (24th Edition), 3500 Mg B		2.9
		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 C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	-	
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		0.071
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		1.1
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		68
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C		82
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	F0/400	40
18	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	50/100	14.4
-1	77.77.4.8	- Time	10 10 2-10 Eulion, 2023 4500-H+B	5.5-9.0	7.06

Checked by:-

For Mitra S. K. Private Limited

Raudhary

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





Doc No. MSKIGEN/19/07

TESTING . INSPECTION

Scan for Portal

ULR: TC-695024000002540F

### 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/Q2FA58

17/02/2024

MSKNB/FD/2023-24/02/SDV50M

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 2. Description of sample	Water & Residue In Water
3. Unique Identification of sample(if any)	Surface Water
4. Date of sampling	NA NA
5. Place of sampling	06/02/2024
5. Environmental conditions during sampling & Transport	Sona River before confluence with Baitarani River
7. Sampling Plan & Method used	(2-5) deg C Cold chain maintained
3. Identification of the personnel performing sampling by MSK	IS 17614 (P-23) 2021
sampling by MSK	Kshitish Kr Mohanty

Report No.: MSKPL/FD/2023-24/Q2FA58

. Sample No.: MSKNB/FD/2023-24/02/SDV50M

### RESULT

SI No.	Parameter			
1		UOM	Method	Result
2	Arsenic as As	mg/l	IS 3025 (Part 2)	
3	Boron as B	mg/l	IS 3025 (Part 2)	BDL(DL:0.005
4	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
5	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:0.001)
6	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:1.0)
7	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	BDL(DL:0.02) BDL(DL:0.02)
8	Fluoride as F	mg/l	IS 3025 (Part 60)	0.34
9	Hexavalent Chromium (as Cr+6) Lead as Pb	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
11	Mercury as Hg	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Nitrate as NO3	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002)
13	Zinc as Zn	mg/l	APHA (24th EDITION) 4500-NO3- B	1.56
	CHIC 85 ZII	mg/l.	IS 3025 (Part 2)	BDL(DL:0.02)

pinion:

NA.

statement of Conformity

END

leviewed By:

Mis Attayon Saha, Mis Pinli Gariguly

· Sr. Exn. Chemist, Executive Chemist

Authorized Signalury

Signature

Diesignation

ead Office:

Strachi Centre (5th Floor), 748, A.J.C. Bose Road, Kolkata -700010. West Bangal, India. Tel.: R1 33 40143000 / 22650007 Fax: 91 33 22650006 Email "rifo@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





Doc No.: MSKIGEN/19/07

TESTING + (NSPECTION

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ULR: TC-695024000002540F

Reviewed By:

Signeture

Atrayer Sour Ma Arrayon Saha, Mr. Pinli Geriguly Name

Designation

Sc. Exe. Chemist, Executive Chemist

Authorized Signatory:

Designation

Lab ly charge

This results nestle only to the knows) issued.

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The reserved part of samples(s) for inherical analysis (Social Subject Social Subject Social Subject Social Social Subject Social Socia

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

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





Dog No.: MSKIGEN/19/07

TESTING . INSPECTION

Sean for Portal

ULR: TC-695024000002540F

### 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/Q2FA58

17/02/2024

MSKNB/FD/2023-24/02/SDV50M

07/02/2024

07/02/2024 - 12/02/2024

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:

Group     Description of sample	Water & Residue in Water
3. Unique Identification of sample(if any)	Surface Water
4. Date of sampling	NA NA
5. Place of sampling	06/02/2024
6. Environmental conditions during sampling & Transport	Sona River before confluence with Baitarani River
7. Sampling Plan & Method used	(2 - 5) deg C Cold chain maintained
I Identification of the comment	IS 17614 (P-25) 2022
. Identification of the personnel performing sampling by MSK	Kshitish Kr Mohanty

Report No.; MSKPUFD/2023-24/Q2FA58

Sample No.: MSKNB/FD/2023-24/02/SDV50M

#### RESULT

ficro Biology		KESULI		
SI No.	Parameter	UOM	No. of Contract of	
1	Chellin .		Method	Result
	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 92218	14

Opinion:

NA

Statement of Conformity

END

Ms. Mattreyee Chakrabotty

Executive Microbiologist

Authorized Sign

Signature

Mamie

Ms. Motreyee Chakraborry

Designation

Executive Microbiologies

e results relate only to the sem(s) tested

e results reside only to the mention seeted.

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In the reserved part of sample(s) for channels analysis (Non - perishable sample(s) Food, Weter) shall be relained 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.

in the date of two Test Report.

In red date of ampliers for character analysis (Soil, Soild & Liquid Waster) stall be retained for 15 days as per CPC8 guideline & (Air) 1 month from the date of issue of the Test Report.

In 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.

Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata -700016, West Bengal, India. Tel.: 91:33.401430007.22650007 Fax: 91:33.22550006. Email: info@mitrask.com Website: www.mitrask.com

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



T : +91 94370 09815,94370 09820,94370 75269 E : barbil@mitrask.co.in W : www.mitrask.com

	ANALYSIS REPORT OF SURFACE WATER  Date: 20.02.202
Name of the Client	M/s. TATA STEEL LIMITED
Name of the Mines Date of sampling	JODA WEST IRON & MANGANESE MINES (IWIMM)
Location	O6.02.2024  Sona River Kandra Village before confluence with Baitarni River (JWIMM

### CHEMICAL ANALYSIS OF WATER

7 8 9 10	Biochemical Oxygen Demand (as BOD)  Calcium (as CaCo3)  Chemical Oxygen Demand (COD)  Chloride (as Cl )  DO  Electrical conductivity  Iron (as Fe)	mg/l mg/l mg/l mg/l	APHA (24th Edition), 5210B  APHA (24th Edition), 2340 C  APHA (24th Edition), 5220B  APHA (24th Edition), 4500 -CI B	250	<2.0 8 <4.0
3 4 5 6 7 8 9	Chemical Oxygen Demand (COD) Chloride (as Cl ) DO Electrical conductivity	mg/l mg/l mg/l	APHA (24th Edition), 2340 C APHA (24th Edition), 5220B APHA (24th Edition), 4500 -CLB	250	8
4 5 6 7 8 9	Chemical Oxygen Demand (COD) Chloride (as Cl ) DO Electrical conductivity	mg/l mg/l mg/l	APHA (24th Edition), 5220B  APHA (24th Edition), 4500 -CLB	250	
5 6 7 8 9	Chloride (as Cl )  DO  Electrical conductivity	mg/l mg/l	APHA (24th Edition), 4500 -CI B		c4.n
6 7 8 9	DO Electrical conductivity	mg/l		1940	777.0
7 8 9	Electrical conductivity	-	A Part a service and a service	1	12
7 8 9			APHA 24th Edition, 2023 4500-0-C/G	-	7.1
9 10 0	Iron (as Fe)	us/cm	APHA (24th Edition), 2510B		
9		mg/I	APHA (24th Edition), 3500 Fe B	3	127
10	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		0.7
	Odour	mg/L	APHA (Z4th Edition), 2150B	-	2.9
11 .	Oil and Grease	mg/l	APHA (24th Edition), 5520B	Agreeable	Agreeable
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C	10	<5.0
1.72	Salinity		(Chloroform Extraction)	1	< 0.001
10	Sulphate ( as SO4 )	PSU	APHA (24th Edition), 2520B		0.066
	Total Alkalinity	mg/l	APHA (24th Edition), 4500 SO42-E		4.4
-		mg/l	APHA (24th Edition), 5210B	-	48
	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		
- 1	Total Hardness (as CaCO3 )	mg/l	APHA (24th Edition), 2340 C		76
0	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	32
8 b		None	APHA 24th Edition, 2023 4500-H+B	5,5-9.0	15.2

Checked by: (89)

For Mitra S. K. Private Limited

Bhandhamy

Authorized Signatory

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

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

West Bengal

Tel : +91 7044038120

Email: udayanlab@mitrask.com

Tata Steel Ltd.(MGM)\_Joda West







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TESTING + INSPECTION

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ULR: TC-695024000002641F

#### TEST REPORT

Report No.:

Date: Sample No.: 17/02/2024

MSKNB/ED/2023-24/02/B04A8H

MSKPL/ED/2023-24/B13BB2

Date of receipt of sample:

07/02/2024

Date(s) of performance:

07/02/2024 - 17/02/2024 Permanent Facility

Location of performance of

3000156017/056, Date - 16/09/2023

Reference No. & Date: 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 NA
4. Date of sampling	06/02/2024
5. Place of sampling	Bamebari Oil sepration Near 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	Pratik Kr Mantri
9. Field Equipments Used	N/A

Report No. :

MSKPL/ED/2023-24/B13BB2

Sample No. :

MSKNB/ED/2023-24/02/B04A8H

#### RESULT

Chemical				
SI No.	Parameter	MON	Method	Result
1	Arsenic as (As)	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.005)
2	Boron (as B)	mg/I	APHA (24th Edition) ,4500 - B C	BOL(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	0.28
6	Cyanide ( as CN)	mg/l	APHA (24th Edition), 4500 GN - F	BDL(DL:0.02)
7	Fluoride (as F)	mg/l	APHA (24th Edition), 4500 F- C/D	0.3
8	Hexavalent Chromium (as Cr+6)	mg/i	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	BDL(DL:0,05)
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	2.6
13	Zinc (as Zn)	mg/l	APHA (24th Edition), 3120 B	0.07

Opinion:

NA NA

Statement of Conformity

Reviewed By

Mr. Sómraith Bardhan, Mr. Pieli Gangui

nith Bardhan Mis Plat Genout

Description

Technical in charge. Exe. Chemist

Authorized Signals

Technical in charge, Exe. 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.

END

The reserved part of sample(x) for chemical analysis (Soil, Soild & 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(x) for Microbiological analysis (Non - pasietable sample(x) Food. Seeled food) shall be retained for 15 days from the date of issue of the Test Report.

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

Tal. 91 33 40140000 / 22650007 Fax; 91 33 22650008 Ermil: info@mitrask.com Websits: 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





Doc No.: MSK/GEN/19/07

TESTING . INSPECTION



ULR: TC-695024000002641F

## 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/B13BB2

17/02/2024

MSKNB/ED/2023-24/02/B04A8H

07/02/2024

07/02/2024 - 12/02/2024

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	Pollution & Environment	
2. Description of sample	Effluent Water	
3. Unique Identification of sample(if any)	NA NA	
4. Date of sampling	06/02/2024	
5. Place of sampling	Bamebari Oil sepration Near 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	Pratik Kr Mantri	
9. Field Equipments Used	N/A	

Report No.: MSKPL/ED/2023-24/B13BB2

Sample No.: MSKNB/ED/2023-24/02/B04A8H

#### RESULT

licro Biology					
SI No.	Parameter	MOM	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 -

Raviewed By

Designation Executive Microbiologist Authorized Signatory

Designation

**Executive Microbiologist** 

The results relate drift to the item(s) limited.

This Test Report shall not be approduced except in full, without the permission of Mitre 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.

Persihable sample(s) stress be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Soild & Liquid Wante) small be retained for 15 days as per CPC8 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, Seuled Bood) shall be retained for 15 days from the date of issue of the Test Report.

Strachi Cerare (5th Floor), 74B, A.J.C. Bose Flood, Kolkata - 700016, West Bengal, India Head Office:

Tel: 91 33 40143000 / 22650007 Fax: 91 33 22650008 Email: info@mirask.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 75269

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

Report No. MSKGL/ED/202	3-24/005087	Date: 22.02.2024
AN.	ALYSIS REPORT OF WASTE/EFFLUENT WATER	Direct Entraction
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	Name of the Mines BAMEBARI IRON & MANGANESE MINES (BIMM)	
Date of sampling	06.02.2024	
Location	Bamebari Oil Separation Water Near Garage (BIMM)	

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

SL No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	15
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	-	38
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	60
4	Chloride (as CI )	mg/l	APHA (24th Edition), 4500 -Cl B	-	20
5	DO	mg/I	APHA 24th Edition, 2023 4500-0-C/G	122	5.8
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	***	340
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	0.11
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		16
9	Odour	mg/l	APHA (24th Edition), 21508	Agreeable	Agreeable
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	10	6.8
11	Phenolic Compounds ( as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	-	0.174
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		3
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	-	140
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	+++	204
16	Total Hardness (as CaCO3)	mg/l	APRA (24th Edition), 2340 C	***	162
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	76.3
18	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.4

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

Name & Address of Customer:

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

Tel.: +91 7044036120

Email: udayanlab@mitrask.com

Tata Steel Ltd.(MGM) Joda West







Dor: MSK/GEN/19/07

TESTING \* INSPECTION

Scan for Portal

ULR: TC-695024000002642F

### 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/K13BBQ

17/02/2024

MSKNB/ED/2023-24/02/DUDA7E

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	Pollution & Environment
2. Description of sample	Effluent Water
3. Unique Identification of sample(if any)	NA NA
4. Date of sampling	06/02/2024
5. Place of sampling	Bamebari STP In Let
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained.
7. Sampling Plan & Method used	APHA 24th edition,2023
B. Identification of the personnel performing sampling by MSK	Pratik Kr Mantri
9. Field Equipments Used	N/A

Report No.:

MSKPL/ED/2023-24/K13BBQ

Sample No.:

MSKNB/ED/2023-24/02/DUDA7E

#### RESULT

Chemical				
SI 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	BOL(DL:0.02)
7	Fluoride ( as F )	mg/l	APHA (24th Edition), 4500 F- C/D	0.37
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	1.14
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	0.1
pinion:	NA			

Statement of Conformity

END

Reviewed By:

Signature

Name Designation afti Barchan, Ms. Piuli Ganguiy

Technical In charge Exe Chemist

Authorized Signatory

Technical in charge, Exe. Chomist

The results retate only to the kerr(s) tested.

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This reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained 2 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 chamical enalysis (Soil, Soild & Liquid Wester) 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 chamical enalysis (Soil, Soild & Liquid Wester) 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 - pointshable sample(s) Food, Soilled Water, Sessed food) shall be retained for 15 days from the date of issue of the Test Report.

Strachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India. Tel. : 91 33 40143000 / 22650007 Fax : 91 33 22650006 Head Office: Email : krfo@mirask.com Website : www.mitresk.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





Doc No. MSK/GEN/19/07

Scan for Portal

ULR: TC-695024000002642F

#### 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/K13BBQ

17/02/2024

MSKNB/ED/2023-24/02/DUDA7E

07/02/2024

07/02/2024 - 12/02/2024

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	Pollution & Environment
2. Description of sample	Effluent Water
3. Unique Identification of sample(if any)	NA NA
4. Date of sampling	06/02/2024
5. Place of sampling	Bamebari STP In Let
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	Pratik Kr Mantri
9, Field Equipments Used	N/A

Report No.: MSKPL/ED/2023-24/K13BBQ

Sample No.: MSKNB/ED/2023-24/02/DUDA7E

#### RESULT

licro Biology	(			
Si No.	Parameter	NOM	Method	Result
4	Total coliform	MPN/100m)	Standard methods for the examination of water &	
		3000000000	waste water, 24th edtn, 9221B	26

Opinion:

NA

Statement of Conformity

NA

END

Reviewed By:

Sonature

Ms. Mairreyee Chakraborty

Designation -Executive Microbiologist Authorized Signatory

Executive Microbiologist

The results relate only to the item(s) basted

The results relate only to the fillent(s) beand.
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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 & 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 reserved part of sample(s) for Microbiological analysis (Solid & Liquid Water) Food, Sealed Water, Sealed Rood) shall be retained for 15 days from the date of issue of the Test Report.

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



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W: www.mitrask.com

Report No. MSKGL/ED/202	3-24/005088 Date: 22.02.2	024
AN.	ALYSIS REPORT OF WASTE/EFFLUENT WATER	0.44
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines BAMEBARI IRON & MANGANESE MINES (BIMM)		
Date of sampling	06.02.2024 (BIMM)	_
Location	Bamebari STP Inlet (BIMM)	-

## CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SL No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	52
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	***	34
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	192
4	Chloride (as CI )	mg/l	APHA (24th Edition), 4500 -CI B		40
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G		5.1
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	***	402
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	1.8
В	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	-	12
9	Odour	mg/l	APHA (24th Edition), 2150H	Agreeable	Disagreeable
10	Oil and Grease	mg/I	APHA (24th Edition), 5520B	10	5.2
11	Phenolic Compounds ( as C6H5OH)	mg/l	APRA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	-	0.206
13	Sulphate ( as SO4 )	tng/l	APHA (24th Edition), 4500 SO42-E		5.9
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B	***	148
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		338
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	136
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	39,8
18	pH value at 23,7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.14

Checked by:{

For Mitra S. K. Private Limited

**Authorized Signatory** 

Boudhary

#### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

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

West Bengal Tel : +91 7044036120

Email: udayanlab@mitrask.com

Tata Steel Ltd.(MGM)\_Joda West







Scan for Portal

ULR: TC-695024000002643F

DIC MEKIGEN/19/07

## 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/X13BB3

17/02/2024

MSKNB/ED/2023-24/02/TD8A9K

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	Pollution & Environment
2. Description of sample	Effluent Water
3. Unique Identification of sample(if any)	NA NA
4. Date of sampling	06/02/2024
5. Place of sampling	Bamebari STP Out Let
6. Environmental conditions during sampling & Transport	(2 - 5) deg C Cold chain maintained.
7. Sampling Plan & Method used	APHA 24th edition,2023
B. Identification of the personnel performing sampling by MSK	Pratik Kr Mantri
9, Field Equipments Used	N/A

Report No.:

MSKPL/ED/2023-24/X13BB3

Sample No.:

MSKNB/ED/2023-24/02/TD8A9K

#### RESULT

Chemical				
SI No.	Parameter	UOM	Method	Result
1	Arsenic as (As)	mg/t	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	0.21
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	0.11
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	0.08

Opinion:

Statement of Conformity NA

END -

Raviewed By:

Designation

Technical In charge, Exe. Chemist

Authorized Signator

Designation

Technical In sharps, Exe. Chemist

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The reserved part of sample(s) for chamical 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 Weste) shall be relained 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, Sesied Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Address of Laboratory:

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





Doc No.: MSK/GEN/19/07

TESTING + INSPECTION



ULR: TC-695024000002643F

### 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:

MSKPUED/2023-24/X138B3

17/02/2024

MSKNB/ED/2023-24/02/TD8A9K

07/02/2024

07/02/2024 - 12/02/2024

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	Pollution & Environment	
2. Description of sample	Effluent Water	
3. Unique Identification of sample(if any)	NA NA	
4. Date of sampling	06/02/2024	
5. Place of sampling	Bamebari STP Out Let	
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	Pratik Kr Mantri	
9. Field Equipments Used	N/A	

Report No.: MSKPL/ED/2023-24/X13BB3

Sample No.: MSKNB/ED/2023-24/02/TD8A9K

#### RESULT

licro Biology				
SI No.	Parameter	UOM	Method	Result
1	Total coliform	MPN/100ml	Standard methods for the examination of water &	HOOUIL
		700.740.740.000	waste water, 24th edin, 9221B	11

Opinion:

NA

Statement of Conformity

END -

Reviewed By.

Signature

Ms. Matrofee Chakraborty Designation Executive Microbiologist

Authorized Signatory

Signature

es Chakruborty

Designation

Executive Microbiologist

The results raiste only to the item(s) tested

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The reserved part of sample(s) for chamical 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 chamical analysis (Soil, Soild & 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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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/202	3-24/005089	Date: 22.02.2024
AN	ALYSIS REPORT OF WASTE/EFFLUENT WATER	Date: 22.02.2024
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)	
Date of sampling	06.02.2024 (BIMM)	
Location	Bamebari STP Outlet (BIMM)	

## CHEMICAL ANALYSIS OF WATER AS PER IS: 2490

SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	27
2	Calcium (as CaCo3)	mg/I	APHA (24th Edition), 2340 C		
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B		40
4	Chloride (as Cl )	mg/l	APHA (24th Edition), 4500 -CI B	250	116
5	DO	mg/l	APHA 24th Edition, 2023 4500-0-C/G		38
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B	794	6.2
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	390
В	Magnesium (as Mg)	mg/l			1.2
9	Odour	mg/i	APHA (24th Edition), 3500 Mg B APHA (24th Edition), 2150B		14
10	Oil and Grease	mg/l	APHA (24th Edition), 5520B	Agreeable	Disagreeable
11	Phenolic Compounds ( as C6H5OH)	mg/I	APHA (24th Edition), 5530C	10	3.6
12			(Chloroform Extraction)	1	< 0.001
13	Salinity	PSU	APHA (24th Edition), 2520B	+	0.200
14	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	-4-	2.9
15	Total Alkalinity	mg/I	APHA (24th Edition), 5210B		144
177	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	-	240
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	_	158
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	29.4
18	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.16

Checked by:

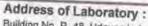
For Mitra S. K. Private Limited

**Authorized Signatory** 

Shaudham

DOE NO. MSK/GEN/19/07





Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

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

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com

Tata Steel Ltd.(MGM)\_Joda West



TC-6950



ULR: TC-695024000002471F

## TEST REPORT Name & Address of Customer:

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/SEFBAB

16/02/2024

MSKNB/FD/2023-24/02/8RE50J

07/02/2024

07/02/2024 - 16/02/2024

Permanent Facility

3000156017/056, Date - 15/09/2023

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	Drinking Water	
3. Unique Identification of sample(if any)		
4. Date of sampling	NA NA	
5. Place of sampling	06/02/2024	
6. Environmental conditions during sampling & Transport	Barnebari Canteen R.O. Water	
7. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained	
B. Identification of the passes of	IS:17614( P-5) 2022	_
3. Identification of the personnel performing sampling by MSK	Lalin Naik	

Report No.: MSKPL/FD/2023-24/SEFBA8

Sample No.: MSKNB/FD/2023-24/02/8RE50J

#### RESULT

hemica	li i					
SI No.	Parameter	HOM	Method	Appropriate to the second		
t	Silver as Ag	mg/l		Acceptable Limit	Permissible Limit	Result
2	Zinc as Zn	mg/l	IS 3025 (Part 2)	0.1	No Relaxation	BDL(DL:0.00
3	Cadmium as Cd		IS 3025 (Part 2)	5	15	BDL(DL:0.0
4		rng/l	IS 3025 (Part 2)	0.003	No Relaxation	BDL(DL:0.00
5	Colour	Hazen	IS 3025 (Part 4)	5	15	BDL(DL 1.0
6	Copper as Cu	mg/l	IS 3025 (Part 2)	0.05	1.5	BDL(DL:0.02
7	Cyanide as CN Fluoride as F	mg/l	IS 3025 (Part 27) Sec1	0.05	No Relaxation	BDL(DL:0.0
8		mg/l	IS 3025 (Part 60)	1.0	1.5	0.32
	Lead as Pb	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.00
9	Manganese as Mn	mg/i	IS 3025 (Part 2)	0.1	0.3	)
10	Mercury as Hg	mg/l	IS 3025 (Part 48)	0.001		BDL(DL:0.02
11	Nickel (as NI)	mg/i	IS 3025 (Part 2)		No Relaxation	2)
12	Nitrate as NO3		APHA (24th EDITION) 4500-	0.02	No Relaxation	BDL(DL:0.01
10		mg/l	NO3- B	45	No Relaxation	0.88
13	Selenium as Se	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.00
14	Silica (as SiO2)	mg/l	IS 3025 (Part 35)	Not Specified		)
15	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	0.05	Not Specified	BDL(DL:0.1)
16	Arsenic as As	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.01) BDL(DL:0.005

Reviewed By:

Signature

Atrayee Sun P.S.

Designation

Ms Atrayee Saha Ms. Pial Ganguly Sr. Exe. Chemist, Executive Chemist Authorized Signatory

Signature

Designation

lead Office:

Shrache Centre (5th Fittor), 748, A.J.C. Boss Road, Kolkats +700016, West Bengal, India Tet.: 91 33 40145000 / 22850007 Fax: 91 33 22850006 Email: Info@mitrask.com Website: www.marask.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







Doc No.: MSK/GEN/19/07

TESTING . INSPECTION

Scan for Portal ULR: TC-695024000002471F

Opinion:

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

Statement of Conformity

END -

Ms. Atrayee Saha, Ms. Plad Genguly Designation

Sr. Exe. Chemist, Executive Chemisi

Aloayee Sam P. gry

Authorized Signatory

Signature

Designation

Lab in charge

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In the date of issue of the Test Report.
In the date of issue of the Test Report.
In the date of issue of the Test Report.
In the date of issue of the Test Report.
In the date of issue of the Test Report.
In the retained 2 days as per of sample(s) for chamical analysis (Soil, Soild & Liquid Weste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report analysis (Non - perishable sample(s) Fand, Sealed Willer, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

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

Shradh Centre (5th Fibor), 74B, A.J.C. Bose Roed, Kolkata - 700016, West Bengal, India. Tel. 91:33-40143000 / 22650007 Fax: 91:33 22650008 Email: info@mitrask.com Website : www.mitrask.com

Page 2 of 2

Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





Scan for Portal

ULR: TC-695024000002471F

Doc No: MSK/GEN/10/07

TESTING . INSPECTION

## 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/SEFBAB

16/02/2024

MSKNB/FD/2023-24/02/8RE50J

07/02/2024

07/02/2024 - 08/02/2024

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:

2. Description of sample	Water & Residue in Water
3. Unique Identification of sample(if any)	Drinking Water
4. Date of sampling	NA NA
. Place of sampling	06/02/2024
Environmental conditions during sampling & Transport	Barnebari Canteen R.O. Water
. Sampling Plan & Method used	(2 -5) deg C Cold chain maintained
. Identification of the personnel performing sampling by MSK	IS:17614( P-25) 2022
state personnel performing sampling by MSK	Lalin Naik

Report No.: MSKPL/FD/2023-24/SEFBA8

Sample No.: MSKNB/FD/2023-24/02/8RE50J

#### RESULT

SI No.	Parameter	1 2 2 2 1				
4		UOM	Method	Acceptable Links		-
1	Total Coilform Bacteria	/100mi	JS 15185		Permissible Limit	Result
2	E Coll	/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

HOMESON

Matreyee Chairabony

Executive Microbiologist

Authorized Signitlary:

Ms. Mairreyee Chakraborty

Designation

Executive Microbiologist

e results relate andy to the item(x) feated,
in Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited,
in Test Report and Committee of the Test Report Pertahable sample(x) Food, Weter) shall be retained for 15 days from the date of issue of the Test Report. Pertahable sample(x) shall be retained 2 days.

The date of test and the Test Report.

I reserved part of sample(s) for charmed analysis (Non - pertanable sample(s) Food, Wester) shall be retained for 15 days from the date of issue of the Tost Report.

I reserved part of sample(s) for charmed analysis (Soil, Solid & Liquid Wester) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

I reserved part of sample(s) for Microbiological analysis (Non - pertabable sample(s) Food, Sasted Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report. Shrachi Centre (6th Floor), 749, A.J.C. Bose Road, Kolkala - 700016, West Bengal, India: Tel: 91 33 40143000 / 22650007 Fax: 91 33 22650006 Email: Info@mtrack.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 75269

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Report No. MSKGL/ED/2023	3-24/005044	Date: 20.02.2024
PHASE RESERVED	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	06.02.2024	
Location	Bamebari Canteen R.O. Water (BIMM)	

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

SI.		-	unus.		er IS: 10500- 012	Results
No.	Test Parameters	Unite	Method	Desirable Limit	Permissible Limit	Results
1	Ammonical Nitrogen	mg/l	APHA (24thEdition),4500-NH3-F	0.5	No Relaxation	< 0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition),3500 Ca B	75	200	27
3	Chloride (as Cl )	mg/l	APHA (24th Edition),4500 -Cl B	250	1000	6
4	Odour	Hazen	3025 (Part-5)-1983;Rffm:2012	Agreeable	Agreeable	Agreeable
5	Electrical conductivity	us/cm	APHA (24th Edition),2510B	-	1484	200
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	8
8	Phenolic Compound (asC6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 KB	-	Andre.	<1.0
10	Salinity	PSU	APHA (24th Edition), 2520B			0.102
11	Sodium (as Na)	mg/I	APHA (24th Edition), 3500 Na B	***	-	2.8
12	Sulphate (as SO4)	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	1.4
13	Taste	None	IS 3025 (Part 8)-1983 Rffm;2012_(0)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	88
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	120
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	.600	100
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	6.74

Checked by:-

For Mitra S. K. Private Limited

Blaudhary

Authorized Signatory

#### Address of Laboratory :

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Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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ULR: TC-695024000002472F

Doc No.: MSK/GEN/19/07

TESTING . INSPECTION

#### 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/UXFBAL

16/02/2024

MSKNB/FD/2023-24/02/MCX4EE

07/02/2024

07/02/2024 - 16/02/2024

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	Drinking Water
3. Unique Identification of sample(if any)	NA .
4. Date of sampling	06/02/2024
5. Place of sampling	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	Lalin Naik

Report No. : MSKPL/FD/2023-24/UXFBAL Sample No.: MSKNB/FD/2023-24/02/MCX4EE

#### RESULT

Chemical						
Si 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:0.008
8	Manganese as Mn	rng/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:0.000
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:0.00
13	Silica (as SiO2)	mg/l	IS 3025 (Part 35)	Not Specified	Not Specified	BDL(DL:0.1)
14	Silver as Ag	mg/l	(S 3025 (Part 2)	0,1	No Relaxation	BDL(DL:0.00
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:0.00

Reviewed By:

Signature

Atracje Sain P. Ms. Airpyon Sens, Ms. Plail Ganguly

Sr. Exe Chemist, Executive Chemist

Authorized Signal

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com







Doc No.: MSK/GEN/19/07



Sean for Portal

ULR: TC-695024000002472F

Opinion:

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

Statement of Conformity

- END -

Reviewed By:

Signature

Atrayer Sava P. gayer Ma. Atrayer Sohe, Ms. Pluli Genguly

Designation Sr Exa Chemist, Executive Chemist

Authorized Signatory

Signature

Designation

Est in charge

The result relate only to the tem(s) tested.

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This reserved part of surple(s) for charmoul analysis (Non - pershabte sample(s) Food, Water) 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 Witste) 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) Fixed. Sealed Water, Sealed

Sheach Centre (5th Floor), 748, 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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Address of Laboratory:

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





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MSKNB/FD/2023-24/02/MCX4EE

ULR: TC-695024000002472F

Doc No.: MSK/GEN/19/07

TESTING . INSPECTION

## 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:

07/02/2024 07/02/2024 - 08/02/2024

16/02/2024

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	Drinking Water	
3. Unique Identification of sample(if any)	NA NA	
4. Date of sampling	06/02/2024	
5. Place of sampling	Barnebari WTP Inlet	
5. Environmental conditions during sampling & Transport	(2-5) deg C Cold chain mainfained	
7. Sampling Plan & Method used	IS:17614( P-25) 2022	_
8. Identification of the personnel performing sampling by MSK	Lalin Nalk	

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

Sample No.: MSKNB/FD/2023-24/02/MCX4EE

#### RESULT

Micro Biology								
SI No.	Parameter	HOM	Method	Acceptable Limit	Permissible Limit	Result		
1	Total Coliform Bacteria	/100ml	IS 15185	Not Detectable	112/10/10/10/10			
2	E. Coli	/100ml		The state of the s	Not Applicable	Not Detected		
-	E. COII	7100ml	IS 15185	Not Detectable	Not Applicable	No		

Opinion:

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

Statement of Conformity NA

END -

Reviewed By:

Signature

Ms Malireyee Chakretony

Executive Microbiologist

Authorized Digni

Signature

Ms. Maitreyee Chakraborty

Exercitive Microbiologist

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

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

Personal and of issue of the Test Report.

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

from the date of master or the Test report.
The reserved part of sample(s) for chemical enalysis (Soil, Solid & Liquid Wests) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.
The naserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Fond, Seeled 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	ort No. MSKGL/ED/2023-24/ 005048	
	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	06.02.2024	
Location	Bamebari WTP Inlet (BIMM)	

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

SI.	T'est Parameters		2.4.4	Norms as p	Results	
No.		Unite	Method	Desirable Limit	Permissible Limit	Results
1	Ammonical Nitrogen	mg/l	APHA (24thEdition),4500-NH3-F	0.5	No Relaxation	<0.1
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 -CI B	250	1000	В
4	Odour	Hazen	3025 (Part-5)-1983;Rifm:2012	Agreeable	Agreeable	Agreeable
5	Electrical conductivity	us/cm	APHA (24th Edition),2510B	in the same	100	183
6	Iron (as Fe)	mg/I	APHA (24th Edition),3500 Fe B	0.3	No Relaxation	< 0.05
7	Magnesium (as Mg)	mg/I	APHA (24th Edition), 3500 Mg B	30	100	6,7
8	Phenolic Compound (asC6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 KB	-	-	<1.0
10	Salinity	PSU	APHA (24th Edition), 2520B	-		0.098
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	1.6
13	Taste	None	IS 3025 (Part 8)-1983 Rffm:2012_(0)	Agreeable	Agreeable	Not Agreeable
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	72
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	110
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	92
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	6.56

Checked by:

For Mitra S. K. Private Limited

Blaudhay

Authorized Signatory

Address of Laboratory:

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Doc No: MSKUGEN/19/07

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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/FD/2023-24/A6FBA7

16/02/2024

MSKNB/FD/2023-24/02/MY851F

07/02/2024

07/02/2024 - 16/02/2024

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	Drinking Water	
3. Unique Identification of sample(if any)	NA NA	
4. Date of sampling	06/02/2024	
5. Place of sampling	Barnebari 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	Lalin Naik	

Report No.: MSKPL/FD/2023-24/A6FBA7

Sample No.: MSKNB/FD/2023-24/02/MY851F

#### RESULT

Chemical						
Si No.	Parameter	NOW	Method	Acceptable Limit	Permissible Limit	Result
ì	Arsenic as As	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.00
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/I	IS 3025 (Part 60)	1.0:	1.5	0.30
7	Lead as Pb	mg/l	15 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0,000
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:0.000
10	Nickel (as Ni)	mg/I	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	0.65
12	Selenium as Se	mg/l	(S 3025 (Part 2)	0.01	No Relaxation	BDL(DL-0.005
13	Silica (as SiO2)	mg/i	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)
18	Cadmium as Cd	mg/l	IS 3025 (Part 2)	0.003	No Relaxation	BDL(DL:0.001

Reviewed By:

Signature

Atraya Same P. Gogaly

Designation

Mo. Atrayolic Saho, Mo. Pioli Gorigudy Sr. Exit. Chemist, Executive Chemist Authorized Signatory:

Name

Lab in charge

Head Office: Errachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkala - 700016. Wast Bengal, India. Tel. - 91 33 40143000 / 22650007 Fax: 91 33 22650008 Email: Info@mitrask.com Wabbite: www.mitrask.com

Address of Laboratory:

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







Dac No.: MSIGGEN/19/07

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ULR: TC-695024000002473F

Opinion:

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

Statement of Conformity

END -

Reviewed By:

Signature

Abrayer Sava P. Ga Ms. Alrayee Saha, Ms. Plati Genguly

Designation : Sr. Exe. Chemist, Executive Chemist

Authorized Signatory:

Signature

Designation

Lab In charge

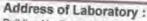
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The reserved part of sample(s) for chemical analysis (Soil, Soild & Liquid Water) shall be retained for 15 days as per CPCB guideline 3 (Air) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Seeled Water, Seeled food) shall be retained for 15 days from the date of issue of the Test Report.

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Page 2 of 2

Doc No. MSKIGEN/13/07





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

TC-6950



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ULR: TC-695024000002473F

## 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/A6FBA7

16/02/2024

MSKNB/FD/2023-24/02/MY851F

07/02/2024

07/02/2024 - 08/02/2024

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	Meta R C. Lt. T. Lt.	
2. Description of sample	Water & Residue in Water	
3. Unique Identification of sample(if any)	Orinking Water	
4. Date of sampling	NA NA	_
5. Place of sampling	06/02/2024	
	Barnebari WTP outlet	_
5. Environmental conditions during sampling & Transport	(2 -5) deg C Cold chain maintained	
7. Sampling Plan & Method used	IS:17614( P-25) 2022	
3. Identification of the personnel performing sampling by MSK	Lalin Naik	

Report No.: MSKPL/FD/2023-24/A6FBA7

NA

Sample No.: MSKNB/FD/2023-24/02/MY851F

#### RESULT

Micro Biol	logy					
SI No.	Parameter	UOM	Method	Absorber 15 in	200000000000000000000000000000000000000	
1	Total Coliform Bacteria	/100ml	IS 15185	Acceptable Limit	Permissible Limit	Result
2		/100ml		Not Detectable	Not Applicable	Not Detected
	75.541	7100mi	IS 15185	Not Detectable	Not Applicable	Not Detected

Opinion:

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

Statement of Conformity

END

Reviewed By:

Designation

Ma. Mattreyee Chakraborty Executive Microbiologist

Authorized Signatory

Signature

Ma. Matteyee Chairmborty

Executive Microbiologist

to results relate only to the item(s) tested, is Test Report shall not be reproduced except in full, without the parmission of Mire S.K. Private Limited.

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

is necessed part of sample(s) for chimical 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, is reserved part of sample(s) for Microbiological energies (Non - perishable sample(s) Food. Sealed Water, Sealed Intro) shall be retained for 15 days from the date of issue of the Test Report. ead Office:

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At/P.O.:BARBIL Ward No-6 Dist. Keonjhar, Odisha - 758035 CIN: LI51909WB1956PTC023037

T +91 94370 09815,94370 09820,94370 75269 E : barbil@mitrask.co.in

W : www.mitrask.com



Report No. MSKGL/ED/202	3-24/005046	Date:20.02,2024
	ANALYSIS REPORT OF DRINKING WATER	Date:20.02,2024
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)	
Date of sampling	06.02.2024 STATES (BIMM)	
Location	Bamebari WTP Outlet (BIMM)	

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

SI. No.	Test Parameters	Unite	Method	Norms as		
		1	V	Desirable Limit	Permissible Limit	Results
	Ammonical Nitrogen	mg/l	APHA (24thEdition),4500-NH3-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 CI )	mg/l	APHA (24th Edition),4500 -Cl B	250	1000	10
4	Odour	Hazen	3025 (Part-5)-1983;Rffm:2012	Agreeable	Agreeable	Agreeable
5	Electrical conductivity	us/cm	APHA (24th Edition),2510B		***	195
6	Iron (as Fe)	mg/l	APHA (24th Edition),3500 Fe B	0.3	No Relaxation	
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	<0.05
8	Phenolic Compound (asC6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 KB	-	-	<1.0
10	Salinity	PSU	APHA (24th Edition), 2520B	-		
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	***	442	0.100
12	Sulphate ( as SO4 )	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	4
13	Taste	None	IS 3025 (Part 8)-1983 Rffm:2012 (0)	Agreeable	Agreeable	<1.0
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	Agreeable
15	'Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500		88
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	1 22.4	2000	116
17	Total Suspended Solid (as TSS)		The state of the s	200	600	80
18	Turbidity	mg/l	APHA (24th Edition),2540D	+		<2.5
19		N.T.U	APHA (24th Edition), 2130B	1	5	<1.0
1.7	pH value at 25 deg C	None	APHA 24th Edition, 2023,4500,H+B	6.5-8.5	No Relaxation	6.58

Checked by:- (

For Mitra S. K. Private Limited

#### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

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





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MSKPL/FD/2023-24/TWFBAJ

07/02/2024 - 16/02/2024

Permanent Facility

MSKNB/FD/2023-24/02/VD54D3

ULR: TC-695024000002474F

Doc No.: MSK/GEN/19/07

TESTING . INSPECTION

### 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:

16/02/2024

07/02/2024

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	Drinking Water
3. Unique Identification of sample(if any)	NA NA
4. Date of sampling	06/02/2024
5. Place of sampling	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	Lalin Naik

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

Sample No.: MSKNB/FD/2023-24/02/VD54D3

#### RESULT

Chemical						
SI No.	Parameter	MOR	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/t	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:0,000
10	Nickel (as Ni)	mg/T	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/t	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

Signature

Abrager Som P. gazzung Ms. Atrayer Sans, Ms. Prati Ganguy

Designation

Head Office:

St. Exe. Chemist. Executive Chemist.

Authorized Signatory

Lab in charge

Shrachi Centre (5th Floot). 74B, A.J.C. Bose Rood, Kolkata - 700015, West Bengal, India: Tel. 91 33 40143000 / 22850007 Fax 91 33 22850008

Page 1 of 2

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

Address of Laboratory:

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Tel.: +91 7044036120

Email: udayanlab@mitrask.com







Doc No.: MSKIGEN/19/07

TESTING . INSPECTION

Scan for Portal

ULR: TC-695024000002474F

Opinion:

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

Statement of Conformity

END -

Reviewed By.

Atrayee Sam P. Go Ms. Atrayer Saha: Ms. Piali Ganguty

Designation : Sr. Exe Chemist Executive Chemist

Authorized Signatory

Signature

Designation

The results relate only to the item(a) tested.
This Test Report shall not be reproduced except in full, without the permission of Micra 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. Pershable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of semple(s) for chemical smallysis (Soil, Solid & Liquid Waste) shall be retained for 1.5 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.
The reserved part of semple(s) for Microbiological analysis (Non - pershable sample(s) Food, Sealed Water, Sealed (bett) shall be retained for 1.5 days from the date of issue of the Test Report.

Head Office:

Strachi Centre (5th Floor), 748, A.J.C. Bose Rosis, Kolketa - 700016, West Bengel, India. Tel.: 91 33 40143000 / 23650007 Fax: 91 33 23650008 Email: info@mitrask.com Website: www.mitrask.com

Page 2 of 2

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





Doc No.: MSK/GEN/19/07

TESTING . INSPECTION



ULR: TC-895024000002474F

## 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/TWFBAJ

16/02/2024

MSKNB/FD/2023-24/02/VD54D3

07/02/2024

07/02/2024 - 08/02/2024

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	Matine 9 Decides in Mat	
2. Description of sample	Water & Residue in Water	
3. Unique Identification of sample(if any)	Drinking Water	
4. Date of sampling	NA .	
5. Place of sampling	06/02/2024	
	Bichakundi WTP Inlet	
5. 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	

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

Sample No.: MSKNB/FD/2023-24/02/VD54D3

#### RESULT

Micro Biol	logy					
SI No.	Parameter	UOM	Method	Acceptable Limit	0	Lav.
1	Total Coliform Bacteria	/100ml	IS 15185	The second secon	Permissible Limit	Result
2	E. Coli	/100ml		Not Detectable	Not Applicable	Not Detected
	2.540	1 71001111	IS 15185	Not Detectable	Not Applicable	Not Detected

Opinion :

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

Statement of Conformity

END -

Reviewed By

Signature

Designation

Ms Malrayee Chatraborty Executive Microbiologisi

Authorized Signs

Signature

Designation

Executive Microbiologist

he results relate only to the Ben(s) tested.

he results relate only to the itien(s) sested.

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The Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The date of issue of the Test Report.

The date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Hood, Waster) shall be retained for 15 days as per CPCB quideline S. (Air) 1 moral from the date of issue of the Test Report.

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

lead Office:

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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/202		Date: 20.02.2024
	ANALYSIS REPORT OF DRINKING WATER	2010212024
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 (WIMM)	
Location	Bichakundi WTP Inlet (JWIMM)	

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

SI. No.	Test Parameters	Unite	Method	Norms as			
1	4		No.	Desirable Limit	Permissible Limit	Results	
-	Ammonical Nitrogen	mg/l	APHA (24thEdition),4500-NH3-F	0.5	No Relaxation	<0.1	
2	Calcium (as Ca)	mg/l	APHA (24th Edition),3500 Ca B	75	200		
3	Chloride (as CI )	mg/l	APHA (24th Edition),4500-Cl B	250		11	
4	Odour	Hazen		100	1000	10	
5	Electrical conductivity	U 2022	3025 (Part-5)-1983;Rffm:2012	Agreeable	Agreeable	Agreeabl	
-	Iron (as Fe)	us/cm	APHA (24th Edition),2510B	-	-	84	
6		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		
8	Phenolic Compound (asC6H5OH)	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		100.00		
10	Salinity	PSU	APHA (24th Edition), 2520B			<1.0	
11	Sodium (as Na)	mg/l			~	0.045	
12	Sulphate (as SO4 )		APHA (24th Edition), 3500 Na B	-	-	2.8	
200		mg/l	APHA (24th Edition) 4500 SO42-E	200	400	<1.0	
13	Taste	None	IS 3025 (Part 8)-1983 Rffm:2012_(0)	Agreeable	Agreeable		
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	Agreeable	
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	25.0	24	
16	Total Hardness (as CaCO3)	mg/1	APHA (24th Edition), 2340 C	200	2000	52	
17	Total Suspended Solid (as TSS)			200	600	36	
18	Turbidity	mg/l	APHA (24th Edition),2540D			2.7	
		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	6.66	

Checked by:- 6

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





Doc No.: MSKUGEN/19/07

TESTING . INSPECTION

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MSKPL/FD/2023-24/ZEFCB9

15/02/2024 - 26/02/2024

MSKNB/FD/2023-24/02/NE127V

ULR: TC-695024000003017F

#### 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:

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

26/02/2024

15/02/2024

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	Joribar rest shelter (BIMM) R O water	
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 SETHI	

Report No.: MSKPL/FD/2023-24/ZEFCB9

Sample No.: MSKNB/FD/2023-24/02/NE127V

#### RESULT

Chemical						
SI No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Cadmium as Cd	mg/l	(S 3025 (Part 2)	0.003	No Relaxation	BDL(DL:0.00
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/t	(S 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:0.000
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	0.56
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	Amenic as As	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.005

Atrayer Sam Ms. Atrayee Saha, Mo. Piali Gonguly

Sr Exe, Chemist, Executive Chemist Designation

Authorized Signatory.

Signature

Life in charge

Head Office:

Strechi Centra (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India. Tel: 19133-40143000 / 22550007 Fex : 9133-22150002 Email: Info@mitrank.com Websits: www.minask.com

Address of Laboratory:

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





Doc No.: MSK/GEN/16/07

TESTING . INSPECTION

Scan for Portal

ULR: TC-695024000003017F

Opinion:

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

Statement of Conformity

END -

Signature

Atombe Saw P. Genger Mr. Afrayan Saha, Mr. Pian Ganguay

Designation Sr Em. Chemial Executive Chemist

Authorized Signatory

Signature

Designation

Lab in charge

The results relate only to the ham(s) tested:
This Test Report shall not be reproduced except in full, without the permission of Mitre S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Foot, Water) shall be retained for 15 illays from the date of issue of the Test Report. Pershable sample(s) shall be retained for 15 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Soil, Soild & Liquid Waster) shall be retained for 15 days as per CPCB guideline & (Air) 1 receib from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Non - pershable sample(s)) Food, Sealed Welter, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Pages 2 of 2

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

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Page 2 of 2

Address of Laboratory:

Building No. P- 45, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

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





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ULR: TC-695024000003017F

Doc No.: MSK/GEN/19/07

## 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/ZEFCB9

26/02/2024

MSKNB/FD/2023-24/02/NE127V

15/02/2024

15/02/2024 - 16/02/2024

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		
3. Unique Identification of sample(If any)	Drinking Water	
4. Date of sampling	NA .	
5. Place of sampling	14/02/2024	
	Joribar rest shelter (BIMM) R O water	
5. 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		
parterining sampling by more	PRANAB SETHI	

Report No.: MSKPL/FD/2023-24/ZEFCB9

Sample No.: MSKNB/FD/2023-24/02/NE127V

#### RESULT

Aicro Biol	ogy					
SI No.	Parameter	UOM	Method	Against 1 to 1	-	
1	Total Coliform Bacteria	/100ml		Acceptable Limit	Permissible Limit	Result
2	E. coli		IS 15185	Not Detectable	Not Applicable	Not Detected
	E, OUI	/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

Ms Melireyee Chakrisborry Designation

Executive Microbiologist

Authorized Signatory

Signature Name

Ma Matreyos Chalraborty

Designation

Executive Microbiologist

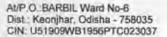
The results rolete only to the Hern(s) lessed.

The reserved part of sample(s) for classical enalysis (Non - peristrable sample(s) Food, Water) shall be retained for 15 days from the data of lasse of the Test Report. Paristrable sample(s) shall be retained 2 days.

only or use a require the report.

In order of the reserved part of sample(s) for chemical analysis (Soil, Soild & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report, he reserved part of sample(s) for Microbiological analysis (Non - pertanable sample(s) Food. Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Strach: Cerire (5th Floor), 74B, A.J.C. Bose Road, Kokuta - 700016, West Bengal, India. Tel.: 91 33 40145000 / 22650007 Fax; 91 33 22650008 Entall: info@mitrask.com Website: www.mitrask.com lead Office:



MSK TESTING INSPECTION

T \_ +91 94370 09815,94370 09820,94370 75269

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

Report No. MSKGL/ED/2023	port No. MSKGL/ED/2023-24/005030		
	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 Rest Shelter R O Water (BIMM)		

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

SI.	Test Parameters	Unite	Method	The second second second	per IS: 10500- 2012	
No.		Unite	method	Desirable Permissible Limit Limit		Results
1	Ammonical Nitrogen	mg/l	APHA (24thEdition),4500-NH3-F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition),3500 Ca B	75	200	30
3	Chloride (as Cl )	mg/l	APHA (24th Edition),4500 -Cl B	250	1000	20
4	Odour	Hazen	3025 (Part-5)-1983;Rffm:2012	Agreeable	Agreeable	Agreeable
5	Electrical conductivity	us/cm	APHA (24th Edition),2510B	-	(Fee)	253
6	Iron (as Fe)	mg/l	APHA (24th Edition),3500 Fe B	0,3	No Relaxation	< 0.05
7	Magnesium (as Mg)	mg/I	APHA (24th Edition), 3500 Mg B	30	100	9
8	Phenolic Compound (asC6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 KB	-	-	<1.0
10	Salinity	PSU	APHA (24th Edition), 2520B	-	144-	0.129
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B	-		3.9
12	Sulphate ( as SO4 )	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	<1.0
13	Taste	None	IS 3025 (Part 8)-1983 Rffm:2012_(0)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	96
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	152
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	112
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	i-mel	***	<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	7,58

Checked by:- B

For Mitra S. K. Private Limited

Authorized Signator

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





Doc No : MSK/GEN/19/07

TESTING . INSPECTION

Scan for Portal

ULR: TC-695024000003128F

### 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/JTFF6F

29/02/2024

MSKNB/FD/2023-24/02/CB1965

17/02/2024

17/02/2024 - 29/02/2024

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	Water & Residue in Water	
2. Description of sample	Drinking Water	
3. Unique Identification of sample(if any)	NA .	
4. Date of sampling	15/02/2024	
5. Place of sampling	First Aid Rest Shelter	
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	DAMBARUDHAR DAS	

Report No.: MSKPL/FD/2023-24/JTFF6F

Sample No.: MSKNB/FD/2023-24/02/CB1965

#### RESULT

Chemical						
SI No.	Parameter	NOU	Method	Acceptable Limit	Permissible Limit	Result
4	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)	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)	0.01	No relaxation	BDL(DL:0.005
6	Mercury as Hg	mg/l	IS 3025 (Part 48)	0.001	No relaxation	BDL(DL:0.000
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 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:0.01)
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)

Reviewed By

Signature

Atrager Sam P. gary

Designation

3: Exil 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







Doc No.: MSKUGEN/19/07

TESTING . INSPECTION

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ULR: TC-695024000003128F

Opinion:

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

Statement of Conformity

END -

Reviewed By:

Signature

Atrayee Sam P gay

Ms. Atraybe Saha, Ms. Piali Ganguly

Designation : Sr Exe Chemist Executive Chemist

Authorized Signatory:

Signature

Designation

Lais in charge

The results reliable only to the dom(s) bested.

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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 Wester) shall be retained for 15 days as per CPC6 guideline & (Air) I 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.

Strachs Centre (5th Floor), 748, A.J.C. Bose Road, Kolketa = 700016, West Bengal, India. Tet : 91 33 40143300 / 22650007 Fax: 91 33 22650008 Email: Info@mitriak.com Wildelite: www.mitrask.com Head Office:

Page 2 of 2

#### Address of Laboratory:

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West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com







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ULR: TC-695024000003128F

Doc No. MSK/GEN/19/07

TESTING . INSPECTION

#### 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/JTFF6F

29/02/2024

MSKNB/FD/2023-24/02/CB1965

17/02/2024

17/02/2024 - 19/02/2024

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	Drinking Water
3. Unique Identification of sample(if any)	NA NA
4. Date of sampling	15/02/2024
5. Place of sampling	First Aid Rest Shelter
5. 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	DAMBARUDHAR DAS

Report No.: MSKPL/FD/2023-24/JTFF6F

NA

Sample No.: MSKNB/FD/2023-24/02/CB1965

#### RESULT

ficro Biolo	Biology					
SI No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Total coliform	/100ml	IS 15185	Not Detectable	Not Applicable	Not Detected
2	E. coll	/100ml	IS 15185	Not Detectable	Not Applicable	Not Detected

Opinion:

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

Statement of Conformity

END -

Reviewed By

Signature

Name Designation

Ms. Multivyes Chakraborty Executive Microbiologist

Authorized Signalory

Me Matreyee Chakraborty

Executive Microbiologist

This results reliate only to the lean(s) tested

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The reserved part of sample(s) for chamical analysis (Nor - portunate sample(s) Food. Water) shall be retained for 15 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Soild & Liquid Weste) shall be retained for 15 days as per CPGB 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

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



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

Report No. MSKGL/ED/202		Date: 25.02.2024
	ANALYSIS REPORT OF DRINKING WATER	2010212021
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines	BAMEBARI IRON & MANGANESE MINES (BIMM)	
Date of sampling	15.02.2024 [BIMM]	
Location	First Aid Rest Shelter R O Water (BIMM)	

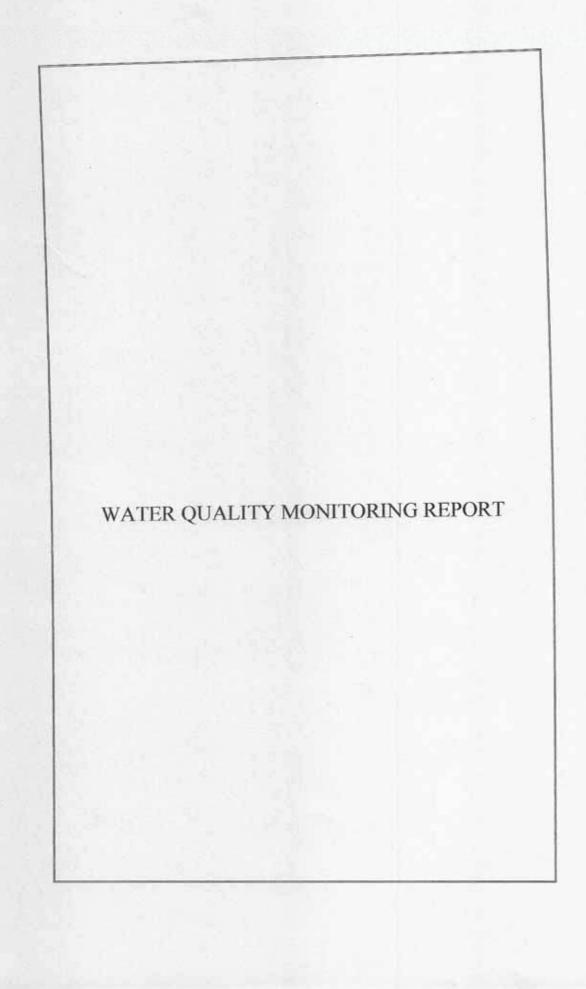
# CHEMICAL ANALYSIS OF WATER AS PER IS: 10500 - 2012

SI. No.	Test Parameters	Unite	Method	Norms as per IS: 10500- 2012		
	Ammonical Nitrogen			Desirable Limit	Permissible Limit	Results
-		mg/l	APHA (24thEdition),4500-NH3-F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition),3500 Ca B	75	200	-0.1
3	Chloride (as CI )	mg/l	APHA (24th Edition),4500 -Cl B	250	1000	10
4	Odour	Hazen	3025 (Part-5)-1983;Rffm:2012			6
5	Electrical conductivity	us/cm	APHA (24th Edition),2510B	Agreeable	Agreeable	Agreeable
6	Iron (as Fe)	No.		1775	-	80
7		mg/l	APHA (24th Edition),3500 Fe B	0.3	No Relaxation	< 0.05
1	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	100	12
8	Phenolic Compound (asC6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 KB	-	-	- 34
10	Salinity	PSU	APHA (24th Edition), 2520B			<1.0
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B		765	0.92
12	Sulphate ( as SO4 )	mg/l		***		3.8
13	Taste		APHA (24th Edition) 4500 SO42-E	200	400	<1.0
14	C 4 3 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	None	IS 3025 (Part 8)-1983 Rffm:2012_(0)	Agreeable	Agreeable	Agreeable
-	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	24
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	48
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D			28
18	Turbidity	N.T.U			***	<2.5
19	pH value at 25 deg C	200	APHA (24th Edition), 2130B	1	5	<1.0
	provide at 25 deg 6.	None	APHA 24th Edition, 2023,4500,H+B	6.5-8.5	No Relaxation	7.04

Checked by:-

For Mitra S. K. Private Limited

Authorized Signatory



Address of Laboratory:

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Tel.: +91 7044036120

Email: udayanlab@mitrask.com

Name & Address of Customer:

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

Tata Steel Ltd.(MGM)\_Joda West





Doc No: MSK/GEN/19/07



ULR: TC-695024000002011F

## TEST REPORT

Report No.:

Date:

Sample No

Sample No. : Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2023-24/4EED6D

07/02/2024

MSKNB/FD/2023-24/01/BET21Q

05/01/2024

05/01/2024 - 15/01/2024

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		
2. Description of sample	Water & Residue in Water	
3. Unique Identification of sample(if any)	SURFACE WATER	
4. Date of sampling	NA NA	
5. Place of sampling	04/01/2024	
	BBL-4364 Palasa (kha) Village Pond Water	
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 Sethi, Pratik Kr. Mantri	

Report No.: MSKPL/FD/2023-24/4EED6D

Sample No.: MSKNB/FD/2023-24/01/BET21Q

#### RESULT

Chemical					
SI No.	Parameter	UOM.	Method		
1	Arsenic as As	mg/l	and the same of th	Result	
2	Boron as B	700000	IS 3025 (Part 2)	BDL(DL:0.005)	
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)	
4	1000	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)	
5	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)	
-	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)		
8	Hexavalent Chromium (as Cr+6)	mg/l		1.27	
9	Lead as Pb	mg/l	IS 3025 (Part 52) Sec2	BDL(DL:0.01)	
10	Manganese as Mn		IS 3025 (Part 2)	BDL(DL:0.005)	
11	Mercury as Hg	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)	
12		mg/l	IS 3025 (Part 48)	BDL(DL:0.0002	
	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.91	
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)	

Opinion:

NA.

Statement of Conformity

----- END -----

Reviewed By

Signature

Atrage Sala P. Gogyly

Designation

Sr. Exe Chemist, Executive Chemist

Authorized Signatory:

Signeture

House

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









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ULR: TC-695024000002011F

Reviewed By:

Signature

Atsmersana 1 Designation

Ms. Alleyee Sats, Ms. Pini Ganguly : Sr. Exe. Chemist, Executive Chemist Authorized Signatory.

Signature

Designation

Lab in charge

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The reserving part of sample(s) for Centract analysis (Soc. Societ Science Search) for Centract analysis (Soc. Societ Science Search) for Centract analysis (Soc. Societ Science Search) for Search Search

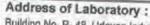
Head Office: Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata ~700016, West Bengal, India. Tel. : 91 33 40143000 / 22050007 Fax: 91 33 22650008 Email: info@mitresk.com Website: www.mitrask.com

Page 2 of 2

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Doc No. MSKIGEN/19/07





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





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ULR: TC-695024000002011F

## 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/2023-24/4EED6D

07/02/2024

MSKNB/FD/2023-24/01/BET21Q

05/01/2024

05/01/2024 - 10/01/2024

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		
Unique Identification of sample(if any)	SURFACE WATER	
4. Date of sampling	NA NA	
	04/01/2024	
5. Place of sampling	BBL-4364 Palasa (kha) Viliage Pond Water	
6. Environmental conditions during sampling & Transport	(2 - 5 ) deg C Cold chain maintained	
7. Sampling Plan & Method used	10 47044 (P. oct. occ.)	
8. Identification of the personnel performing sampling by MSK	IS 17614 (P-25) 2022	
MSK personner performing sampling by MSK	Akash Kr Sethi, Pratik Kr. Mantri	

Report No.: MSKPL/FD/2023-24/4EED6D

Sample No.: MSKNB/FD/2023-24/01/BET21Q

### RESULT

ficro Biology				
SI No.	Parameter	UOM	Method	Result
a -	Total coliform	MPN/100ml	Standard methods for the examination of water & waste water, 24th edtn, 9221B	12

Opinion:

NA.

Statement of Conformity NA

END -

Reviewed By:

Signature

Mr. Sukanta Palu Designation Technical In charge Authorized Signatory

Signature

Designation

Technical In charge

The results (eliste only to the item(s) lessed
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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 CPCR guideline & (Air) 1 month from the date of issue of the Test Report. The reserved part of sample(s) for Microbiological analysis (Non - pensheble 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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Page 1 of 1

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

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

Report No. MSKGL/ED/202	- AME # (1900 - 1904-19)	Date: 10.02.2024
	ANALYSIS REPORT OF SURFACE WATER	2010212021
Name of the Client	M/s. TATA STEEL LIMITED	
Name of the Mines Bamebari Iron & Manganese Mines (BIMM)		
Date of sampling	04.01.2024	
Location	Palasa Kha Village Pond (BIMM)	

### CHEMICAL ANALYSIS OF WATER

Sl. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	9.2
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C		1337
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	18
4	Chloride (as CI)	mg/l	APHA (24th Edition), 4500 -CI B	250	36
5	DO	mg/l	APHA 24th Edition, 2023 4500-0-C/G		68
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		5.2
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B		589
8	Magnesium (as Mg)	mg/l	C THE STATE OF THE	3	0.83
9	Odour		APHA (24th Edition), 3500 Mg B		17
10	Oil and Grease	mg/l	APHA (24th Edition), 2150B	Agreeable	Agreeable
	C II CHILD THE COLUMN ACTURES	mg/l	APHA (24th Edition), 5520B	10	<5.0
11	Phenolic Compounds (as C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.303
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		3.2
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		- 2007
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		216
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C		360
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D		116
8	pH value at 19.2 deg C	None	APHA 24th Edition, 2023 4500-H+B	50/100	18
_	100 May 100 Ma	The state of the s	14 A	5.5-9.0	7.13

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

Name & Address of Customer:

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

West Bengal Tel.: +91 7044036120

Email: udayanlab@mitrask.com

Tata Steel Ltd.(MGM) Joda West





ULR: TC-695024000000999F

Doc MSK/GEN/19/07

TESTING + INSPECTION

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/Q114F6

22/01/2024

MSKNB/ED/2023-24/01/HU5EDZ

05/01/2024

05/01/2024 - 22/01/2024

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	Pollution & Environment	_
2. Description of sample	Waste Water	_
Unique Identification of sample(if any)	NA NA	_
4. Date of sampling	04/01/2024	
5. Place of sampling	BBL-4371 Bamebari Oil sepration 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, Kshitish Kr.Mahanty	
9. Field Equipments Used	N/A	- 0

Report No.:

MSKPL/ED/2023-24/Q114F6

Sample No.:

MSKNB/ED/2023-24/01/HU5EDZ

### RESULT

Chemical						
SI 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	1.2		
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	0.09		
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	0.24		
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	0.08		
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	2.7		
13	Zinc (as Zn)	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.05)		

Opinion:

NA NA

Statement of Conformity

END -

Reviewed By

Designation : Technical In charge

Authorized Signstory

Signatu

Designation

Lab In chard

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

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The reserved part of sample(s) for chamical enables (Suit, 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.

Shrachi Centra (5th Floor), 748, A.J.C. Bosa Road, Kokuta -700016, West Bengal, India. Tel. 91 33 40143000 / 22650007 Fax: 91 33 22650008 Head Office:

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Page 1 of 1

Address of Laboratory:

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Name & Address of Customer:

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

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Tel.: +91 7044036120

Email: udayanlab@mitrask.com





Doc No.: MSK/GEN/19/07

TESTING . INSPECTION

ULR: TC-695024000000999F

### **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/Q114F6

22/01/2024

MSKNB/ED/2023-24/01/HU5EDZ

05/01/2024

05/01/2024 - 10/01/2024

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	Pollution & Environment	
2. Description of sample	Waste Water	
3. Unique Identification of sample(if any)	NA .	
4. Date of sampling	04/01/2024	
5. Place of sampling	BBL-4371 Bamebari Oil sepration 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, Kshitish Kr.Mahanty	
9. Field Equipments Used	N/A	

Report No.: MSKPL/ED/2023-24/Q114F6

Sample No.: MSKNB/ED/2023-24/01/HU5EDZ

#### RESULT

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

Opinion:

NA NA

Statement of Conformity

- END -

Designation 1 Technical In charge

Authorized Signato

Signature

Name

Designation Technical in charge

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

This Test Report shall not be responded 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, Soild & 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.

Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India. Tet.: 91 33:40143000 / 22650007 Fax: 91:33:2250008 Email::info@mitrask.com Website::www.mitrask.com

Page 1 of 1



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

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

Report No. MSKGL/ED/2023	3-24/004442	Date: 10.02.2024
AN	ALYSIS REPORT OF WASTE/EFFLUENT WATER	
Name of the Client	M/s. TATA STEEL LIMITED BAMEBARI IRON & MANGANESE MINES (BIMM)	
Name of the Mines		
Date of sampling	04.01.2024	
Location	Bamebari Oil Separation Water Near Garage (BIMM)	

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

Sl. No.	Test Parameters	Unite	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 CaCo3)	mg/l	APHA (24th Edition), 2340 C	***	48
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	<4.0
4	Chloride (as CI)	mg/l	APHA (24th Edition), 4500 -Cl B		20
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G	***	5.7
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		296
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	2.6
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 C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B		0.151
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E		4.5
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		120
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		178
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C		144
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	27.2
18	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	7.26

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







Doc MSK/GEN/19/07

Scan for Portal

ULR: TC-695024000000998F

# 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/L114F1

22/01/2024

MSKNB/ED/2023-24/01/5EXEE3

05/01/2024

05/01/2024 - 22/01/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

e hereby certify that the following sample Drawn by us has been analyze	Pollution & Environment
1. Group	Waste Water
2. Description of sample	NA .
3. Unique Identification of sample(if any)	04/01/2024
4. Date of sampling	BBL-4371 Bamebari STP In Let
5. Place of sampling	(2 - 5) deg C Cold chain maintained.
6. Environmental conditions during sampling & Transport	APHA 23rd edition,2017
7. Sampling Plan & Method used	Pratik Kr. Mantri, Kshitish Kr.Mahanty
8. Identification of the personnel performing sampling by MSK	N/A
9. Field Equipments Used	INV

Report No.:

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Op

MSKPL/ED/2023-24/L114F1

Sample No.:

MSKNB/ED/2023-24/01/5EXEE3

### RESULT

hemical				Deside
SI No.	Parameter	UOM	Method	Result
	Arsenic as (As)	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.005)
1	Boron (as B)	mg/t	APHA (24th Edition) ,4500 - B C	0,36
2		mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.05)
3	Cadmium as Cd	Hazen	APHA (24th Edition), 2120B	120
4	Colour	mg/l	APHA (24th Edition), 3120 B	0.08
5	Copper (as Cu)		APHA (24th Edition), 4500 CN - F	0.12
6	Cyanide ( as CN)	mg/l	APHA (24th Edition), 4500 F- C/D	0.15
7	Fluoride ( as F )	mg/l	APHA (24th Edition), 3500 Cr B	BDL(DL:0.05)
8	Hexavalent Chromium (as Cr+6)	rng/l	APHA (24th Edition), 3120 B	BDL(DL:0.05)
9	Lead (as Pb )	mg/l		1.64
10	Manganese (as Mn)	mg/l	APHA (24th Edition), 3120 B	BDL(DL:0.001
11	Mercury (as Hg )	mg/l	APHA (24th Edition) 3112 B	BDL(DL:0.5)
12	Nitrate (as NO3 )	mg/l	APHA (24th Edition), 4500 NO3-E	0.11
13	Zinc (as Zn)	mg/l	APHA (24th Edition), 3120 B	0.11

Opinion:

NA Statement of Conformity

END -----

Review

Reviewed By

Slorad

Name Design Designation

Technical in charge

Authorized Signato

Signature

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

Structii Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkets - 700016, West Bengel, Irdia Tel.: 91 33 40143000 / 22550007 Fax: 91 33 22650008 Email: info@mitrask.com Website: www.mitrask.com

Page 1 of1

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Report No. MSKGL/ED/2023	3-24/004438	Date: 10.02.2024
AN	ALYSIS 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	04.01.2024	
Location	Bamebari STP Inlet (BIMM)	

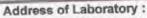
### **CHEMICAL ANALYSIS OF WATER AS PER IS: 2490**

SI. No.	Test Parameters	Unite	Method	Max. Tolerance Limit as per CPCB	Results
1	Biochemical Oxygen Demand (as BOD)	mg/l	APHA (24th Edition), 5210B	30	29
2	Calcium (as CaCo3)	mg/l	APHA (24th Edition), 2340 C	***	45
3	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	250	116
4	Chloride (as Cl )	mg/l	APHA (24th Edition), 4500 -Cl B		44
5	DO	mg/l	APHA 24th Edition, 2023 4500-O-C/G		5.6
6	Electrical conductivity	us/cm	APHA (24th Edition), 2510B		532
7	Iron (as Fe)	mg/l	APHA (24th Edition), 3500 Fe B	3	10
8	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B		6.7
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 C6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	1	<0.001
12	Salinity	PSU	APHA (24th Edition), 2520B	***	0.275
13	Sulphate ( as SO4 )	mg/l	APHA (24th Edition), 4500 SO42-E	***	5.4
14	Total Alkalinity	mg/l	APHA (24th Edition), 5210B		188
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C		326
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C		140
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	50/100	95.7
18	pH value at 23.7 deg C	None	APHA 24th Edition, 2023 4500-H+B	5.5-9.0	6.72

Checked by:-

For Mitra S. K. Private Limited

Authorized Signatory



Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

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

West Bengal Tel.: +91 7044036120

Email: udayanlab@mitrask.com

Tata Steel Ltd.(MGM)\_Joda West



# TEST REPORT

Report No.:

Date:

Sample No.:

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date:

Discipline:



Dog No.: MSK/GEN/19/07

Scan for Portal

ULR: TC-695024000000649F

MSKPL/FD/2023-24/FKED6P

16/01/2024

MSKNB/FD/2023-24/01/WQD23G

05/01/2024

05/01/2024 - 16/01/2024

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:

Water & Residue in Water
DRINKING WATER
NA .
05/01/2024
BBL-4369 Bamebari WTP Inlet
(2 -5) deg C Cold chain maintained
IS:17614( P-5) 2022
Kshitish Kr.Mahanty, Pratik Kr. Mantri

MSKPL/FD/2023-24/FKED6P Report No.:

Sample No.: MSKNB/FD/2023-24/01/WQD23G

### RESULT

hemical						
SI No.	Parameter	UOM	Method	Acceptable Limit	Permissible Limit	Result
1	Cadmium as Cd	mg/t	IS 3025 (Part 2)	0.003	No Relaxation	BDL(DL:0.001
2	Arsenic as As	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.005
3	Copper as Cu	mg/l	IS 3025 (Part 2)	0.05	1,5	BDL(DL:0.02)
4	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	0.05	No Relaxation	BDL(DL:0.02)
5	Fluoride as F	mg/l	IS 3025 (Part 60)	1.0	1.5	BDL(DL:0.2)
_	Lead as Pb	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.005
6	Manganese as Mn	mg/l	IS 3025 (Part 2)	0.1	0.3	BDL(DL:0.02
7	THE RESIDENCE AND ADDRESS OF THE PARTY OF TH	mg/l	IS 3025 (Part 48)	0.001	No Relaxation	BDL(DL:0.000
8	Mercury as Hg	mg/I	IS 3025 (Part 2)	0.02	No Relaxation	BDL(DL:0.01
9	Nickel (as Ni) Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3-B	45	No Relaxation	0.84
	Selenium as Se	mg/l	IS 3025 (Part 2)	0.01	No Relaxation	BDL(DL:0.008
11		mg/l	IS 3025 (Part 35)	Not Specified	Not Specified	BDL(DL:0.1)
12	Silica (as SiO2)		IS 3025 (Part 2)	0.1	No Relaxation	BDL(DL:0.005
13	Silver as Ag	mg/l	IS 3025 (Part 2)	0.05	No Relaxation	BDL(DL:0.01
14	Total Chromium as Cr	mg/l	IS 3025 (Part 2)	5	15	BDL(DL:0.02
15	Zinc as Zn	mg/l		5	15	BDL(DL:1.0
16	Colour	Hazen	IS 3025 (Part 4)	~		

Opinion:

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

**Aicr** Statement of Conformity

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Reviewed By Signature

Ms. Attavee Sahe, Ms. Pink Garquiy ar, Exe. Chemist, Executive Chemist Authorized Signatury

The results relate only to the sem(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) Food, Water) 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 chemical analysis (Soil, Soild & Liquid Wastin) 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 chemical 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.

END

Shrachi Certire (5th Floor), 74B, A.J.C. Bose Road, Kolizata - 700016, West Bengal, India. Tel.: 91 33 40143000 / 22650007 Fax: 91 33 22650008 Email: info@mitrask.com Website: www.mitrask.com

Head Office:



AVP.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/202	3-24/ 004444	Date: 10.02.2024
	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	04.01.2024	78
Location	Bamebari WTP Inlet (BIMM)	

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

SI.	Test Parameters	Unite	Method	The state of the s	per IS: 10500- 2012	Daniel
No.		Onite	method	Desirable Limit	Permissible Limit	Results
1	Ammonical Nitrogen	mg/l	APHA (24thEdition),4500-NH3-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	6
4	Odour	Hazen	3025 (Part-5)-1983;Rffm:2012	Agreeable	Agreeable	Agreeable
5	Electrical conductivity	us/cm	APHA (24th Edition),2510B			186
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	7.7
8	Phenolic Compound (asC6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 KB		-	<1.0
10	Salinity	PSU	APHA (24th Edition), 2520B			0.095
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B		222	4.4
12	Sulphate ( as SO4 )	mg/l	APHA (24th Edition) 4500 SO42-E	200	400	1.4
13	Taste	None	IS 3025 (Part 8)-1983 Rffm:2012_(0)	Agreeable	Agreeable	Not Agreeable
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	80
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	110
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200	600	88
17	Total Suspended Solid (as TSS)	mg/l	APHA (Z4th 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	6.53

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

Name & Address of Customer:

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

Tel.: +91 7044036120

Email: udayanlab@mitrask.com

Tata Steel Ltd.(MGM) Joda West



TEST REPORT

Scan for Portal

ULR: TC-695024000000648F

Doc No.: MSK/GEN/19/07

TESTING + INSPECTION

Report No.:

MSKPL/FD/2023-24/5SED6K Date:

16/01/2024

MSKNB/FD/2023-24/01/CC322Q

Sample No.:

05/01/2024

Date of receipt of sample: Date(s) of performance:

05/01/2024 - 16/01/2024

Location of performance of

Reference No. & Date:

Permanent Facility

Discipline:

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	DRINKING WATER
3. Unique Identification of sample(if any)	NA NA
4. Date of sampling	05/01/2024
5. Place of sampling	BBL-4368 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	Kshitish Kr.Mahanty, Pratik Kr. Mantri

Report No.: MSKPL/FD/2023-24/5SED6K

Sample No.: MSKNB/FD/2023-24/01/CC322Q

### RESULT

Chemical									
SI 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/I	APHA (24th EDITION) 4500-NO3- B	45	No Relaxation	0.85			
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

END -

Revewed By

Ms. Alrayes Saha, Ms. Post Ganguiy

Signature

Authorized Signistory

Lisb in charg

Sr. Exe. Cremist, Executive Chemist. Designation

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.

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Shrachi Centre (5th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, Wast Bengal; India. Tel.: 91 33 40143000 / 22650007 Fax: 91 33 22650008 Head Office:

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

Page 1 of 1

Signature

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Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

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





Dac No. MSK/GEN/19/07

ING . INSPECTION

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ULR: TC-695024000000648F

### TC-6950

# **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/2023-24/5SED6K

16/01/2024

MSKNB/FD/2023-24/01/CC322Q

05/01/2024

05/01/2024 - 06/01/2024

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	DRINKING WATER	
Unique Identification of sample(if any)	NA NA	
4. Date of sampling	05/01/2024	
5. Place of sampling	BBL-4368 Barnebari 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	Kshitish Kr. Mahanty, Pratik Kr. Mantri	

Report No.: MSKPL/FD/2023-24/5SED6K

Sample No.: MSKNB/FD/2023-24/01/CC322Q

#### RESULT

ficro Biol	logy					
SI 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

- FND -

Ravinwed By

Mr. Sukanta Palui

Designation : Technical in charge

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.

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.

Struchi Centre (5th Floor), 748, A.J.C. Bose Road, Kokuta - 700016, West Bengal, India. Tet. 91 33 40143000 / 22650007 Fax : 91 33 22650008 Email: info@mitrask.com Website : www.mitrask.com Head Office:

Page 1 of 1

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/202		Date: 10.02.2024
	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	04.01.2024	
Location	Bamebari WTP Outlet (BIMM)	

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

SI. No.	Test Parameters	Unite	Method	Norms as	1	
1	Ammonical Nitrogen			Desirable Limit	Permissible Limit	Results
		mg/l	APHA (24thEdition),4500-NH3-F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition),3500 Ca B	75	200	-0.1
3	Chloride (as Cl )	mg/l	APHA (24th Edition),4500 -CI B	172	2000	26
4	Odour	100	Control of the Contro	250	1000	12
5	Electrical conductivity	Hazen	3025 (Part-5)-1983;Rffm:2012	Agreeable	Agreeable	Agreeable
		us/cm	APHA (24th Edition),2510B			206
6	Iron (as Fe)	mg/l	APHA (24th Edition),3500 Fe B	0.3	No Relaxation	
7	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B	30	COMPANIES AND ASSESSMENT	<0.05
8	Phenolic Compound			30	100	12
	(asC6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	< 0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 KB			1 (1)
10	Salinity	PSU	APHA (24th Edition), 2520B			<1.0
11	Sodium (as Na)	mg/l		ment.	***	0.105
12	Sulphate (as SO4)	1,000	APHA (24th Edition), 3500 Na B			4.3
72.5		mg/l	APHA (24th Edition) 4500 SO42-E	200	400	<1.0
13	Taste	None	IS 3025 (Part 8)-1983 Rffm:2012_(0)	Agreeable	Agreeable	and the second second
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	Agreeable
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C			96
16	Total Hardness (as CaCO3)		100 March 1982	500	2000	126
17		mg/l	APHA (24th Edition), 2340 C	200	600	116
	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D	222		<2.5
18	Turbidity	N.T.U	APHA (24th Edition), 2130B	1	5	1.112.411
19	pH value at 25 deg C	None	APHA 24th Edition, 2023,4500.H+B	6.5-8.5		<1.0
		0.3003000		0.5-8.5	No Relaxation	7.09

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

Name & Address of Customer:

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

Tel.: +91 7044036120

Email: udayanlab@mitrask.com

Tata Steel Ltd.(MGM)\_Joda West



TEST REPORT

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MSKPL/FD/2023-24/TLED67

ULR: TC-695024000000650F

Doc No.: MSK/GEN/19/07

TESTING \* INSPECTION

Report No.:

Date:

16/01/2024

MSKNB/FD/2023-24/01/YES24L 05/01/2024

Sample No.: Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date:

Discipline:

05/01/2024 - 16/01/2024

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	DRINKING WATER
3. Unique Identification of sample(if any)	NA NA
4. Date of sampling	05/01/2024
5. Place of sampling	BBL-4370 Barnebari Canteen R.O. Water
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	Kshitish Kr.Mahanty, Pratik Kr. Mantri
a meritaire de en persona pers	A L. M. MONNING PROPERTY OF THE PARTY OF THE

Report No.: MSKPL/FD/2023-24/TLED67

Sample No.: MSKNB/FD/2023-24/01/YES24L

### RESULT

Chemical						
SI No.	Parameter	Parameter UOM		Acceptable Limit	Permissible Limit	Result
1	Arsenic as As	mg/I	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	0.90
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/i	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

END .

Reviewed By

Signature Mane

Designation - Sr. Ere. Chemist. Executive Chemist

Authorized Signatory

Designation

Lab In charge

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

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

from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Weste) 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 Weter, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Shrachi Centro (5th Floor), 748, A.J.C. Bose Road, Kolkata -700016, West Bangal, India Tel: 91-33 40143000 / 22650007 Fax: 91-33 22650008 Email: Info@mitrask.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





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ULR: TC-695024000000650F

Doc No.: MSK/GEN/19/07

TESTING . INSPECTION

### 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:

Permanent Facility

3000156017/056, Date - 16/09/2023

05/01/2024 - 06/01/2024

MSKPL/FD/2023-24/TLED67

MSKNB/FD/2023-24/01/YES24L

Biological

16/01/2024

05/01/2024

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 NA		
4. Date of sampling	05/01/2024		
5. Place of sampling	BBL-4370 Bamebari Canteen R.O. Water		
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	Kshitish Kr.Mahanty, Pratik Kr. Mantri		

MSKPL/FD/2023-24/TLED67 Report No.:

Sample No.: MSKNB/FD/2023-24/01/YES24L

#### RESULT

Micro Biology								
SI 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

- END -

Reviewed By

Designation : Technical in charge

Authorized Signs

Signature

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. Parishable 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 (Soit, 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 snallysis (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:

Strachi 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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AUP.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/202	Date: 10.02.2024	
	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	04.01.2024 GIMM	
Location	Bamebari R.O. Water (BIMM)	

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

Sl. No.	Test Parameters	Unite	Method	Norms as	50.000	
1	Ammonical Nitrogen			Desirable Limit	Permissible Limit	Results
		mg/l	APHA (24thEdition),4500-NH3-F	0.5	No Relaxation	<0.1
2	Calcium (as Ca)	mg/l	APHA (24th Edition),3500 Ca B	75	200	VU.1
3	Chloride (as Cl )	mg/l	APHA (24th Edition),4500 -Cl B	250	1000	26
4	Odour	Hazen			1000	8
5	Electrical conductivity	us/cm	3025 (Part-5)-1983;Rffm:2012	Agreeable	Agreeable	Agreeable
6	Iron (as Fe)	1000000		APHA (24th Edition),2510B		211
7		mg/l	APHA (24th Edition),3500 Fe B 0.3		No Relaxation	< 0.05
1	Magnesium (as Mg)	mg/l	APHA (24th Edition), 3500 Mg B 30		100	
8	Phenolic Compound (asC6H5OH)	mg/l	APHA (24th Edition), 5530C (Chloroform Extraction)	0.001	0.002	<0.001
9	Potassium (as K)	mg/l	APHA (24th Edition), 3500 KB			
10	Salinity	PSU	APHA (24th Edition), 2520B			<1.0
11	Sodium (as Na)	mg/l	APHA (24th Edition), 3500 Na B			0.108
12	Sulphate ( as SO4 )	mg/l	The state of the s	***	***	4.4
13	Taste	177	APHA (24th Edition) 4500 SO42-E	200	400	<1.0
100	Lances .	None	IS 3025 (Part 8)-1983 Rffm:2012_(0)	Agreeable	Agreeable	Agreeable
14	Total Alkalinity (as CaCO3)	mg/l	APHA (24th Edition), 2320B	200	600	100
15	Total Dissolved Solids (as TDS)	mg/l	APHA (24th Edition), 2540C	500	2000	
16	Total Hardness (as CaCO3)	mg/l	APHA (24th Edition), 2340 C	200		124
17	Total Suspended Solid (as TSS)	mg/l	APHA (24th Edition),2540D		600	110
18	Turbidity	N.T.U		***	Tree	<2.5
19	pH value at 25 deg C		APHA (24th Edition), 2130B	1	5	<1.0
-	pri varue at 25 deg C	None	APHA 24th Edition, 2023,4500.H+B	6.5-8.5	No Relaxation	6.55

Checked by:- (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

Name & Address of Customer:

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

Tata Steel Ltd.(MGM)\_Joda West





Doc No: MSK/GEN/19/07



ULR: TC-695024000002011F

### TEST REPORT

Report No.:

Date:

Sample No

Sample No. :

Date of receipt of sample: Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/FD/2023-24/4EED6D

07/02/2024

MSKNB/FD/2023-24/01/BET21Q

05/01/2024

05/01/2024 - 15/01/2024

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	Motor & David States		
2. Description of sample	Water & Residue in Water		
3. Unique Identification of sample(if any)	SURFACE WATER		
4. Date of sampling	NA NA		
5. Place of sampling	04/01/2024		
	BBL-4364 Palasa (kha) Village Pond Water		
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	K Akash Kr Sethi, Pratik Kr. Mantri		

Report No.: MSKPL/FD/2023-24/4EED6D

Sample No.: MSKNB/FD/2023-24/01/BET21Q

### RESULT

Chemical				
SI No.	Parameter	UOM.	Method	
1	Arsenic as As	mg/l	and the same of th	Result
2	Boron as B		IS 3025 (Part 2)	BDL(DL:0.005)
3	Cadmium as Cd	mg/l	IS 3025 (Part 2)	BDL(DL:0.25)
4	1100	mg/l	IS 3025 (Part 2)	BDL(DL:0.001)
5	Colour	Hazen	IS 3025 (Part 4)	BDL(DL:1.0)
	Copper as Cu	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
6	Cyanide as CN	mg/l	IS 3025 (Part 27) Sec1	
7	Fluoride as F	mg/l	IS 3025 (Part 60)	BDL(DL:0.02)
8	Hexavalent Chromium (as Cr+6)	mg/l		1.27
9	Lead as Pb		IS 3025 (Part 52) Sec2	BDL(DL:0.01)
10	Manganese as Mn	mg/l	IS 3025 (Part 2)	BDL(DL:0.005)
11		mg/l	IS 3025 (Part 2)	BDL(DL:0.02)
12	Mercury as Hg	mg/l	IS 3025 (Part 48)	BDL(DL:0.0002
	Nitrate as NO3	mg/l	APHA (24th EDITION) 4500-NO3- B	0.91
13	Zinc as Zn	mg/l	IS 3025 (Part 2)	BDL(DL:0.02)

Opinion:

NA.

Statement of Conformity N

----- END -----

Reviewed By

Signature

Artrayer Saha P. Gazaly

Designation

Sr. Exe Chemist, Executive Chemist

Authorized Signatory:

Signeture

House

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









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ULR: TC-695024000002011F

Reviewed By:

Signature

Atsmersana 1 Designation

Ms. Alleyee Sats, Ms. Pini Ganguly : Sr. Exe. Chemist, Executive Chemist Authorized Signatory.

Signature

Designation

Lab in charge

The results inside only to the firm(s) fested.
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The reserving part of sample(s) for Centract analysis (Soc. Societ Science Search) for Centract analysis (Soc. Societ Science Search) for Centract analysis (Soc. Societ Science Search) for Search Search

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### Anacon Laboratories Pvt. Ltd. Nagpur Lab

## Test Report

on &	Sample Inward No. Inward Date	Date 22/11/2023		Page 1 of 3  Analysis Start 23/11/ Analysis End 29/11/	
	Reference Date			Report Issue Date 30/11/ Sample Category Water	
Sample Source Inlet Water			Sample Condition Scaled & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Collected By Annoon Representative			Sampling Time 11.45am to 2.50 pm	Sampling Location Bamebari WTP Intel	
	Sample Source Inlet Water to Collected By	Sample Inward No. Inward Date Reference Reference Date Sample Source Inlet Water Sample Code-DW-ee Collected By Sampling Date	Sample Inward No. ALP Inward Date 22/1 Reference W.O Reference Date 22.03 Sample Source Sample Particulars Inlet Water Sample Code-DW-4 e Collected By Sampling Date	Sample Inward No. ALPL/22112023/ENV-283-4 Inward Date 22/11/2023 Reference W.O 4700098928/962 Reference Date 22.03.2022 Sample Source Sample Particulars Sample Condition Scaled & Ice Preserved e Collected By Sampling Date Sampling Time	Sample Inward No. ALPL/22112023/ENV-283-4 Analysis Start Inward Date 22/11/2023 Analysis End Reference W.O 4700098928/962 Report Issue Date Sample Source Sample Particulars Sample Condition Quantity Re Inlet Water Sample Code-DW-4 Sealed & Ice Preserved 5.0 Ltr & 2 Collected By Sampling Date Sampling Time Sampling Lo

S.N.	Test Parameter	Measurement Unit	Test Method	Requirem IS 1050 (Drinking Wate Including Am	Test Result				
				Acceptable Limit	Permissible Limit #				
1	I Biological Testing 1. Water								
1	Escherichia coli	Per 100 ml	IS 15189 : 2016	Absent	Absent	Absent			
11	Chemical Testing I. Water								
2	Alkalinity (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 23): 1986	200	600	32.84			
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 CI)	mg/l	IS 3025 (Part 32):1988	250	1000	21.46			
7	Calcium (as Ca)	mg/I	IS 3025 (Part 40) + 1991	75	200	17.91			
8	Free residual chlorine	mg/l	1S 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	1S 3025 (Part 46): 1994	30	100	5.81			
11	Nitrate (as NO <sub>1</sub> )	mg/l	APHA method 23rd edition: 2017	45	No relaxation	BDL(DL-2)			
12	Odour		IS 3025 (Part 5): 2018	Agrecable	Agreeable	Agreeable			
13.	pH		1S 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	6.83 at 25°C			
14	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part 43): 2022	100.0	0.002	BDL (DL = 0.001)			
15	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24): 2022	200	400	6.28			
16	Tasle	100	IS 3025 (Part 8): 1984	Agrecable	Agrecable	Agreeable			
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 1984	500	2000	294			
18	Turbidity	NTU	IS 3025 (Part 10): 1984		5	0.3			
19	Total hardness (as CaCO <sub>1</sub> )	mg/l	IS 3025 (Part 21): 2009	200	600	68,63			

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut

Deputy Technical Manager

**Authorized Signatories** 

Pooja Kathana Technical Manager



### Anacon Laboratories Pvt. Ltd. Nagpur Lab

PFP-34, 35,Food Park, Five Star Industrial Estate, MIDC Butibori, Nagpur. Maharashtra, India - 441 122 4 91 8045685558 Email : info@anacon.in 3 https://www.anaconlaboratories.com

### Test Report

Test Report No.	: ALPL/30112023/	1-23A	dated 30/	/11/2023	Page 2 o	f 3
Issued To:		Sample Inward No. Inward Date Reference Reference Date		At.PL/22112023/ENV-283-4	Analysis Start	23/11/2023
M/s Bamebari Iron &				22/11/2023	Analysis End	29/11/2023
Manganese Mine				W.O 4700098928/962	Report Issue Date	30/11/2023
(M/s TATA Steel Limited)				22.03.2022	Sample Category	Water
Sample Name Drinking Water	Sample Source Inlet Water	10000	le Particulars le Code-DW-4	Sample Condition Scaled & Ice Preserved	Quantity Re 5.0 Ltr & 2	GPC 253
	e Collected By	Sampling Date		Sampling Time	Sampling Location	
	Representative	16/11/2023		11.45am to 2.50 pm	Bamebari WTP Inlet	

TEST DESILITS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirer IS 105 (Drinking Wat Including An	Test Result	
				Acceptable Limit	Permissible Limit #	
u	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 Fc)	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 (PAII)	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

Swatl Gondhalekar Deputy Technical Manager **Authorized Signatory** 



### Anacon Laboratories Pvt. Ltd. Nagpur Lab

### Test Report

Test Report No.	: ALPL/30112023/	1-23A dated	30/11/2	2023	Page 3 o	f 3
Issued To : M/s Bamebari Ir Mangauese Mine (M/s TATA Stee		Sample Inward No. Inward Date Reference Reference Date	22/1 W.C	PL/22112023/ENV-283-4 1/2023 0 4700098928/962 03.2022	Analysis Start Analysis End Report Issue Date Sample Category	23/11/2023 29/11/2023 30/11/2023 Water
Sample Name	Sample Source	Sample Particulars		Sample Condition	Quantity Received	
Drinking Water	Inlet Water	Sample Code-DW-4		Sealed & Ice Preserved	5.0 Ltr & 250 ml	
Sample Collected By		Sampling Date		Sampling Time	Sampling Location	
Anaeon Representative		16/11/2023		11.45am to 2.50 pm	Bamebari WTP Intel	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per 18 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		00 : 2012 er Specifications)	Test Result
10				Acc	ceptable Limit	Permissible Limit #	
35	Pesticide Residues Organochlori					The state of the s	
- 1	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 20		0.01	No relaxation	BDL (DL - 0.01)
ii	Beta HCH	µg/l	ANtt/7.2/RES/01: 20	018	0.04	No relaxation	BDL (DL = 0:03)
tii	Gamma - HCH (Lindane)	µg/l	ANtr/7.2/RES/01. 20	018	2	No relaxation	BDL (DL = 0.03)
IV	Delta-HCH	μχ/Ι	ANtr/7.2/RES/01: 20	810	0.04	No relaxation	BDL (DL - 0.03)
V.	Alachior	µg/l	ANtr/7.2/RES/01: 20	810	20	No relaxation	BDL (DL = 0.03)
VI.	Aldrin	µg/l	ANtr/7.2/RES/01: 2/	018	0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01.20	810	0.03	No relaxation	BDL (DL - 0.03)
VIII	Butachlor	µg/l	ANtr/7.2/RES/01:20		125	No relaxation	BDL (DL = 0.03)
TX	p,p'-DDE	ид/1	ANtr/7.2/RES/01: 20	018	1	No relaxation	BDL (DL - 0.03)
X	o,p -DDE	γε/	ANtr/7.2/RES/01: 20	BIG	1	No reluxation	BDL (DL = 0:03)
Xi -	p.p'-DDD	µg/l	ANtr/7.2/RES/01: 20	018		No relaxation	BDL (DL - 0.03)
XII	o,p'-DDD	µg/l	ANtr/7 2/RES/01: 20		1	No relaxation	BDL (DL - 0.03)
xiii	o,p - DDT	µg/l	ANtr/7.2/RES/01: 20		1	No relaxation	BDL (DL = 0.03)
XIV.	p.p - DDT	μg/1	ANtr/7.2/RES/01: 20		1	No relaxation	BDL (DL - 0.03)
XV	Monocrotophos	µg/l	ANtr/7.2/RES/01: 20		1	No relaxation	BDL (DL = 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 20		2	No relaxation	BDL (DL - 0.03)
XVII	Parathion methyl	μg/1	ANtt/7.2/RES/01: 20		0.3	No relaxation	BDL (DL = 0.03)
xviii.	Paraoxon methyl	µg/1	ANtr/7.2/RES/01: 20		0.5	THE RELAXIBITION	BDL (DL - 0.03)
XIX	Malattoon	μg/I	ANtr/7.2/RES/01: 20		190	No relaxation	BDL (DL = 0.03)
XX	Malaoxon	µg/1	ANtr/7.2/RES/01:20		190	TWO TERRATION	BDL (DL - 0.03)
xxi	Ethion	ид/1	ANtr/7 2/RES/01: 20	2.77	3	No relaxation	
XXII	Chlorpyrifos	ид/1	ANtr/7.2/RES/01: 20	10.1	30	No relaxation	BDL (DL - 0.03) BDL (DL - 0.03)

NOTE: Please see watermark. "Original Test Report" in confirm the amboritisty of this report. Report 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 tissue of Test Report, onless specified otherwise. Permissible look to absence of an alternate source for drinking water. Impl' is equivalent to "ppi". BDL- Below detection limit. DL- DL Indicates detection limit of instrument /method and shall be considered as 'absent'. Result for test an. 11 is not relevant. ANT/7/2/RES-01, : Inbouse validated method. NT indicates not Tested as sample failed to extend the considered as 'absent'.

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

Dunel

Swati Gondhalekar Deputy Technical Manager Authorized Signatory

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

---End of Report-



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## Test Report

Test Report No.: ALPL/30112023/ Issued To: M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		Sample In Inward D Reference	ard Date 22/		098928/962	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	1000			ample Condition led & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Collected By Anacon Representative		Sampling Date 16/11/2023			Sampling Time .45am to 2.50 pm	Sampling Location Bamebari WTP Outlef	

TEST RESULTS

s.n.	Test Parameter	Measurement Unit	Test Method	Requirem IS 1050 (Drinking Water Including Amo	0 : 2012 r Specifications)	Test Result
		12.5		Acceptable Limit	Permissible Limit #	
1	Biological Testing 1. Water					
T.	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	26.43
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	14.93
7	Calcium (as Ca)	mg/l	1S 3025 (Part 40): 1991	75	200	19.32
8	Free residual chlorine	mg/l	IS 3025 (Part 26): 2021	Min. 0.2	1	BDL (DL-0.1)
9	Fluoride (as F)	mg/I	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	3.19
11	Nitrate (as NO <sub>2</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	7.24 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	3.87
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	0.3
19	Total hardness (as CaCO <sub>1</sub> )	mg/L	IS 3025 (Part 21): 2009	200	600	61.40

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut Deputy Technical Manager **Authorized Signatories** 

Pooja Kathane Technical Manager



### Anacon Laboratories Pvt. Ltd. Nagpur Lab

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### Test Report

Issued To: M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		-24A dated : Sample Inward No. Inward Date Reference Reference Date	ALP 22/11 W.O.	L/22112023/ENV-283-5 1/2023 4700098928/962 3.2022	Page 2 of 3	
Sample Name	Sample Source	71 (17 (16)) (Capture 13 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		Sample Condition	Quantity Received	
Drinking Water	Outlet Water			Scaled & Ice Preserved	5.0 Ltr & 250 mi	
Sample Collected By		Sampling Date		Sampling Time	Sampling Location	
Anacon Representative		16/11/2023		11.45am to 2.50 pm	Bamebari WTP Outlet	

S.N.	Test Parameter	Measurement Unit	Test Method	Requirer IS 105 (Drinking Wat Including Ar	Test Result							
				Acceptable Limit	Permissible Limit #							
u	Chemical Testing 2. Residues In Water											
20	Arsenic (as As)	mg/l	15 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/I	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)	μ <u>μ</u> /1	ANtr/7.2/RES/01: 2018	0.1	No relaxation	BDL(D1,-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 Danuty Technical Manager Swati Gondhalekar Deputy Technical Manager Authorized Signatory



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

### Test Report

Test Report No.	: ALPL/30112023/	1-24A dated	30/11/	2023	Page 3 o	f 3
Issued To ; M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	22/ W.(	PL/22112023/ENV-283-5 11/2023 O 4700098928/962 03.2022	Analysis Start 23/11/20 Analysis End 29/11/20 Report Issue Date 30/11/20 Sample Category Water	
Sample Name	Sample Source	Sample Particulars		Sample Condition	Quantity Received	
Drinking Water	Outlet Water	Sample Code-DW-5		Scaled & Ice Preserved	5.0 Ltr & 250 ml	
Sample Collected By		Sampling D		Sampling Time	Sampling Location	
Anneon Representative		16/11/202		11.45am to 2.50 pm	Bamebari WTP Outlet	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method		Requirer IS 105 (Drinking Wat Including Au	Test Result		
				Acc	eceptable Limit   Permissible Limit /			
35	Pesticide Residues Organochlori							
1	Alpha-HCH	μg/l	ANtr/7.2/RES/01: 20		0.01	No relaxation	BDL (DL - 0.01	
ii _	Beta HCH	μg/1	ANtr/7_2/RES/01: 20	018	0.04	No relaxation	BDL (DL - 0.03)	
iii	Gamma - HCH (Lindane)	μg/I	ANtr/7.2/RES/01: 20	018	2	No relaxation	BDL (DL - 0.03)	
iv	Delta- HCH	µg/1	ANtr/7.2/RES/01: 20	018	0.04	No relaxation.	BDL (DL - 0.03)	
v	Alachlor	µg/l	ANtr/7.2/RES/01: 20	018	20	No relaxation	BDL (DL - 0.63	
VI	Aldrin	μg/l	ANtr/7.2/RES/01: 20	810	0.03	No relaxation	BDL (DL - 0.03)	
vii	Dieldrin	μg/1	ANtr/7,2/RES/01: 20	018	0.03	No reluxation	BDL (DL - 0.03	
viii	Butachlor	μg/1	ANtt/7.2/RES/01: 20	018	125	No relaxation	BDL (DL - 0.03)	
ix	p.p'-DDE	μg/1	ANtr/7.2/RES/01: 20	018	1	No relaxation	BDL (DL - 0.03	
X	o,p'-DDE	jig/l	ANtr/7.2/RES/01: 20		- 1	No relaxation	BDL (DL - 0.03	
81	p.p -DDD	pg/l	ANtr/7.2/RUS/01: 20	018	1	No relaxation	BDL (DL = 0.03	
xii	o,p -DDD	μg/l	ANtr/7.2/RES/01: 20	018	1 1	No relaxation	BDL (DL - 0.03	
Niii	o.p - DDT	µg/l	ANtr/7.2/RES/01: 20	018	1	No relaxation	BDL (DL - 0.03	
xiv	p.p'- DDT	µg/l	ANtr/7.2/RES/01:20	018		No relaxation	BDL (DL + 0.03	
NV.	Monocrotophos	μg/1	ANtr/7.2/RES/01: 20	018	- I	No relaxation	BDL (DL = 0.03	
xvi	Atrazine	μg/l	ANtr/7.2/RES/01:20	018	2	No relaxation	BDL (DL - 0.03	
XVII	Parathion methyl	μg/l	ANtr/7.2/RES/01; 20	018	0.3	No relaxation	BDL (DL = 0.03	
xviti	Paraoxon methyl	μg/I	ANtr/7.2/RES/01: 20	018	-	2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	BDL (DL - 0.03	
XiX	Malathion	µg/l	ANtr/7.2/RES/01: 20	018	190	No relaxation	BDL (DL - 0.03)	
XX	Malnoson	μg/1	ANtr/7.2/RES/01: 20			3	BDL (DL - 0.03)	
XXI	Ethion	µg/l	ANtr/7.2/RES/01: 20	810	3	No relaxation	BDL (DL - 0.03)	
XXII	Chlorpyrifos	pg/l	ANtr/7.2/RES/01: 20		30	No relaxation	BDL (DL - 0.03	

NOTE: Please see watermath. "Uniginal Less Report" to confirm the authenticity of this report. Results shall be referred to tested sample(s) and applicable to tested parameters only

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REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with 1S:10500;2012, for tests conducted Only.

Verified By

Swati Gondhalekar Deputy Technical Manager

-End of Report---

**Authorized Signatory** 



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### Test Report

Test Report No.: ALPL/30112023/ Issued To: M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	22/1 W.C	2023 PL/22112023/ENV-283-6 1/2023 D 4700098928/962 3:2022	Page 1 of 3  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 R.O Water	Sample Particulars Sample Code-DW-6		Sample Condition Scaled & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Collected By Annean Representative		Sampling 16/11/20	6 - Jr. St. 1 - 1	Sampling Time 11.45am to 2.50 pm	Sampling Lo Bamebari Can	ocation

			TEST RESULTS		Damenari Ca	
s.N.	Test Parameter	Measurement Unit	Test Method	Requirem IS 1050 (Drinking Water Including Ame	Test Result	
				Acceptable Limit	Permissible	
1	Biological Testing I. Water					-
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
11	Chemical Testing L. Water			*		
2	Alkalinity (as CaCO <sub>1</sub> )	mg/l	1S 3025 (Part 23) : 1986	200	600	43.26
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	1S 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	19.32
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40) ± 1991	75	200	26.43
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/I	1S 3025 (Part 46): 1994	30	100	5.17
11	Nitrate (as NO <sub>3</sub> )	mg/l	APHA method 23rd edition: 2017	45	No relaxation	BDL(DL-2)
12	Odour		1S 3025 (Part 5): 2018	Agreeable	Agreeable	Agreeable
13	pH	- 4	IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	6,83 at 25°C
14	Phenolic compounds (as C <sub>0</sub> H <sub>3</sub> OH)	mg/l	1S 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	7.26
16	Taste	1.0	1S 3025 (Part 8): 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 1984	500	2000	264
18	Turbidity	NTU	IS 3025 (Part 10): 1984		5	0.2
19	Total hardness (us CaCO <sub>1</sub> )	mg/l	IS 3025 (Part 21): 2009	200	600	87.30

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut

Deputy Technical Manager

**Authorized Signatories** 

Pooja Kathane Technical Manager



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

### Test Report

Issued To: M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		-25A Sample Inward I Inward Date Reference Reference Date	22/ W.	PL/22112023/ENV-283-6 11/2023 O 4700098928/962 03.2022	Page 2 of 3  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 R.O Water	Sample Part Sample Code		Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
Sample Anacon		Sampling Date   Sampling Time   16/11/2023   11.45am to 2.50 pm		Sampling Location Bamebari Canteen RO		

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirer IS 105 (Drinking Wat Including An	Test Result	
				Acceptable Limit	Permissible Limit #	
n	Chemical Testing 2. Residues In Water			14		
20	Arsenic (as As)	mg/l	1S 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/t	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/I	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** 



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### Test Report

Issued To : M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		Inward Referen	7 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 -		Page 3 o Analysis Start Analysis End Report Issue Date Sample Category	23/11/2023 29/11/2023 30/11/2023 Water	
Sample Name Sample Source		Sample Particulars			Sample Condition	Quantity Received	
Drinking Water R.O Water		Sample Code-DW-6			Scaled & Ice Preserved	5.0 Ltr & 250 ml	
Sample Collected By			Sampling Date		Sampling Time	Sampling Location	
Anacon Representative			16/11/2023		11.45am to 2.50 pm	Bamebari Canteen RO	

S.N.	Test Parameter	Measurement Unit	Requirement as per 18 10500 : 2012 Test Method (Drinking Water Specifications) Including Amendment No. 4		i00 : 2012 ter Specifications)	Test Result
				Acceptable Limit	Permissible Limit #	
35	Pesticide Residues Organochlori	ne				A VICTORIA
Î.	Alpha-HCH	μg/l	ANtr/7.2/RES/01: 20	18 0.01	No relaxation	BDL (DL - 0.01
- 11	Beta HCH	μg/l	ANtr/7.2/RES/01: 20	18 0.04	No relaxation	BDL (DL - 0.03)
111	Gamma - HCH (Lindane)	μg/l	ANtr/7.2/RES/01: 20	18 2	No relaxation	BDL (DL - 0.03)
iv	Delta-HCH	μg/l	ANtr/7.2/RES/01: 20	18 0.04	No relaxation	BDL (DL - 0.03)
v	Alachlor	µg/l	ANtr/7.2/RES/01: 20	18 20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 20	18 0.03	No relaxation	BDL (DL - 0.03)
VII-	Dieldrin	µg/l	ANtr/7.2/RES/01: 20	18 0.03	No relaxation	BDL (DL - 0.03)
viit	Butachlor	µg/l	ANtr/7.2/RES/01: 20	18 125	No relaxation	BDL (DL - 0.03)
ix	p.pDDE	µg/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
X	o,p'-DDE	μg/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
XÌ	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
xii	o,p*-DDD	pg/l	ANtr/7.2/RES/01:20	18 1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	jig/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
xiv	p,p - DDT	μg/1	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
XV	Monocrotophos	µg/I	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
xvi	Atrazine	µg/l	ANtr/7.2/RES/01: 20	18 2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01:20	18 0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 20	18 -		BDL (DL - 0.03)
xix	Malathion	μg/Ι	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
XX	Malaoxon	µg/l	ANtr/7.2/RES/01: 20	18		BDL (DL - 0.03)
xxi	Ethion	ид/1	ANtr/7.2/RES/01: 20	18 3	No relaxation	BDL (DL - 0.03)
XXII	Chlorpyrifos	μg/l	ANtr/7.2/RES/01: 20	18 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 15:10500:2012, for tests conducted Only,

Verified By

Dirati Swati Condhalekar Deputy Technical Managar **Authorized Signatory** 

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

End of Report-



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### Test Report

Issued To: M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		29A dated 30 Sample Inward No. Inward Date Reference Reference Date	22/11/2023	LPL/22112023/ENV-283-GW-4 2/11/2023 V.O 4700098928/962		23/11/2023 29/11/2023 30/11/2023 Water
Sample Name Sample Source		Sample Particulars	- Controller	Condition	Quantity Received	
Ground Water Borewell		Sample Code-GW-4		ce Preserved	5.0 Ltr & 250 ml	
Sample Collected By		Sampling Date	Sampling Time		Sampling Location	
Annoon Representative		18/11/2023	11 30 um to 4.10 pm		Borewell Near Nana Hotel (Joriba)	

TEST RESULTS

5.N.	rest Parameter	Measurement Unit	Test Method	IS 1050 (Drinking Wate	ent as per 0 : 2012 r Specifications) endment No. 4	Test Result
				Acceptable	Permissible Limit #	
1	Biological Testing I. Water					
1	Excherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
II .	Chemical Testing 1. Water	- Congress	1 Thousan			
2	Alkalinity (as CaCO <sub>3</sub> )	mg/l	1S 3025 (Part 23): 1986	200	600	176.39
3	Anionic surface netive 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	•	15	
5	Cyanide (as CN)	mg/l	1S 3025 (Part 27) = 1986	0.05	No relaxation	BDL (DL = 0.005)
6	Chloride (as Cl)	mg/L	1S 3025 (Part 32):1988	250	1000	32.58
7	Calcium (as Ca)	tng/I	IS 3025 (Part 40): 1991	75	200	47.39
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	13.82
11	Nitrate (as NO <sub>3</sub> )	mg/l	APHA method 23rd edition: 2017	45	No relaxation	4.71
12	Odour		IS 3025 (Part 5): 2018	Agreeable	Agreeable	Agreeable
13	pH	-	IS 3025 (Part 11) : 2022	6.5 to 8.5	No relaxation	7.24 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	26.98
16	Taste	1.0	IS 3025 (Part 8): 1984	Agrecable	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	175.23

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Verified By

Snehal Raut

Deputy Technical Manager

**Authorized Signatories** 

Pooja Kathana Technical Manager



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## Test Report

ALPL/30112023/1-	29A dated	30/11/2023		P	age 2 of 3
Issued To : M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		22/11/2023 W.O 4700098928/962		Analysis Start Analysis End Report Issue Date Sample Category	23/11/2023 29/11/2023 30/11/2023 Water
Sample Name Sample Source Ground Water Borewell		7000000		Quantity Received 5.0 Ltr & 250 ml	
	Sampling Date 18/11/2023				- Arrest Arrest
	on & I Limited) Sample Source	Sample Inward No. Inward Date Reference Reference Date Sample Source Borcwell Sample Code-GW- Sampling Date 18/11/2023	Sample Inward No. ALPL/22112023/ENV-28 Inward Date 22/11/2023 Reference W.O 4700098928/962 Reference Date 22.03.2022 Sample Source Sample Particulars Sample Congression Sample Code-GW-4 Sealed & Ioe Publiceted By Sampling Date Sampling Date	Sample Inward No. ALPL/22112023/ENV-283-GW-4 Inward Date 22/11/2023 Reference W.O 4700098928/962 Reference Date 22.03.2022 Sample Source Sample Particulars Sample Condition Borewell Sample Code-GW-4 Scaled & Ice Preserved Ilected By Sampling Date Sampling Time Its/11/2023 11.30 am to 4.10 pm	Sample Inward No. ALPL/223 12023/ENV-283-GW-4 Analysis Start Inward Date 22/11/2023 Analysis End Reference W.O. 4700098928/962 Report Issue Date Reference Date 22.03.2022 Sample Category  Sample Source Sample Particulars Sample Condition Quantity R Borcwell Sample Code-GW-4 Sealed & Ice Preserved 5.0 Ltr & 2  Ilected By Sampling Date Sampling Time Sampling L  Its/11/2023 11.30 am to 4.10 pm Borcwell Near Name

_			TEST RESULTS		-	COLUMN TO THE PARTY OF THE PART			
S.N.	Test Parameter	Measurement Unit	Test Method	(Drinking Wat	ment as per 500 : 2012 (er Specifications) mendment No. 4	Test Result			
		11000		Acceptable Limit	Permissible Limit #				
11	Chemical Testing 2. Residues In Water								
20	Arsenic (as As)	mg/I	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)	ing/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	0.21			
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/I	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 Gondhalckar Deputy Technical Manager **Authorized Signatory** 



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### Test Report

Issued To: M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)  Sample Name Ground Water  Sample Collected By Anacon Representative		Inward Date 22/1		00098928/962	Analysis Start Analysis End Report Issue Date Sample Category	age 3 of 3 23/11/2023 29/11/2023 30/11/2023 Water
		Sample Particulars Sample Code-GW-4		Sample Condition Scaled & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml Sampling Location Borewell Near Nana Hotel (Joriba	
		Sampling Date 18/11/2023		Sampling Time 11.30 nm to 4.10 pm		

S.N.	Test Parameter	Measurement Unit	Test Method	Requirement as per 15 t0500 : 2012 (Drinking Water Specifications) Including Amendment No. 4			Test Result	
34	Pesticide Residues Organochlori	90		Acc	eptable Limit	Permissible Limit #		
1	Alpha-HCH	µg/1	Abbell ammont of	116	0.01			
ii	Beta HCH	ug/l	ANtr/7.2/RES/01: 20 ANtr/7.2/RES/01: 20		0.01	No relaxation	BDL (DL = 0.01	
iii	Gamma - HCH (Lindane)				0.04	No relaxation	BDL (DL - 0.03)	
īv	Delta-HCH	μg/1	ANit/7.2/RES/01: 20		2	No relaxation	BDL (DL = 0.03)	
Y	Alachlor	ив/1	ANtr/7.2/RES/01: 20		0.04	No relaxation	BDL (DL - 0.03)	
vi	Aldrin	µg/1	ANtr/7.2/RIIS/01:20		20	No relaxation	HDL (DL - 0.03)	
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 20	20.00	0.03	No relaxation	BDL (DL - 0.03)	
viii	The state of the s	µg/l	ANtr/7 2/RES/01: 20	7.75	0.03	No relaxation	BDL (DL - 0.03)	
7 117	Butachlor	μg/1	ANtr/7.2/RES/01:20	-	125	No relaxation	BDL (DL - 0.03)	
ix	p.p'-DDE	µg/l	ANtr/7 2/RES/01: 20		1	No relaxation	BDL (DL - 0.03)	
×	o,p'-DDE	µg/i	ANtr/7.2/RES/01: 20			No relaxation	BDL (DL - 0.03)	
Xi	p,p'-DDD	µg/l	ANtr/7.2/RES/01: 20			No relaxation	BDL (DL - 0.03)	
XII	o,p*-DDD	ид/1	ANtr/7.2/RES/01: 20	18		No relaxation	BDL (DL - 0.03)	
xiii	0,p'- DDT	μg/l	ANtr/7.2/RES/01: 20	118		No relaxation	BDL (DL - 0.03)	
XIV	p.p'- DDT	μg/l	ANtr/7.2/RES/01 20	18	1	No relaxation	BDL (DL - 0.03)	
XV	Monocrotophos	μg/l	ANtr/7.2/RES/01: 20	18	1	No relaxation	BDL (DL - 0.03)	
xvi	Atrazine	μg/1	ANtr/7.2/RES/01-20	118	2	No relaxation	BDL (DL - 0.03)	
xvii	Parathion methyl	μg/1	ANtr/7.2/RES/01: 20	118	0.3	No relaxation	BDL (DL - 0.03)	
XVIII	Paraoxon methyl	μg/I	ANtr/7.2/RES/01: 20	100	-	150 Islandani	BDL (DL - 0.03)	
XIX	Malathion	μg/1	ANtr/7.2/RES/01: 20		190	No relaxation		
XX	Malaoxon	μgЛ	ANtr/7.2/RES/01: 20		230	TWO INJUNE	BDL (DL + 0.03)	
XXI	Ethion	μg/l	ANtr/7,2/RES/01, 20	. 1. 15.	1	No relaxation	BDL (DL - 0.03)	
xxii	Chlorpyrifos	ид/1	ANtr/7.2/RES/01: 20		30	No relaxation	BDL (DL - 0.03) BDL (DL - 0.03)	

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Result for test no. 8 is not relevant. ANIet/7.2/RES-01,06;: Inhause validated method. NT indicates our Testod as sample fasted to

REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with IS:10500:2012, for tests conducted Only.

Dusti

Swati Gondhalekar Deputy Fechnical Manager Authorized Signatory

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

-End of Report-



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### Test Report

Test Report No. : A	ALPL/30112023/1-	30A dated	30/11/202	23	P	age 1 of 3
Issued To: M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		Inward Date 22/11/		4700098928/962	Analysis Start 23/11/202: Analysis End 29/11/202: Report Issue Date 30/11/202: Sample Category Water  Quantity Received 5.0 Ltr & 250 ml  Sampling Location Bamebari Borewell No-2 (Near Jagannath Temple)	
Sample Name Ground Water  Sample Collected By Anacon Representative		Sample Particulars Sample Code-GW-5 Sampling Date 18/11/2023		Sample Condition Scaled & Ice Preserved		
				Sampling Time 11.30 am to 4.10 pm		

TEST RESULTS Requirement as per IS 10500: 2012 Measurement (Drinking Water Specifications) S.N. Test Parameter Test Method Test Result Unit Including Amendment No. 4 Acceptable Permissible Limit Limit # 1 Biological Testing 1. Water Escherichia coli 1 Per 100 ml IS 15185: 2016 Absent Absent Absent Chemical Testing 1. Water н 2 Alkalinity (as CaCO<sub>3</sub>) mg/l IS 3025 (Part 23): 1986 200 600 176.29 Anionic surface active agents mg/I IS 13428 : (Annex K): 2005 0.2 1.0 (as MBAS) BDL (DL - 0.01) 4 IS 3025 (Part 4) : 2021 Colour Hazen units 5 15 5 Cyanide (as CN) mg/l IS 3025 (Part 27): 1986 0.05 No relaxation BDL (DL = 0,005) 6 Chloride (as Cl) 1S 3025 (Part 32):1988 mg/l 250 1000 18.72 Calcium (as Ca) IS 3025 (Part 40): 1991 mg/l 75 200 53.61 Free residual chlorine R 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 0.17 Magnesium (us Mg) IS 3025 (Part 46): 1994 mg/I 30 100 14.38 11 Nitrate (as NO<sub>1</sub>) mg/l APHA method 23rd edition: 2017 No relaxation 45 6.94 12 Odour 1S 3025 (Part 5): 2018 -Agreeable Agrecable Agreeable 13 pli 15 3025 (Part 11) 2022 6.5 10 8.5 No relaxation 8.21 at 25°C 14 Phenolic compounds (as CoHoOH) mg/l IS 3025 (Part 43): 2022 0.001 0.002 BDL (DL = 0.001) 15 Sulphate (as SO<sub>4</sub>) IS 3025 (Part 24): 2022 mg/I 200 400 26.81 16 Taste IS 3025 (Part 8): 1984 Agrecable Agreeable Agreeable 17 Total dissolved solids mg/l IS 3025 (Part 16): 2023 500 2000 467 18 Turbidity NTU IS 3025 (Part 10) : 1984

IS 3025 (Part 21): 2009

Please refer last Page for Note and Remarks.

mg/l

Verified By

Deputy Technical Manager

Total hardness (as CaCO<sub>3</sub>)

**Authorized Signatories** 

200

Technical Manager

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

600

0.3

193.08



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### Test Report

Test Report No. :	ALPL/30112023/1-	30A dated 30/	11/2023	P	age 2 of 3
Issued To: M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		Inward Date Reference	ALPL/22112023/ENV-283-GW-5 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 Sample Source Ground Water Borewell		Sample Particulars Sample Code-GW-5	Sample Condition Scaled & 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 Bamebari Borewell No-2 (Near Jagannath Temple)	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Require IS 105 (Drinking Wal Including Ar	Test Result		
				Acceptable Limit	Permissible Limit #		
II	Chemical Testing 2. Residu	es In Water					
20	Arsenic (as A5)	mg/l	1S 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	1S 3025 (Part 2) : 2019	0.5	2.4	BDL (DL-0.1)	
23	Copper (as Cu)	mg/l	1S 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	0.27	
26	Lead (as Pb)	mg/l	IS 3025 (Part 2): 2019	0.01	No relaxation	BDL (DL - 0.001)	
27	Manganese (as Mn)	mg/I	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 relexation	BDL (DL - 0.0005)	
29	Selenium (as Se)	mg/l	1S 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)	Гуц	ANtr/7.2/RES/01; 2018	0.1	No relaxation	BDL(D10.03)	

ANtr/7.2/RES/06

Please refer last Page for Note and Remarks.

Verified By

mg/l

Nidhi Dubey

hydrocarbon (PAH) Mineral Oll

Deputy Technical Manager

Swati Gondhalekar Deputy Technical Manager Authorized Signatory

BDL (DL - 0.1)

No relaxation



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### Test Report

Test Report No. :	THE BUTTE THE PERIOD OF T		0/11/2023		Page 3 of 3		
Issued To:		Sample Inward No.	ALPL/22112023/E	ALPL/22112023/ENV-283-GW-5		23/11/2023	
M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		Inward Date 22/11/2023  Reference W.O 4700098928/962  Reference Date 22.03.2022		Analysis End	29/11/2023		
				Report Issue Date Sample Category	30/11/2023 Water		
Sample Name Sample Source Ground Water Borewell		Sample Particular Sample Code-GW-		e Condition (ce Preserved	Quantity Received 5,0 Ltr & 250 ml Sampling Location Bamebari Borewell No-2 (Near Jagannath Temple)		
Sample Collected By Anacon Representative		Sampling Date 18/11/2023		nling Time m to 4,10 pm			

S.N.	Test Parameter	Measurement Unit	Test Method	Requir IS 10 (Drinking Wa Including A	Test Result	
34	Bertielde Bertiere Organischten	**		Acceptable Limit	Permissible Limit#	
34	Pesticide Residues Organochlori Alpha-HCH		AND TO STREET, SO	14 1 224	1	
ii	Beta HCH	µg/1	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL = 0.01)
		µg/l	ANtt/7.2/RES/01.20	5167	No relaxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	ру/Т	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL = 0.03)
iv	Delta- HCH	µg/1	ANtt/7.2/RES/01: 20	2101	No relaxation	BDL (DL - 0.03)
V	Alachlor	μμ/1	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL + 0.03)
Vi.	Aldrin	118/1	ANtr/7.2/RES/01, 20	0.140	No relaxation	BDL (DL = 0.03)
vii	Dieldrin	μη/1	ANti/7.2/RES/01: 20	7776	No relaxation	BDL (DL + 0.03)
viii	Butachlor	µg/l	ANtr/7.2/RES/01.20	18 125	No relaxation:	BDL (DL - 0.03)
ix.	p,p*-DDE	µg/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
X	o.p*-DDE	µg/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
XI.	p.p'-DDD	μg/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)
XII	o,p*-DDD	ид/Т	ANtr/7.2/RES/01:20	18 1	No relaxation	BDL (DL - 0.03)
xiii	o,p'- DDT	µg/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
xiv	p.p'- DDT	µg/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
XV	Monocrotophos	µg/1	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
xyi	Atrazine	µg/l	ANtr/7.2/RES/01: 20	18 2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01:20	18 0.3	No relaxation	BDL (DL - 0.03)
xviii -	Paraoxon methyl	µg/I	ANtr/7.2/RES/01: 20		A CONTRACTOR OF THE PARTY OF TH	BDL (DL - 0.03)
xix	Malathion	μg/1	ANtr/7_2/RES/01: 20	18 190	No relaxation	BDL (DL - 0.03)
XX	Malaoxon	μμ/Ι	ANtr/7.2/RES/01: 20	1997		BDL (DL = 0.03)
xxi	Ethion	µg/1	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
XXII	Chlorpyrifos	μμ/1	ANtr/7.2/RES/01: 20		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 junameters only. \*Test report shall not be reproduced except in full without prior written approvad of Anatom Labs. 

\*Lability of Anatom Labs is limited to invoiced amount only. 

\*Non-perchable and perishable sample(s) shall be disposed off after 30 days and 15 days respectively from the state of mone of Test Report, unless specified officeways. 

\*Permissible time in absence of an alternate source for dyndring water. 

\*ng/l\* is equivalent to 'pgin' equivalent to 'pgin'. 

\*Result for test no. 8 is not relevant. 

\*ANtr7.2/RES-01.06.\* Inhouse validated method. 

\*N' redeates not Tested as ample failed to invoice the state of the state

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 Gondhalekar Deputy Technical Manager

-End of Report-

Authorized Signatory



### Anacon Laboratories Pvt. Ltd. Nagpur Lab

# Test Report

Test Report No. :	ALPL/30112023/1-	31A dated	30/11/20	)23	P	age 1 of 3
Issued To : M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		Inward Date 22/11/202		- 4700098928/962	Analysis Start Analysis End Report Issue Date Sample Cutegory	23/11/2023 29/11/2023 30/11/2023 Water
Sample Name	Sample Source	Sample Particula		Sample Condition	Quantity Received	
Ground Water	Borewell	Sample Code-GW		Scaled & Jee Preserved	5.0 Ltr & 250 ml	
Sample Collected By		Sampling Date		Sampling Time	Sampling Location Bamebari Borewell No-1 (Near Club House)	
Anacon Representative		18/11/2023		11.30 un to 4.10 pm		

-			TEST RESULTS		4-14-14	AND HOUSE)
S.N.	Test Parameter	Measurement Unit	Test Method	Requirem IS 1050 (Drinking Wate Including Am	Test Result	
				Acceptable	Permissible Limit #	
1	Biological Testing 1. Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
11	Chemical Testing 1. Water				1,550.2.15	1100001
2	Alkalinity (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 23): 1986	200	600	182.63
3	Anionic surface active agents (as MBAS)	mg/I	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/I	IS 3025 (Part 32) :1988	250	1000	31.64
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	200	47.36
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	1S 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	6.73
12	Odour	-	IS 3025 (Part 5): 2018	Agreeable	Agreeable	Agreeable
13	pH	100	IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	7.92 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	1S 3025 (Part 24): 2022	200	400	26.43
16	Taste	T	IS 3025 (Part 8): 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16) ; 2023	500	2000	481
18	Turbidity	NTU	IS 3025 (Part 10): 1984	1 -	5	0.3
19	Total bardness (as CaCO <sub>y</sub> )	mg/l	IS 3025 (Part 21): 2009	200	600	167.35

Please refer last Page for Note and Remarks.

Verified By

Snekal Raut Deputy Technical Manager **Authorized Signatories** 

Pooja Kathane Technical Manager



### Anacon Laboratories Pvt. Ltd. Nagpur Lab

## Test Report

Issued To :	ALPL/30112023/1-	31A dated 30/11/2023 Sample Inward No. ALPL/22112023/ENV-283-GW-		NV-283-GW-6	Analysis Start	age 2 of 3 23/11/2023	
M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		Inward Date Reference Reference Date	22/11/2023	22/11/2023 W.O 4700098928/962		29/11/2023 30/11/2023 Water	
Sample Name Ground Water	Sample Source Borewell	Sample Particular Sample Code-GW-	7	le Condition & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml		
Sample Collected By Anacon Representative		Sampling Date 18/11/2023		pling Time un to 4.10 pm	Sampling Location Bamebari Borewell No-1 (Near Club House)		

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirer IS 105 (Drinking Wat Including Ar	Test Result	
				Acceptable Limit	Permissible Limit #	
11	Chemical Testing 2. Residu	es In Water		30.5		
20	Arsenic (as As)	mg/I	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	0.28
26	Lead (as Pb)	mg/l	1S 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/I	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



xxii Chlorpyrifos

### Anacon Laboratories

#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

### Test Report

Test Report No. :	ALPL/30112023/1-	31A dated	30/11/202	23	F	age 3 of 3
Issued To: M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		Inward Date 22/1 Reference W.C		/22112023/ENV-283-GW-6 2023 4700098928/962 2022	Analysis Start Analysis End Report Issue Date Sample Category	23/11/2023 29/11/2023 30/11/2023 Water
Sample Name Ground Water	Sample Source Borewell	Sample Particula Sample Code-GW	The state of the s		Quantity R 5.0 Lir & 2	THE PARTY
Sample Collected By Anacon Representative		Sampling Date 18/11/2023		Sampling Time 11.30 am to 4.10 pm	Sampling Location Bamebari Borewell No-1 (Near Club House)	

			TEST RESULT	S		
S.N.	Test Parameter	Measurement Unit	Test Method	(Drinking Wat Including Ac	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4	
34	Pesticide Residues Organochlori	na .		Acceptable Limit	Permissible Limit#	
1	Alpha-HCH		ANtr/7.2/RES/01: 20	8 0.01	I Manufactural and	I post del a del
ii	Beta HCH	μg/l μg/l	ANtr/7.2/RES/01: 20	410-4	No relaxation	BDL (DL - 0.01)
66	Gamma - HCH (Lindane)	ug/l	ANu/7.2/RES/01: 20		No relaxation	BDL (DL = 0.03)
iv	Delta-HCH				No relaxation	HDL (DL - 0.03)
N.	Alachior	µg/l	ANtr/7.2/RES/01: 20:		No relaxation	BDL (DL - 0.03)
VI	Aldrin	μg/l	ANtr/7.2/RES/01: 20		No relaxation	MDL (DL = 0.03)
		µg/1	ANtr/7.2/RES/01: 20		No relaxation	BDL (Dt 0.03)
VII	Dieldrin	μg/l	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL + 0.03)
viii	Butachlor	ид/1	ANtr/7.2/RES/01.20.		No relaxation	BDL (DL - 0.03)
1X	p.p*-DDE	µg/l	ANtt/7.2/RES/01: 20:	8 1	No relaxation	BDL (DL - 0.03)
- X	o.p -DDE	μg/Ι	ANii/7.2/RES/01: 20	8	No relaxation	BDL (DL + 0.03)
Xi	p.p'-DDD	μg/l	ANtr/7.2/RES/01: 20	8 1	No relaxation	BDL (DL - 0.03)
XII	o.p -DDD	µg/l	ANtr/7.2/RES/01: 20:	18	No relaxation	BDL (DL - 0.03)
xitt	o.p · DDT	μg/Ι	ANtr/7.2/RES/01: 20	8 1	No relaxation	BDL (DL - 0.03)
XIV	p.p'- DDT	µg/l	ANtr/7.2/RES/01: 20:	8	No relaxation	BDL (DL - 0.03)
SV.	Monocrotophos	µg/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
XVI	Atrazine	μg/1	ANtr/7.2/RES/01: 20	8 2	No relaxation	BDL (DL = 0.03)
svii	Parathion methyl	µg/l	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
sviii.	Paranxon methyl	ид/1	ANtr/7.2/RES/01: 20		A TO TEMPORALION	BDL (DL - 0.03)
xix	Maluthion	µg/1	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
XX	Malaoxon	µg/t	ANtr/7.2/RES/01: 20		TAN TORINATION	BDL (DL - 0.03)
XXI	Ethion	pg/l	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
-	Total Control of the		Carried Committee of the state of		140 (40000000)	1 2007-1016-01031

NOTE: Please see watermark "Original Test Report" to confirm the authenticity of this report. Testulus 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. Lability 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 four of Test Report, unless apecified otherwise. Permissible limit in absence of an alternate source for drinking water. Implify a equivalent to "ppif" a equivalent to "ppif" a equivalent to "ppif" a equivalent to "ppif" a equivalent to "ppif". Result for test no. It is not relevant. After 7.2/RES-01.06.; Inhouse validated method. If indicates not Tested as sample tailed to satisfact and shall be considered as "absent".

ANtr/7.2/RES/01: 2018

30

REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with 1S:10500:2012, for tests conducted Only,

µg/l

Verified By

Swati Gondhalekar Deputy Technical Manager

Down

Authorized Signatory

BDL (DL = 0.03)

No relaxation

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

-End of Report-



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

## Test Report

Test Report No. :	ALPL/30112023/1-		30/11/2023		P	age 1 of 3
Issued To: M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		Inward Date 22/11/20		700098928/962	Analysis Start Analysis End Report Issue Date Sample Category	23/11/2023 29/11/2023 30/11/2023 Water
Sample Name	Sample Source	Sample Particula	100	Sample Condition	Quantity Received	
Ground Water	Dugwell	Sample Code-GW		Scaled & Ice Preserved	5.0 Ltr & 250 ml	
Sample Collected By		Sampling Date		Sampling Time	Sampling Location Open Dugwell Near Jaroli Hig School (Jurudi)	
Anacon Representative		18/11/2023		11:30 am to 4,10 pm		

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirem 1S 1050 (Drinking Wate Including Am	Test Result	
				Acceptable Limit	Permissible Limit #	
1	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	197.46
3	Anionic surface active agents (as MBAS)	mg/l	15 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	1S 3025 (Part 32):1988	250	1000	31.46
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	200	46.39
8	Free residual chlorine	mg/I	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	0.28
10	Magnesium (as Mg)	mg/l	IS 3025 (Part 46): 1994	30	100	12.64
11	Nitrate (as NO <sub>3</sub> )	mg/l	APHA method 23rd edition: 2017	45	No relaxation	6.37
12	Odour		IS 3025 (Part 3): 2018	Agreeable	Agreeable	Agreeable
13	pH		IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	8.14 at 25°C
14	Phenolic compounds (as C <sub>n</sub> H <sub>s</sub> OH)	mg/I	IS 3025 (Part 43): 2022	100.0	0.002	BDL (DL - 0.001)
15	Sulphate (as SO <sub>4</sub> )	mg/I	IS 3025 (Part 24) ; 2022	200	400	24.37
16	Taste		IS 3025 (Part 8): 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 2023	500	2000	461
18	Turbidity	NTU	IS 3025 (Part 10): 1984	1	5	0.3
19	Total hardness (as CaCO <sub>x</sub> )	mg/l	IS 3025 (Part 21): 2009	200	600	167.88

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut Deputy Technical Manager **Authorized Signatories** 

Pooja Kathane Technical Manager Dr. (Mrs.) S.D. Garway

Quality Manager



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

#### Test Report

Test Report No. :	ALPL/30112023/1-	32A dated	30/11/20	23	P	age 2 of 3
Issued To : M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		Inward Date 22/11/2		4700098928/962	Analysis Start Analysis End Report Issue Date Sample Category	23/11/2023 29/11/2023 30/11/2023 Water
Sample Name Ground Water Dugwell  Sample Collected By Anason Representative		Sample Particulars Sample Code-GW-7 Sampling Date 18/11/2023		Sample Condition Scaled & Ice Preserved	Quantity R 5.0 Ltr & 7	
				Sampling Time 11.30 am to 4.10 pm	Sampling Location  Open Dugwell Near Jaroli Hig School (Jurudi)	

S.N.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	Requirement as per 1S 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		
				Acceptable Limit	Permissible Limit #		
11	Chemical Testing 2. Residu	ies In Water			20100727		
20	Arsenie (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/t	1S 3025 (Part 2) 12019	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	1S 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 Denty Technical Manager Swati Gondhalekar Deputy Technical Manager **Authorized Signatory** 



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

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 https://www.anaconlaboratories.com

#### Test Report

Issued To: M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)  Sample Name Ground Water  Sample Collected By Anacon Representative		Inward Date 22/11/2023 Reference W.O 470009892 Reference Date 22.03.2022 Sample Particulars Sample Code-GW-7 Scaled Sampling Date Sample Sample Sample Code GW-7 Sample Sample Code GW-7 Sampling Date Sample Sample Sample Sample Code GW-7 Sample Sample Sample Sample Sample Code GW-7 Sample Sample Sample Sample Sample Code GW-7 Sample Sample Code GW-7 Sample Cod		4700098928/962	Analysis Start Analysis End Report Issue Date Sample Category	23/11/2023 29/11/2023 30/11/2023 Water
				Sample Condition Scaled & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml Sampling Location Open Dugwell Near Jaroli Hij School (Jurudi)	
				Sampling Time 11.30 am to 4.10 pm		

S.N.	Test Parameter	Measurement Unit	Test Method	(Drinkin Includ	Test Result	
				Acceptable Li		
34	Pesticide Residues Organochlori	ne		Carried A. Carried		
4	Alpha-HCH	µg/l	ANtr/7.2/RES/01: 20	0,0	No relaxation	BDL (DL = 0.01)
-11	Beta HCH	μg/l	ANtr/7.2/RES/01: 20	0.0	4 No relaxation	BDL (DL + 0.03)
iii	Gamma - HCH (Lindane)	ид/1	ANtr/7.2/RES/01: 20	18 2	No relaxation	BDL (DL - 0.03)
iv	Delta-HCH	ng/l	ANtr/7.2/RES/01: 20	0.0	4 No relaxation	BDL (DL = 0.03)
V.	Alachlor	µg/l	ANtr/7.2/RES/01.20	018 20	No relaxation	BDL (DL - 0.03)
VI	Aldrin	µg/l	ANtr/7 2/RES/01: 20	0.0	3 No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtt/7.2/RES/01: 20	0.0	No relaxation	BDL (DL - 0.03)
villi	Butachfor	µg/l	ANtr/7.2/RES/01: 26	118 12	5 No relaxation	BDL (DL - 0.03)
ix	p.p -DDE	µg/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
X	o,p'-DDE	pg/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
xi	p,p°-DDD	µg/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
xii	o,p*-DDD	µg/l	ANtr/7.2/RES/01: 20	1 810	No relaxation	BDL (DL - 0.03)
xiii	o,p - DDT	µg/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
xiv	p.p'- DDT	µg/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
XV	Monocrotophos	µg/l	ANtr/7.2/RES/01: 20	18: 1	No relaxation	BDL (DL - 0.03)
XVI	Atrazine	µg/l	ANtr/7.2/RES/01: 20	18 2		BDL (DL - 0.03)
xvii	Parathion methyl	ид/1	ANtr/7.2/RES/01: 20	0.0		BDL (DL - 0.03)
xviii	Paraoxon methyl	μg/l	ANtr/7.2/RES/01/20		210 1 4 110 110 110 110 110 110 110 110 1	BDL (DL - 0.03)
XIX	Malathion	ид/1	ANtr/7.2/RES/01: 20		0 No relaxation	BDL (DL + 0.03)
XX	Malaoxon	µg/l	ANtr/7.2/RES/01: 20			BDL (DL - 0.03)
xxi	Ethion	µg/t	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL - 0.03)
xxii	Chlorpyrifos	μg/1	ANtr/7.2/RES/01: 20	-		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 Gondhalekar

Deputy Technical Manager

Authorized Signatory

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

-End of Report-



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

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#### Test Report

Test Report No. :	ALFL/301		dated 30/11/2023			Page	f of i	
Issued To:		Sample Inward No.	ALPL/22112023/ENV	/-283-SW-5	Analysis 5	Start	23/11/2023	
M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		Inward Date	22/11/2023 W.O 4700098928/962		Analysis End 29/1 Report Issue Date 30/1		29/11/2023 30/11/2023	
		Reference						
		Reference Date					Water	
Surface Water River Sample Collected By Sample Collected By		nple Source River	Sample Particulars Sample Code-SW-5	Sample Con- Sealed & Ice P			ntity Received	
		Sampling Date 17/11/2023	Sampling Time 11.55 um to 4.25 pm	Sampling Location 5. Gurubeda Baitarani River-SW-5				

		Measurement	09/1/20/07/30	Standards as per	Test Result			
5.N.	Test Parameter	Unit	Test Method	IS 2296:1992 Class C	SW-5			
1	Biological Testing 1.Water							
1	Coliform	MPN/100ml	IS 1622 1981	5000	BDL(DL-2)			
11	Chemical Testing LWater				3.11.1(4.31.4)			
2	pH value	·	IS 3025 (Part 11): 2022	6.0 to 9.0	8.26 m 25°C			
3	Colour	Hazen units	IS 3025 (Part 4) : 2021	300	12			
4	Dissolved Oxygen	mg/I	IS 3025 (Part 38):1989	4.0	6.1			
5	Total Suspended Solid (as TSS)	mg/I	IS 3025 (Part 17) :2022	-	32			
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44) 1993	3.0	2.17			
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) '2006	# m	6.59			
8	Total Dissolved Solids (TDS)	mg/l	1S 3025 (Part 16) : 1984	1500	1164			
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	32.81			
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) 2022	400	64.29			
12	Nitrate (as NO <sub>1</sub> )	mg/l	IS 3025 (Part 34): 1988	50	17.34			
13	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1.5	0.32			
.14	Cyanide (as CN)	mg/I	IS 3025 (Part 27) : 1986	0.05	BDL(DL-0.005)			
15	Phenolic compounds (as C6H5OH)	mg/l	1S 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) 12019	0.5	0.43			
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 (us-Pb)	mg/l	1S 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)			
22	Zinc (as Zn)	mg/I	IS 3025 (Part 2) : 2019	15	BDL(DL-0.1)			
23	Hexa Chromium (as Cr*)	mµ/l	IS 3025 (Part 2) :2019	0.05	BDL(DL-0.1)			
24	Mercury (us Hg)	mg/l	IS: 3025 (Part 48): 1994	5.05	BDL(DL-0.01)			
25	Manganese (as Mii)	mg/I	IS 3025 (Part 2): 2019		BDL(DL-0.1)			

NOTES: 
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Labslity of Anacen Labs to limited to invoiced amount only. 
Non-personable and periodable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of usue of Test Report, unless specified otherwise. 
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

Nidhi Dubey

DeputyTechnical Manager

Snehal Raut

Deputy Technical Manager

**Authorized Signatories** 

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

-End of Report-

Technical Manager



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

#### Test Report

Test Report No. : Issued To : M/s Bamebari In Manganese Mine (M/s TATA Stee	on &	Sample Inward No. Inward Date Reference	dated 30/11/2023 ALPI./22112023/ENV- 22/11/2023 W.O4700098928/96/ 22.03.2022	40 40 040	Analysis : Analysis : Report Is Sample C	End sue Date	23/11/2023 29/11/2023 30/11/2023 Water
Sample Name Surface Water		mple Source m 2. Downstream	Sample Particulars Sample Code-SW-6 & 7	Sample Con- Scaled & Icc P	A COLUMN TO SERVICE STATE OF THE PARTY OF TH		tity Received & 250 ml each
Annon Representative 17/11/2023		Sampling Time 11.55 am to 4.25 pm	Sampling Location 1 Tindharia Upstream (Baitarani River)-SW-6 2 Tindharia Downstream (Baitarani River)-SW		River)-SW-6		

		2000		Standards	Test	Result
S.N.	Test Parameter	Measurement Unit	Test Method	as per IS 2296:1992 Class C	SW-6	SW-7
1	Biological Testing LWater			75.00	- CA	
1	Coliform	MPN/100ml	IS 1622 : 1981	5000	BDL(DL-2)	BDL(DL-2)
11	Chemical Testing 1.Water					
2	pH value		1S 3025 (Part 11): 2022	6.0 to 9.0	8.21 at 25°C	8/14 at 25°C
3	Colour	Hazen units	15.3025 (Part 4): 2021	300	14	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		32	28
6	BOD (3 days at 27°C)	mg/l	15 3025 (Part 44) :1993	3.0	2.47	2.31
7	Chemical oxygen demand	mg/l	IS 3025 (Part 58) 2006		6.59	5.97
K	Total Dissolved Solids (TDS)	mg/l	IS 3025 (Part 16): 1984	1500	1462	1381
9	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	1.5	0.07	0.06
10	Chloride (as Cl)	mg/l	IS 3025 (Part 32) :1988	600	46.38	43.51
11	Sulphate (as SO <sub>4</sub> )	mg/l	IS 3025 (Part 24) : 2022	400	67.29	58.64
12	Nitrate (as NO <sub>3</sub> )	mg/l	IS 3025 (Part 34): 1988	50	17.32	16.81
13	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	1,5	0.47	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 C6H5OH)	mg/l	IS 3025 (Part 43):1001	0.005	BDL(D)0.001)	BDL(Dt-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				553(515)	DD14(D11-0,01)
17	Iron (as Fe)	mg/l	IS 3025 (Part 2): 2019	0.5	0.43	0.41
18	Cadmium (as Cd)	mg/I	IS 3025 (Part 41) . 1992	0.01	BDL(DL-0.1)	BDL(DL-0.1)
19	Selenium (ax 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 ")	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 DeputyTechnical Manager Snehal Raut Deputy Fechnical 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/30112	023/1-41A	dated 30/11/	2023		Page 1 of 3
Issued To: M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)	Sample Inward No. Inward Date Reference Reference Date	ALPL/2211 22/11/2023 W.O 4700 22-03.2022	2023/ENV-283-WW-1&2 098928/962	Analysis Start Analysis End Report Issue Date Sample Category	23/11/2023 29/11/2023 30/11/2023 Water
Sample Name Effluent Water	Sample Partice Sample Code-WW-1	The second second	Sample Condition Sealed & Ice Preserve	Quantity Received 5.0 Lir & 250 ml	
Sample Collected By Anneon Representative		ing Date 1/2023	Sampling Time 10:20 am to 11:45 am	WW-1 Barneb WW-2-BAMER	Location ari STP-INLET IARI CUL-WATER (Neur Garrage)

#### TEST RESULTS

S.N.	Test Parameter	Measurement	Test Method	Standards (In Land Surface	Test Result	
	1,55, 1 81,815,151	Unit	Test Mediod	Water)	WW-I	WW-2
1	Chemical Testing Pollution & Environment			0		
1	pH value	A	IS 3025 (Part 11): 2022	5.5 to 9.0	7.31 at 25°C	6.92 at 25°C
2	Oil & Grease	mg/I	IS 3025 (Part 39): 1991	10	BDL(DL-4)	BDL(DL-4)
3	Total Suspended Solid (TSS)	mg/l	IS 3025 (Part 17): 1984	100	43	51
4	Ammonical Nitrogen (as N)	mg/l	IS 3025 (Part 34) :1988	50	12.64	11.81
5	Total Kjeldahl Nitrogen (as N)	mg/l	IS 3025 (Part 34): 1988	100	16.28	15.94
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44):1993	30	24	21
7	Chemical Oxygen Demand	mg/l	IS 3025 (Part 58) :2006	250	68	56
8	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	0.2	BDL(DL-0.1)	BDL(DL-0.1)
9	Phenolic Compounds (as CaHaOH)	mg/l	1S 3025 (Part 43) : 2022	1.0	BDL(DL-0.1)	BDL(DL-0.1)

NOTES: 

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"mg/l" is equivalent to 'ppm". 

BDL-Below detection limit. 

DI-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

Snehal Raut Deputy Technical Manager Authorized Signatory

Dr. (Mrs.) 5. D. Garway Quality Manager

---End of Report---



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

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#### Test Report

Test Report No.: ALPL/30112	023/1-41A	dated 30/11	/2023		Page 2 of 3
Issued To: M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)	Sample Inward No. Inward Date Reference Reference Date	22/11/2023	2023/ENV-283-WW-1&2 098928/962	Analysis Start Analysis End Report Issue Date Sample Category	23/11/2023 29/11/2023 30/11/2023 Water
Sample Name Effluent Water	Sample Partice Sample Code-WW-I	4.1	Sample Condition Scaled & Ice Preserved	Quantity Received d 5.0 Ltr & 250 ml	
Sample Collected By Amscon Representative		ing Date 1/2023	Sampling Time 10.20 am to 11.45 am	WW-I Bameb WW-2-BAMER	Location ari STP-INLET JARI OIL-WATER ((Near Garrage)

TEST DESILITE

S.N.	Test Parameter	Measurement	Test Method	Standards (In Land	Test Result	
		Unit	Test Method	Surface Water)	WW-1	WW-2
11	Chemical Testing 2. Residues In Water					
10	fron (as Fe) mg/l 1S 3025 (Part 2): 2019		3.0	1.16	0.73	
11	Copper (as Cu)	mg/l	IS 3025 (Part 2) : 2019	3.0	BDL(DL-5)	BDL(DL-5)
12	Manganese (as Mn)	mg/l	IS 3025 (Part 2) : 2019	2.0	BDL(DL-0.1)	BDL(DL-0.1)
13	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994	0.01	BDL(DL-0.01)	BDL(DL-0.01)
14	Cadmium (as Cd)	mg/l	18; 3025 (Part 41): 1992	2.0	BDL(DL-0.1)	BDL(DL-0.1)
15	Selenium (as Se)	mg/f	15 : 3025 (Part 56) : 2003	0.05	BDL(DL-0.1)	BDL(DL-0.1)
16	Lead (as Pb)	mg/l	IS 3025 (Part 47) : 2003	0.1	BDL(DL-0.1)	BDL(DL-0.1)
17	Arsenic (as As)	mg/l	IS : 3025 (Part 37) : 2022	0.2	BDL(DL-0.05)	BDL(DL-0.05)
18	Nickel (as Ni)	mg/l	1S:13428 : 2005(Annexure L)	3.0	BDL(DL-0.1)	BDL(DL-0.1)
19	Zinc (as Zn)	mg/l	IS 3025 (Part 2): 2019	5,0	BDL(DL-5)	BDL(DL-0.1)
20	Total Chromium (as Cr)	mg/I	IS 3025 (Part 2): 2019	2.0	BDL(DL-0.1)	BDL(DL-0.1)
21	Vanadium (as V)	mg/l	IS 3025 (Part 2): 2019	0.2	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

Nidhi Dubey Peputy Technical Manager

End of Report

Authorized Signatory



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#### Test Report

Test Report No. : ALPL/301120	023/1-41A	dated 30/11			Page 3 of 3
Issued To: M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)	Sample Inward Inward Date Reference Reference Date	22/11/2023 W.O 4700	2023/ENV-283-WW-1&2 098928/962	Analysis Start Analysis End Report Issue Date Sample Category	23/11/2023 29/11/2023 30/11/2023 Water
Sample Name Effluent Water		Particulars -WW-1 & WW-2	Sample Condition Scaled & Ice Preserve	19000	tity Received
Sample Collected By Anacon Representative		Sampling Date 16/11/2023	Sampling Time 10.20 am to 11.45 am	Samplin WW-1 Barnet WW-2-BAME	g Location buri STP-INLET BARLOIL-WATER N (Near Garrage)

S.N.	Test Parameter	Measurement	Test Method	Standards (In	Test	Result
	1,100,100,100,100	Unit	rest Method	Land Surface Water)	WW-1	WW-2
1	Biological Testing 1.Water					
L	Faccal coliform	MPN/100 ml	IS 1622 : 1981	0.72	38	26
n	Chemical Testing Pollution & Environment			0.00		
2	Colour	Hazen units	IS 3025 (Part 4): 2021	Colourless	2	0 (Colourless)
3	Odour	1 - 5	IS 3025 (Part 5): 2018	Odourless	Disagrecable	Agreeable
4	Temperature	°C	APHA Method	Shall not exceed 5°C above the receiving water temperature	25°C	25°C
5	Free residual chlorine	mg/l	IS 3025 (Part 26): 2021	1.0	BDL(DL-0.1)	BDL(DL-0.1)
6	Particulate size of SS		Gravimetric Method	Shall pass 850 micron IS Sieve	<850	<850
7	Free Ammonia (us NH <sub>1</sub> )	mg/l	APHA Method	5	BDL(DL-0,1)	BDL(DL-0.1)
8	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	2.0	0.26	BDL(DL-0.1)
9	Sulphide (as S)	mg/l	IS 3025 (Part 29) ; 1986	2.0	BDL(DL-0.03)	BDL(DL-0.03)
10	Nitrate Nitrogen	mg/l	APHA Method	10	2.71	BDL(DL-2)
Ĥ	Bio Assay Test	%	APHA 22nd Edition	90% Survival of fish after 96 hours in 100% effluent	76%	92%
12	Hexavalent Chromium (as Cr**)	mg/l	Lab-SOP	0.1	BDL(DL-0.01)	BDL(DL-0.01)
13	Dissolved Phosphate (as P)	mg/l	IS 3025 (Part 31) 1988	5.0	BDL(DL-0.1)	BDL(DL-0.1)

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Verified By

Vidhi Dubey Deputy Technical Manager

Snehal Raut Deputy Technical Manager Pooja Kathand

Technical Manager

Authorized Signatories

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

-End of Report----



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#### Test Report

Test Report No.	: ALPL/31102023/	1-23A dated	31/10/2023	Page 1 o	f 3
Issued To: M/s Bamebari Iro Manganese Mine (M/s TATA Stee		Sample Inward No. Inward Date Reference Reference Date	ALPL/23102023/ENV-261-4 23/10/2023 W.O4700098928/962 22/03/2022	Analysis Start Analysis End Report Issue Date Sample Category	23/10/2023 30/10/2023 31/10/2023 Water
Sample Name Sample Source Drinking Water Inlet Water		Sample Particular Sample Code-DW-		Quantity Re 5.0 Ltr & 2	
Sample Collected By Anacon Representative		Sampling D 18/10/202	A CONTRACTOR OF THE CONTRACTOR	Sampling Le Bamebari W	

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 #	Absent  42.16  BDL (DL - 0.01  1  BDL (DL - 0.00  15.46  21.37  BDL (DL - 0.1  BDL (DL - 0.1  6.39  BDL(DL-2)
1	Biological Testing 1. Water					
1	Escherichia coll	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
11	Chemical Testing 1. Water					
2	Alkalinity (as CaCO <sub>3</sub> )	mg/L	IS 3025 (Part 23): 1986	200	600	42.16
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	1S 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	The second secon
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	200	21.37
8	Free residual chlorine	mg/l	IS 3025 (Part 26): 2021	Min. 0.2	1	BDL (DL = 0.1)
9	Fluoride (as F)	mg/I	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	
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	1 99	IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	7.37 at 25°C
14	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	1S 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	6.23
16	Taste	- 2	IS 3025 (Part 8): 1984	Agreeable	Agreeable	Agreeable
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 1984	500	2000	307
18	Turbidity	NTU	IS 3025 (Part 10): 1984	I	5	0.2
19	Total hardness (as CaCO <sub>1</sub> )	mg/l	IS 3025 (Part 21): 2009	200	600	79.66

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut

Deputy Technical Manager

**Authorized Signatories** 

Pooja Katharle

Technical Manager



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

## Test Report

Test Report No. : Issued To : M/s Bamebari Ire		-23A dated   Sample Inward No.   Inward Date	31/10/2023 ALPL/23102023/ENV-261-4 23/10/2023	Page 2 of Analysis Start Analysis End	23/10/2023 30/10/2023
Manganese Mine (M/s TATA Stee		Reference Reference Date	W.O 4700098928/962 22.03.2022	Report Issue Date 31/10/2 Sample Category Water	
Sample Name Drinking Water	Sample Source Inlet Water	Sample Particular Sample Code-DW-	The state of the s	Quantity Re 5.0 Lir & 2	200
,	Representative	Sampling D 18/10/202		Sampling La Barnebari W	A-1-1-2 A Re-

TEST RESULTS

S.N.	Test Parameter	Test Parameter Measurement Unit		Requirer 1S 105 (Drinking Wat Including Au	Test Result	
		1 1 2 20 4		Acceptable Limit	Permissible Limit #	
H	Chemical Testing 2. Residues In Water		A 30 10 10 10 10 10 10 10 10 10 10 10 10 10	0		
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	1S 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	1S 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	0.09
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	1S 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL = 0.03)
32	Zine (as Zn)	mg/l	IS 3025 (Part 2): 2019	- 5	15	BDL (DL - 0.1)
33	Polynuclear aromatic hydrocarbon (PAH)	μg/]	ANir/7,2/RES/01; 2018	0.1	No relaxation	BDL(D10.03)
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** 



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

#### Test Report

Test Report No.: Issued To: M/s Bamebari Iro Manganese Mine (M/s TATA Stee	on &	Sample Inward Referen	Inward No. Date	23/10/	23102023/ENV-261-4 2023 4700098928/962	Page 3 o Analysis Start Analysis End Report Issue Date Sample Category	f 3 23/10/2023 30/10/2023 31/10/2023 Water
Sample Name Drinking Water	Sample Source Inlet Water		nple Particulars		Sample Condition Scaled & Ice Preserved	Quantity Re 5,01.tr & 2	
2 C C C C C C C C C C C C C C C C C C C	Representative		Sampling Da 18/10/2023	ite	Sampling Time 10.15am to 3.40 pm	Sampling Le Bamebari W	ocation
			TES	ST RESU	LTS		

s.n.	Test Parameter	Measurement Unit	Test Method	IS 105 (Drinking Wat	neot as per 00 : 2012 er Specifications) sendment No. 4	Test Result					
				Acceptable Limit	Permissible Limit #						
35	Pesticide Residues Organochlorine										
1	Alpha-HCH	μg/l	ANtr/7.2/RES/01:20	207	No relaxation	BDL (DL = 0.01)					
ii.	Beta HCH	μg/I	ANtr/7 2/RES/01: 20	200	No relaxation	BDL (DL - 0.03)					
111	Gamma - HCH (Lindane)	- рул	ANtr/7.2/RES/01: 20	8 2	No relaxation	BDL (DL = 0.03)					
iv	Delta-HCH	µg/l	ANtr/7.2/RES/01: 20	8 0.04	No relaxation	BDL (DL - 0.03)					
V	Alachlor	µg/l	ANtr/7.2/RES/01:20	8 20	No relaxation	BDL (DL = 0.03)					
vi	Aldrin	µg/1	ANtr/7.2/RES/01: 20	8 0.03	No relaxation	BDL (DL = 0.03)					
VII	Dieldrin	ддЛ	ANtr/7.2/RES/01: 20	0.03	No relaxation	BDL (DL - 0.03)					
viii	Butachlor	µg/l	ANtr/7.2/RES/01.20	125	No relaxation	BDL (DL - 0.03)					
ix	p.p'-DDE	µg/l	ANtr/7.2/RES/01:20	8 1	No relaxation	BDL (DL - 0.03)					
X.	o.p'-DDE	μg/l	ANtr/7 2/RES/01: 20	8 1	No relaxation	BDL (DL - 0.03)					
50	p.p -DDD	µg/l	ANu/7.2/RES/01120	8 1	No relaxation	BDL (DL - 0.03)					
XII	o,p -DDD	µg/l	ANtr/7.2/RES/01: 20	8 1	No relaxation	BDL (DL = 0.03)					
xiti	o,p'- DDT	μg/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)					
XIV	p.p'- DDT	μg/I	ANtr/7,2/RES/01: 20	18	No relaxation	BDL (DL = 0.03)					
XV	Monocrotophos	µg/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)					
XVI	Atrazine	μg/1	ANtr/7.2/RES/01: 20	18 2	No relaxation	BDL (DL - 0.03)					
xvii	Parathion methyl	µg/1	ANtr/7.2/RES/01: 20	18 0.3	No relaxation	BDL (DL - 0.03)					
xviii	Paraoxon methyl	μg/Ι	ANtr/7.2/RES/01: 20	18		BDL (DL - 0.03)					
XIX	Malathion	μg/Ι	ANtr/7.2/RES/01: 20	18 190	No relaxation	BDL (DL - 0.03)					
XX	Malaoxon	μg/l	ANtr/7.2/RES/01: 20	18		BDL (DL - 0.03)					
XXI	Ethion	μg/Ι	ANtr/7.2/RES/01: 20	18 3	No relaxation	BDL (DL - 0.03)					
xxii	Chlorpyrifos	µg/t	ANtr/7.2/RES/01: 20		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 parishable sample(s) shall be disposed off after 30 days and 15 days respectively from the date of issue of Test Report, unless specified otherwise. • #Permissable limit in absence of an alternate source for demining water. • 'mgT' is enjoyalent to 'ppm' • [mgT' is enjoyalent to 'ppm' • [mgT' is enjoyalent to 'ppm' • ANIm(7,2/RES-81), ;: Inhouse validated method. • HT indicates not Tested as ample failed to astables safely concerns.

REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with 18:10500:2012, for tests conducted only.

Verified By

Swati Gondhalekar Deputy Technical Manager Authorized Signatory

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

---End of Report-



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

#### Test Report

Test Report No.: Issued To: M/s Bamebari Iro Manganese Mine (M/s TATA Stee	on &	I-24A dated Sample Inward No. Inward Date Reference Reference Date	31/10/2023 ALPL/23102023/ENV-26 23/10/2023 W.O 4700098928/962 22.03.2022	Analysis Start Analysis End Report Issue Date Sample Category	Page 1 of 3 23/10/2023 30/10/2023 31/10/2023 Water
Sample Name Drinking Water	The state of the s		Sample Condit Sealed & Ice Pres		Section 1
Sample Collected By Anacon Representative		Sampling D 18/10/202			Control of the State of the Sta

TEST RESULTS

5.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 #	
1	Biological Testing 1. Water					
1	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Absent	Absent
u	Chemical Testing 1. Water			4.4		
2	Alkalinity (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 23) 1986	200	600	38.46
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	1S 3025 (Part 4) : 2021	5	15	4
5	Cyanide (as CN)	mg/l	IS 3025 (Part 27): 1986	0.05	No relaxation	BDL (DL - 0.005)
6	Chloride (us Cl)	mg/l	IS 3025 (Part 32):1988	250	1000	21.52
7	Calcium (us Ca)	mg/l	1S 3025 (Part 40) : 1991	75	200	16.71
8	Free residual chlorine	mg/l	IS 3025 (Part 26): 2021	Min. 0.2	1	BDL (DE-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	3.81
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	6,92 at 25°C
14	Phenolic compounds (as C <sub>0</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	1S 3025 (Part 24): 2022	200	400	5.17
16	Taste -	-	IS 3025 (Part 8): 1984	Agrecable	Agrecable	Agreeable
17	Total dissolved solids	mg/l	1S 3025 (Part 16): 1984	500	2000	294
18	Turbidity	NTU	IS 3025 (Part 10): 1984	1	5	0,2
19	Total hardness (as CaCO <sub>3</sub> )	mg/l	IS 3025 (Part 21): 2009	200	600	57.42

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut

Deputy Technical Manager

**Authorized Signatories** 

Pooja Kathane

Technical Manager



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

### Test Report

Test Report No.: Issued To: M/s Bamebari Iro Manganese Mine (M/s TATA Stee	on &	Sample Inward No. Inward Date Reference Reference Date	ALPL/23102023/ENV-261-5 23/10/2023 W.O 4700098928/962 22,03,2022	Analysis Start Analysis End Report Issue Date Sample Category	Page 2 of 3 23/10/2023 30/10/2023 31/10/2023 Water
Sample Name Drinking Water	Sample Source Outlet Water	Sample Particulars Sample Code-DW-	A COMPANY OF THE PROPERTY OF T	Quantity R	
Sample Collected By Anacon Representative		Sampling Da 18/10/2023	711	Sampling Location Bamebari WTP Outlet	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Test Method	Requirer IS 105 (Drinking Wat Including An	Test Result	
				Acceptable Limit	Permissible Limit #	
п	Chemical Testing 2. Residues in Water			141		
20	Arsenic (as As)	mg/l	1S 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	0.09
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	10,0	No relaxation	BDL (DL-0.001)
31	Total Chromium (us Cr)	mg/L	IS 3025 (Part 2): 2019	0.05	No relaxation	BDL (DL - 0.03)
32	Zine (as Zn)	mg/l	IS 3025 (Part 2): 2019	5	15	BDL (DL - 0.1)
33	Polynuclear aromatic hydrocarbon (PAH)	μg/I	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		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

Dirati

**Authorized Signatory** 



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

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#### Test Report

M/s Bamebari Iron & Inv Munganese Mine (M/s TATA Steel Limited)			rd Date 23/10/20 ence W.O47		/ENV-261-5 28/962	Analysis Start Analysis End Report Issue Date Sample Category	Page 3 of 3 23/10/2023 30/10/2023 31/10/2023 Water
Sample Name			Sample Particulars		e Condition	Quantity Received	
Drinking Water			Sample Code-DW-5		Tee Preserved	5.0 Ltr & 250 ml	
Sample Collected By			Sampling Date Sampling Time			Sampling Location	
Anacon Representative			18/10/2023 10.15um to 3.40 pm			Bamebari W11 Outlet	

TEST RESULTS

S.N.	Test Parameter	Measurement Unit	Requirement as per 1S 10500 : 2012 Test Method (Drinking Water Specifications) Including Amendment No. 4		9500 : 2012 ater Specifications)	Test Result
				Acceptable Limit		
35	Pesticide Residues Organochlori	nc				
	Alpha-HCH	pg/l	ANtr/7.2/RES/01: 20	18 0.01	No relaxation	BDL (DL - 0.01)
H	Beta HCH	µg/1	ANtr/7.2/RES/01/20	18 0.04	No reluxation	BDL (DL - 0.03)
iii	Gamma - HCH (Lindane)	μg/Ι	ANir/7.2/RES/01: 20	18 2	No relaxation	BDL (DL - 0.03)
iy	Delta- HCH	μg/l	ANtr/7.2/RES/01: 20	18 0.04	No relaxation	BDL (DL - 0.03)
V	Alachlor	pg/l	ANtr/7,2/RES/01; 20	18 20	No relaxation	BDL (DL - 0.03)
vi	Aldrin	µg/l	ANtr/7.2/RES/01: 20	18 0.03	No relaxation	BDL (DL - 0.03)
vii	Dieldrin	µg/l	ANtr/7.2/RES/01: 20	18 0.03	No relaxation	BDL (DL + 0.03)
viii	Butachlor	μg/l	ANtr/7.2/RES/01. 20	18 125	No relaxation	BDL (DL - 0.03)
ix	p,p*-DDE	µg/I	ANtr/7.2/RES/01; 20	18	No relaxation	BDL (DL-0.03)
X	o,p*-DDE	4ig/l	ANtt/7.2/RES/01.20	18 1	No relaxation	BDL (DL - 0.03)
Xi.	p.p -DDD	µg/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
XII	v,p'-DDD	µg/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
XIII	u,p'- DDT	µg/1	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
xiv	p.p'- DDT	µg/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)
XV.	Monocrotophos	μg/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL + 0.03)
XVI	Atrazine	μg/1	ANtr/7.2/RES/01: 20	18 2	No relaxation	BDL (DL - 0.03)
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01:20	18 0.3	No relaxation	BDL (DL - 0.03)
xviii	Paraoxon methyl	μμ/1	ANtr/7.2/RES/01:20	18 -		BDL (DL - 0.03)
xix	Malathion	µg/l	ANtr/7.2/RES/01: 20		No relaxation	BDL (DL -0.03)
NX:	Malaoxon	μg/1	ANtr/7.2/RES/01: 20	18 -		BDL (DL - 0.03)
XXI	Ethion	μg/l	ANtr/7.2/RES/01: 20	18 3	No relaxation	BDL (DL = 0.03)
xxii	Chlorpyrifos	μ <u>γ</u> /1	ANtr/7.2/RES/01: 20		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". • "mg/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, it inhouse validated method. • NT indicates not Tested as sample tailed to

REMARKS: As requested by the client, sample was tested for above parameters only. Sample complies with 1S:10500:2012, for tests conducted only.

Verified By

Swati Gondhalekar Deputy Technical Manager Authorized Signatory

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

End of Report-



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

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#### Test Report

Test Report No. :	ALPL/31102023/1	1-25A dated	31/10/20	023	Page 1 o	f 3
Issued To : M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		Sample Inward No. Inward Date Reference Reference Date	23/10 W.O.	/23102023/ENV-261-6 /2023 - 4700098928/962 /2022	Analysis Start 23/10/20 Analysis End 30/10/20 Report Issue Date 31/10/20 Sample Category Water	
Sample Name Drinking Water	Sample Source R.O Water	Sample Particular Sample Code-DW-		Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Ltr & 250 ml	
a section of the sect	Representative	Sampling Date 18/10/2023		Sampling Time 10.15am to 3.40 pm	Sampling Location Bamebari Canteen RO	

S.N.	Test Parameter	Measurement Unit	Test Method	(Drinking Water	ent as per 0 : 2012 r Specifications) endment No. 4	Test Result
				Acceptable Limit	Permissible Limit #	
1	Biological Testing 1. Water			-		
1	Escherichia coli	Per 100 ml	18 15185 : 2016	Absent	Absent	Absent
11	Chemical Testing 1. Water					
2	A'kalinity (as CaCO <sub>1</sub> )	mg/l	IS 3025 (Part 23): 1986	200	600	47.59
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	21.46
7	Calcium (as Ca)	mg/l	IS 3025 (Part 40): 1991	75	200	17.34
8	Free residual chlorine	mg/l	15 3025 (Part 26) : 2021	Min. 0.2	1	BDL (DL = 0,1)
9	Fluoride (as F)	mg/l	1S 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	5.16
11	Nitrate (as NO <sub>1</sub> )	mg/l	APHA method 23rd edition: 2017	45	No relaxation	BDL(DL-2)
12	Odour	14	IS 3025 (Part 5): 2018	Agrecable	Agrecable	Agreeable
13	pH	-	IS 3025 (Part 11): 2022	6.5 to 8.5	No relaxation	7.21 at 25°C
14	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	nig/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	6.29
16	Taste		1S 3025 (Part 8): 1984	Agreeable	Agreeable	Agrecable
17	Total dissolved solids	mg/l	IS 3025 (Part 16): 1984	500	2000	316
18	Turbidity	NTU	1S 3025 (Part 10): 1984	1	5	0.3
19	Total hardness (as CaCO <sub>3</sub> )	mg/l	1S 3025 (Part 21): 2009	200	600	64.53

Please refer last Page for Note and Remarks.

Verified By

Snehal Raut Deputy Technical Manager **Authorized Signatories** 

Pooja Kathade Technical Manager



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

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#### Test Report

Test Report No. :	ALPL/31102023/	-25A Sample Inward	dated 31/10/	2023 PL/23102023/ENV-261-6	Page 2 o	£ 3 23/10/2023
M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		Inward Date Reference Reference Date	23/ W.	10/2023 O 4700098928/962 03.2022	Analysis Start  Analysis End  Report Issue Date  Sample Category	30/10/2023 31/10/2023 Water
Sample Name Drinking Water	THE PLANT OF THE PROPERTY OF T		400,000	Sample Condition Sealed & Ice Preserved	Quantity Received 5.0 Lir & 250 ml	
Sample Collected By Anacon Representative		Sampling Date 18/10/2023		Sampling Time 10.15am to 3.40 pm	Sampling Location Bamebari Canteen RO	

S.N.	Test Parameter	Measurement Unit	Test Method	Requirer 1S 105 (Drinking Wat Including An	Test Result	
		100		Acceptable Limit	Permissible Limit #	
u	Chemical Testing 2. Residues In Water		53mm			
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/I	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/I	IS 3025 (Part 2): 2019	0.003	No relaxation	BDL (DL - 0.001)
26	Iron (as Fe)	mg/I	IS 3025 (Part 2): 2019	1.0	No relaxation	0.06
27	Lead (as Pb)	mg/l	1S 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/I	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	18 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)	иу/Г	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		No relaxation	BDL (DL - 0.001)

Please refer last Page for Note and Remarks.

Verified By

Nidhi Dubey

Denuty Technical Manager

Swati Gondhalekar Deputy Technical Manager **Authorized Signatory** 

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

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#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

#### Test Report

Test Report No. :	ALPL/31102023/	I-25A	dated 31/10/	2023	Page 3 o	f 3
Issued To: M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		Sample Inward I Inward Date Reference Reference Date	rence 23/10/2023 W.O 47000989		Analysis Start Analysis End Report Issue Date Sample Category	23/10/2023 30/10/2023 31/10/2023 Water
Sample Name Drinking Water			ticulars s-DW-6	Sample Condition Sealed & Ice Preserved	Quantity Re 5.0 Lir & 2	
Sample		Sampling Date Sampli 18/10/2023 10.15am		Sampling Location Bamebari Canteen RO		
			TEST RE	SULTS		

S.N.	Test Parameter	Measurement Unit	Test Method	18 105 (Drinking Wat	Requirement as per IS 10500 : 2012 (Drinking Water Specifications) Including Amendment No. 4		
_				Acceptable Limit	Permissible Limit#		
35	Pesticide Residues Organochlori	ne					
1	Alpha-HCH	μg/l	ANtr/7.2/RES/01: 20		No relaxation	HOL (DL - 0.01)	
- 11	Beta HCH	µg/l	ANtr/7.2/RES/01: 20	18 0.04	No relaxation	BDL (Dls - 0.03)	
HI	Gamma - HCH (Lindane)	ду/1	ANtr/7.2/RES/01: 20	18 2	No relaxation	BDL (DL - 0.03)	
iv	Delta-HCH	µg/I	ANtr/7.2/RES/01; 20	18 0.04	No relaxation	BDL (DL - 0.03)	
· v	Alachlor	μу/I	ANtr/1,2/RES/01: 20	18 20	No relaxation	BDL (DL - 0.03)	
Vt.	Aldrin	μg/1	ANtr/7.2/RES/01: 20	18 0.03	No relaxation	BDL (DL - 0.03)	
vii	Dieldrin	μg/1	ANtr/7.2/RES/01: 20	18 0.03	No relaxation	RDL (DL - 0.03)	
viii	Butachior	μg/Ι	ANtr/7.2/RES/01.20	18 125	No relaxation	BDL (DL - 0.03)	
DC.	p.pDDE	μg/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL -0.03)	
X	o,p'-DDE	µg/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)	
- 10	p.pDDD	µg/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL - 0.03)	
XII	o,p -DDD	μg/l	ANtr/7.2/RES/01: 20	18 1	No relaxation	BDL (DL = 0.03)	
XIII	o,p'« DDT	µg/l	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)	
xiv	p,p'- DDT	µg/I	ANtr/7.2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)	
XV	Monocrotophos	µg/l	ANtt/7:2/RES/01: 20	18	No relaxation	BDL (DL - 0.03)	
XVI	Atrazine	μg/1	ANtr/7.2/RES/01: 20	18 2	No relaxation	BDL (DL - 0.03)	
xvii	Parathion methyl	µg/l	ANtr/7.2/RES/01. 20	18 0.3	No relaxation	BDL (DL - 0.03)	
xviii	Paraoxon methyl	µg/l	ANtr/7.2/RES/01: 20	18		BDL (DL - 0.03)	
xix	Malathion	µg/l	ANtr/7.2/RES/01. 20	18 190	No relaxation	BDL (DL - 0.03)	
XX	Malaoxon	µg/l	ANtr/7.2/RES/01: 20	18		BDL (DL - 0.03)	
xxi	Ethion	μg/1	ANtr/7.2/RES/01_20	18 3	No relaxation	BDL (DL - 0.03)	
xxii	Chlorpyrifos	µg/l	ANtr/7.2/RES/01: 20		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 18:10500:2012, for tests conducted only.

Verified By

Swati Gondhalekar Deputy Technical Manager Authorized Signatory

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

---End of Report-



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

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#### Test Report

Test Report No.: ALPL/30092	023/1-31A	dated 30/09/	2023			Page 1 of 3
Issued To: M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)	Sample Inward No. Inward Date Reference Reference Date	ALPI/2509/ 25/09/2023 W.O 47000 22.03,2022	2023/ENV-235-WW-1&2 098928/962	Analy	sis Start sis End rt Issue Date de Category	25/09/2023 30/09/2023 30/09/2023 Water
Sample Name Sample Partice Effluent Water Sample Code-WW-1						and the state of t
Sample Collected By Anacon Representative		ling Date 99/2023	Sampling Time 10.35 am to 11,45 am	Sampling Location  WW-1 Barnehari STP-IN  WW-2-BAMEBARI OIL-W  SEPARATION (New Chara)		IT STP-INLET

#### TEST RESULTS

S.N.	Test Parameter	Measurement	Test Method	Standards (In Land Surface	Test Result		
3.14.	rest rarameter	Unit	Test Method	Water)	WW-1	WW-2	
τ	Chemical Testing Pollution & Environment						
1	pH value		IS 3025 (Part 11): 2022	5.5 to 9.0	6.46 at 25°C	6.72 at 25°C	
2	Oil & Grease	mg/l	IS 3025 (Part 39): 1991	10	BDL(DL-4)	BDL(DL-4)	
3	Total Suspended Solid (TSS)	mg/I	IS 3025 (Part 17): 1984	100	82	38	
4	Ammonical Nitrogen (as N)	mg/l	IS 3025 (Part 34):1988	50	6.72	5,94	
5	Total Kjeldahl Nitrogen (as N)	mg/l	IS 3025 (Part 34): 1988	100	14.36	12.91	
6	BOD (3 days at 27°C)	mg/l	IS 3025 (Part 44):1993	30	24	16	
7	Chemical Oxygen Demand	mg/I	IS 3025 (Part 58) :2006	250	73	41	
8	Cyanide (as CN)	mg/l	IS 3025 (Part 27) : 1986	0.2	BDL(DL-0.1)	BDL(DL-0.1)	
9	Phenolic Compounds (as C.H.OH)	mg/l	IS 3025 (Part 43): 2022	1.0	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

Snehal Raut

Deputy Technical Manager

**Authorized Signatory** 

Dr. (Mrs.) S. D. Garway

Quality Manager

----End of Report----



18

19

20

Nickel (as Ni)

Vanadium (as V)

Total Chromium (as Cr)

Zinc (as Zn)

### Anacon Laboratories

#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

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#### Test Report

Test Report No.: ALPL/30092	023/1-31A	dated 30/09.	/2023			Page 2 of 3
Issued To ; M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)	Sample Inward No. Inward Date Reference Reference Date	ALPL/2509 25/09/2023 W.O 4700 22:03:2022	2023/ENV-235-WW-1&2 098928/962	Analysis Analysis Réport Is Sample (	End ssue Date	25/09/2023 30/09/2023 30/09/2023 Water
Sample Name Effluent Water					10	
Anacon Representative		ling Date Sampling Time 19/2023 10:35 am to 11:45 am		Sampling Location  WW-1 Barnebari STP-INLE  WW-2-BAMEBARI OIL-WATTIR  SEVARATION (Near Garrage)		ARI OIL-WATER
		TEST RES	SULTS			

C 51	Test Parameter	Measurement	455045450	(In Land	Test Result		
S.N.	Test Parameter	Unit	Test Method	Surface Water)	WW-1	WW-2	
n	Chemical Testing 2. Residues In Water						
10	Iron (as Fe)	mg/l	1S 3025 (Part 2): 2019	3.0	1.17	0.52	
11	Copper (as Cu)	mg/l	IS 3025 (Part 2): 2019	3.0	BDL(DL-5)	BDL(DL-5)	
12	Manganese (as Mn)	mg/l	IS 3025 (Part 2): 2019	2.0	BDL(DL-0.1)	BDL(DL-0.1)	
13	Mercury (as Hg)	mg/l	IS: 3025 (Part 48): 1994	0.01	BDL(DL-0.01)	BDL(DL-0.01)	
14	Cadmium (as Cd)	my/L	IS: 3025 (Part 41): 1992	2.0	BDL(DL-0.1)	BDL(DL-0.1)	
15	Selenium (as Se)	mg/l	IS: 3025 (Part 56): 2003	0.05	BDL(DL-0.1)	BDL(DL-0.1)	
16	Lead (as Pb)	mg/I	1S 3025 (Part 47): 2003	0.1	BDL(DL-0.1)	BDL(DL-0.1)	
17	Arsenic (as As)	mg/l	IS : 3025 (Part 37) : 2022	0.2	BDL(DL-0.05)	BDL(DL-0.05)	

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IS:13428 : 2005(Annexure L)

IS 3025 (Part 2): 2019

IS 3025 (Part 2): 2019

IS 3025 (Part 2): 2019

REMARKS: As requested by the client, sample was tested for above parameters only.

mg/l

mg/l

mg/l

mg/l

Verified By

Nidhi Dubey

Deputy Technical Manager

End of Report-

Authorized Signatory

BDL(DL-0.1)

BDL(DL-5)

BDL(DL-0.1)

BDL(DL-0.1)

BDL(DL-0.1)

BDL(DL-0.1)

BDL(DL-0.1)

BDL(DL-0.1)

3.0

5.0

2.0

0.2



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#### Test Report

Test Report No. : ALPL/300920		dated 30/09/	27.00		Page 3 of 3
Issued To:	Sample Inward No.	ALPL/2509	2023/ENV-235-WW-1&2	Analysis Star	t 25/09/2023
M/s Bamebari Iron &	Inward Date 25/09/2023			Analysis End	30/09/2023
Manganese Mine (M/s TATA Steel Limited)	Reference Reference Date	W.O 4700 22.03.2022	098928/962	Report Issue Sample Categ	
Sample Name Effluent Water	Sample Parties Sample Code-WW-1	March Co. C. R. (1986)	Sample Condition Sealed & Ice Preserve		Quantity Received 5.0 Ltr & 250 ml
Sample Collected By Anacon Representative		ling Date 19/2023	Sampling Time 10,35 am to 11.45 am	WW-1	mpling Location Bamebari STP-INLET BAMEBARI OIL-WATER RATION (Near Garage)

S.N.	Test Parameter	Measurement	Test Method	Standards (In	Test I	Result
Sal tr	Text Farameter	Unit	rest Method	Land Surface Water)	WW-1	WW-2
1	Biological Testing 1.Water					
1	Faccal coliform	MPN/100 ml	1S 1622 : 1981		42	33
n	Chemical Testing Pollution & Environment			a.Y		
2	Colour	Hazen units	IS 3025 (Part 4): 2021	Colourless	2	0 (Colourless)
3	Odour	+	1S 3025 (Part 5) : 2018	Odourless	Disagrecable	Agreeable
4	Temperature	°C	APHA Method	* Shall not exceed 5°C above the receiving water temperature	25°C	25°C
5	Free residual chlorine	mg/l.	IS 3025 (Part 26) : 2021	1.0	BDL(DL-0.1)	BDL(DL-0.1)
6	Particulate size of SS		Grayimetric Method	Shall pass 850 micron IS Sieve	<850	<850
7	Free Ammonia (as NH <sub>3</sub> )	mg/l	APHA Method	5.	BDL(DL-0.1)	BDL(DL-0.1)
8	Fluoride (as F)	mg/l	IS 3025 (Part 60): 2008	2.0	0.36	BDL(DL-0.1)
9	Sulphide (as S)	mg/l	1S 3025 (Part 29): 1986	2.0	BDL(DL-0.03)	BDL(DL-0.03)
10	Nitrate Nitrogen	mg/l	APHA Method	10	3.57	BDL(DL-2)
1).	Bio Assay Test	96	APHA 22nd Edition	90% Survival of fish after 96 hours in 100% effluent	82%	92%
12	Hexavalent Chromium (as Cr 16)	mg/T	Lab-SOP	0.1	BDL(DL-0.01)	BDL(DL-0.01)
13	Dissolved Phosphate (as P)	mg/l	1S 3025 (Part 31): 1988	5.0	BDL(DL-0.1)	BDL(DL-0.1)

NOTES: 

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REMARKS: As requested by the client, sample was tested for above parameters only.

Verified By

Nidhi Dubey Technical Manager

Snehal Raut Deputy Technical Manager **Authorized Signatories** 

Pooja Kathane Technical Manager

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

End of Report-





## CONSENT ORDER BAMEBARI MANGANESE MINE OF M/S. TATA STEEL LTD

BY REGD. POST WITH AD

## STATE POLLUTION CONTROL BOARD, ODISHA

A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012
Phone-2561909, Fax: 2562822, 2560955 E-mail: paribesh1@ospcboard.org, Website: www.ospcboard.org

### **CONSENT ORDER**

No. 599 / IND-I-CON-189 Dt. 07.01.2022

#### **CONSENT ORDER NO. 117**

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. <u>3237698, Dated 20.12.2020 and Letter No. MGM/P & E/289/21 dated 22.09.2021, Letter No. MGM/P&E/305/21 dated 31.12.2021</u>

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:

BAMEBARI MANGANESE MINE OF M/S. TATA STEEL LTD.

Name of the Occupier & Designation SRI AWNISH KUMAR, CHIEF AND AGENT

Address: AT/ PO: BAMEBARI, VIA: JODA, DIST: KEONJHAR

This consent order is valid for the period up to 31/03/2025 <u>from the date of issue of this order.</u>

This consent order supersedes the earlier consent order issued vide letter No. 3623 dated 10.03.2021.

#### **Details of Products Manufactured**

SI. No	Product	Quantity
01.	Manganese Ore	0.083 MTPA

#### **Details of Mineral Handling Plants /Units**

01	Operation	of mobile	screening	plant 1 X 75 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.

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#### CONSENT ORDER

BAMEBARI MANGANESE MINE OF M/S. TATA STEEL LTD

## A. <u>Discharge permitted through the following outlet subject to the standard</u>

Out let No.	Description of outlet	Point of discharge	Quantity of discharge KL/hr	Pre-scribed Standard				
		uischarge		Нq	TSS (mg/l)	Oil & Grease (mg/l)	BOD (mg/l)	Fecal Coliform (MPN/100ml )
01	Outlet of STP (Domestic effluent)	Used for plantati	100 KLD	5.5- 9.0	200	()	100	<1000
02	drainage / inla water/ surfac	On land / inland surface water	12,954 kl/hr (max)	5.5- 9.0	100 (Rain y day	10		
	runoff/oth er wastewater	body.			50 (No n- 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/Nm³)	SO <sub>2</sub>	NO <sub>x</sub>	
			=		+		

## C. Disposal of solid waste permitted in the following manner

SI. 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

## CONSENT ORDER BAMEBARI MANGANESE MINE OF M/S. TATA STEEL LTD

#### O. 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.
- 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.
- 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.
- The applicant shall make an application for grant of fresh consent at least 90 days before the date of expiry of this consent order.
- 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.
- 6. The applicant shall display this consent granted to him in a prominent place for perusal of the public and inspecting officers of this Board.
- An inspection book shall be opened and made available to Board's Officers during the visit to the factory.
- 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.
- 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 taped by the consumer for utilization for any purposes whatsoever.
- 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
- The applicant shall display suitable caution board at the lace 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.
- 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.
- 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.
- The applicant shall provide port holes for sampling the emissions and access 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.
- 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.

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## CONSENT ORDER BAMEBARI MANGANESE MINE OF M/S. TATA STEEL LTD

- 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 approvathe Board.
- 27. The liquid effluent arising out of the operation of the air pollution control equipment shall a 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.
- 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.
- 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.
- 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.
- 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:
  - 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,
- 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.
- 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.
- The Board reserves the right to review, impose additional conditions or condition, revoke change or after the terms and conditions of this consent.
- Notwithstanding anything contained in this conditional letter of consent, the Board health 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.
- 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.
- 44. Grant of consent order is subject to grant of Forest Clearance under Forest (Conservation) Act, 1980.

## GENERAL CONDITIONS FOR UNITS WITH INVESTMENT OF MORE THAN Rs 50 CRORES, AND 17 CATEGORIES OF HIGHLY POLLUTING INDUSTRIES (RED A).

- 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. Sulphor Dioxide, Oxides of Nitrogen, Hydro-Carbon, Carbon-Monixide 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.
- 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.
  - Progress on planting of trees quarterly.

## CONSENT ORDER BAMEBARI MANGANESE MINE OF M/S. TATA STEEL LTD

- 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.

  The following information shall be forwarded to the Marries Continuous flow measuring / recording devices on the effluent.
- 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
  - A description of the non-compliance discharge including its impact on the receiving waters.
  - ii) Anticipated time of continuand of non-compliance if expected to continue or if such condition has been corrected the duration or period of non-compliance.
  - lii) Steps taken by the applicant timeduce and eliminate the non-complying discharge and
  - (v) Steps to be taken by the appli and too prevent the condition of non-compliance.
- b) The applicant shall take all reasonable s and including any adverse impact to natural waters resulting from non-compliance with any effluent limitation specified in this or then including such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying contact the nature and impact of the non-complying contact the natural waters resulting from non-compliance with nature and impact of the non-complying contact the natural waters resulting from non-compliance with natural waters resulting from non-compliance with
- 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 bey if difficulties, 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 alkalies arbitrarily and utilizing poles for stirring etc. should not be resorted to.
- 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.
- 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.

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## CONSENT ORDER BAMEBARI MANGANESE MINE OF M/S. TATA STEEL LTI

#### E. SPECIAL CONDITIONS:

- 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) Mining operation is subject to availability of all other statutory clearances.
- 4) Drills shall either be operated with dust extractors or equipped with water injection system to minimize dust generation in the work environment.
- 5) Controlled blasting shall be practiced to minimize generation of dust and fly rocks.
- 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.
- 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.
- 8) 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.
- 9) The vehicles carrying ore for transportation from the mine shall be covered with tarpaulin (both bottom & top).
- 10) 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.
- Atleast four Ambient Air Quality Monitoring Stations shall be established in core zone and buffer zone for monitoring of ambient air quality at the locations of the stations as decided in consultation with the Regional Officer, State Pollution Control

## CONSENT ORDER BAMEBARI MANGANESE MINE OF M/S. TATA STEEL LTD

Board based on the metrological data, topographical features and environmentally and ecologically sensitive targets

- 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.
- 13) The ambient air quality shall remain within prescribed national ambient air quality standards.
- 14) 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.
- 15) 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.
- 16) The project proponent shall ensure that no natural watercourse and / or water resources are obstructed due to any mining operations.
- 17) 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.
- 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.
- 19) 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.
- 20) 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.
- 21) 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.

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## CONSENT ORDER BAMEBARI MANGANESE MINE OF M/S. TATA STEEL LTD

- Regular monitoring of water quality of upstream and downstream of surface woodies 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.
- 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.
- 24) The mine shall take necessary action for compliance with the air and water quality standards as stipulated in this order.
- Adequate measures shall be taken for control of noise levels in the work environment of mine area so that noise levels at the boundary line of mining lease area shall not exceed 75 dB(A) during day time (6.00 AM to 9.00 PM) and 70 dB(A) during night time (9.00 PM to 6 AM).
- Adequate noise barriers shall be provided surrounding the crushing and screening plants to control noise pollution and avoid impact on wildlife due to operation of crushing and screening plants during night hours.
- Online noise monitoring system shall be installed to monitor noise level during night hours.
- 28) Protective barriers shall be provided for the lights to prevent illumination towards the forest area during night hours.
- 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.
- 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.

## CONSENT ORDER BAMEBARI MANGANESE MINE OF M/S. TATA STEEL LTD

- 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.
- 32) The environmental statement report for the financial year ending 31st March shall be submitted to the Board in Form -V on or before 30th September every year.

MEMBER SECRETARY
STATE POLLUTION CONTROL BOARD, ODISHA

To,

ix)

SRI AWNISH KUMAR, CHIEF AND AGENT, BAMEBARI MANGANESE MINE, M/S TATA STEEL LTD., AT/PO: BAMEBARI, VIA: JODA,

AT/PO: BAMEBARI, VIA: JODA, DIST: KEONJHAR. PIN-758034.

Consent Register

Memo No	·/Dt,	/
Copy forv	varded 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. Gov	vt. of Odisha
	Bhubaneswar.	
v)	D.F.O, Keonjhar	
vi)	Deputy Director of Mines, <b>Joda</b>	
vii)	Additional Chief Env. Engineer, Central Lab. SPCB, Bhubanesy	war
viii)	Additional Chief Env. Engineer (Hazardous waste management	

CHIEF ENV. ENGINEER (M)
STATE POLLUTION CONTROL BOARD, ODISHA

## CONSENT ORDER BAMEBARI MANGANESE MINE OF M/S. TATA STEELLTD

# GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENTAL POLLUTANTS

## CONSENT ORDER BAMEBARI MANGANESE MINE OF M/S. TATA STEEL LTD

## GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENTAL POLLUTANTS PART —A: EFFLUENTS

SI.No.	Parameters	Standards						
		Inland surface	Public sewers	Land for irrigation	Marine Costal Areas			
		(a)	(b)	(c)	(d)			
1.	Colour&odour	Colourless/Odou rless as far as practible		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		22222				
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		A MARINE	1.0			
9.	Ammonical nitrogen (as N) mg/l max.	50	50		50			
10.	Total Kajeldahl nitrogen (as NH <sub>3</sub> ) mg/1 max.	100	www.		100			
11.	Free ammonia (as NH <sub>3</sub> ) mg/1 max.	5.0		<u> </u>	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	entropy of the		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 BAMEBARI MANGANESE MINE OF MIS. TATA STEEL LTD

17,	Cardmium (as Cd) mg/1 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 Sc) mg/l max.	0.05	0.05		0.05
23.	Nickel (as Nil) 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	HOUSE THE		5,0
28.	Phennolic 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 curle/ml.	10 <sup>7</sup>	10 <sup>7</sup>	10 <sup>8</sup>	10 <sup>7</sup>
	b. Beta emitter micro curle/ml.	10 <sup>6</sup>	10 <sup>6</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	1. <del></del> ;	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	THE WILLIAM STATE A	0.2 mg/l
34.	Nitrate Nitrogen	10 mg/l			20 mg/l

## CONSENT ORDER BAMEDARI MANGANESE MINE OF M/S. TATA STEEL LTD

NATIONAL AMBIENT AIR QUALITY STANDARDS

	Pollutants	Time		Concentrate o	f Ambient Air
.0.		Weighed Average	Industrial Residential, Rural and other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
÷	Sulphur Dioxide (SO <sub>2</sub> ), μg/m <sup>3</sup>	Annual *	50	20	-Improved west and Gaeke
	Nite Di - Jel -	24 Hours **	80	80	- Ultraviolet fluorescence
2.	Nitrogen Dioxide (NO <sub>2</sub> ), μg/m <sup>3</sup>	Annual *	40	30	- Modified Jacob &Hochheiser (Na-Arsenite)
)	Dawlingleto Metter	24 Hours **	80	80	- Chemiluminescence
3.	Particulate Matter (size less than	Annual *	60	60	-Gravimetric - TOEM
	10μm) or PM <sub>10</sub> μg/m³	24 Hours **	100	100	- Beta Attenuation
×.	Particulate Matter (size less than	Annual *	40	40	-Gravimetric - TOEM
	2.5μm) or PM <sub>2.5</sub> μg/m³	24 Hours **	60	60	- Beta Attenuation
5.	Ozone (O <sub>3</sub> ) μg/m <sup>3</sup>	8 Hours **	100	100	- UV Photometric - Chemiluminescence
		1 Hours **	180	180	- Chemical Method
8.	Lead (Pb) μg/m³	Annual *	0.50	0.50	-AAS/ICP method after sampling on EMP 2000 or
		24 Hours **	1.0	1.0	equivalent filter paper ED-XRF using Teflon filter
w.	Carbon Monoxide (CO) mg/m <sup>3</sup>	8 Hours **	02	02	<ul> <li>Non Dispersive Infra Red (NDIR)</li> </ul>
		1 Hours **	04	04	Spectroscopy
3.	Ammonia (NH <sub>3</sub> ) μg/m <sup>3</sup>	Annual*	100	100	-Chemiluminescence - Indophenol Blue Method
).	Benzene (C <sub>6</sub> H <sub>6</sub> ) μg/m <sup>3</sup>	24 Hours** Annul *	05	05	-Gas Chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10.	Benzo (a) Pyrene (BaP)-Particulate phase only, ng/m³	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

<sup>\*\*</sup> Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

<sup>\*\* 24</sup> 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. 7743 /1 WL-SSP-01/2015 Dated, Bhubaneswar, the 1 Aug, 2015

To

The Principal Chief Conservator of Forests, Odisha, Bhubaneswar

Sub:

Approval of Site Specific Wildlife Conservation Plan in respect of Bamebari 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 Barnebari 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. 3-11015/85/2003-IA.II(M) dated 17.11.2005 and condition No.(xi) of the Forest Clearance granted by Govt. of India, MoEF vide their letter F.No. 8-72/2004-FC dated 25.1.2007.

 The Site Specific Wildlife Conservation Plan in respect of the above project has been approved by the undersigned with financial forecast of ₹635.91 lakh (Rupees six crore thirty-five lakh ninety-one thousand) only for the following activities.

	Grand Total:	₹635.91 lakh
b.	For activities to be implemented by DFO, Keonjhar Division in project impact area	₹469.81 lakh
a.	For activities to be implemented by the user agency in project area	₹166.10 lakh

- 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 ₹469.81 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.
- 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.

- 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

f/5---

Principal Chief Conservator of Forests (WL) & Chief Wildlife Warden, Odisha

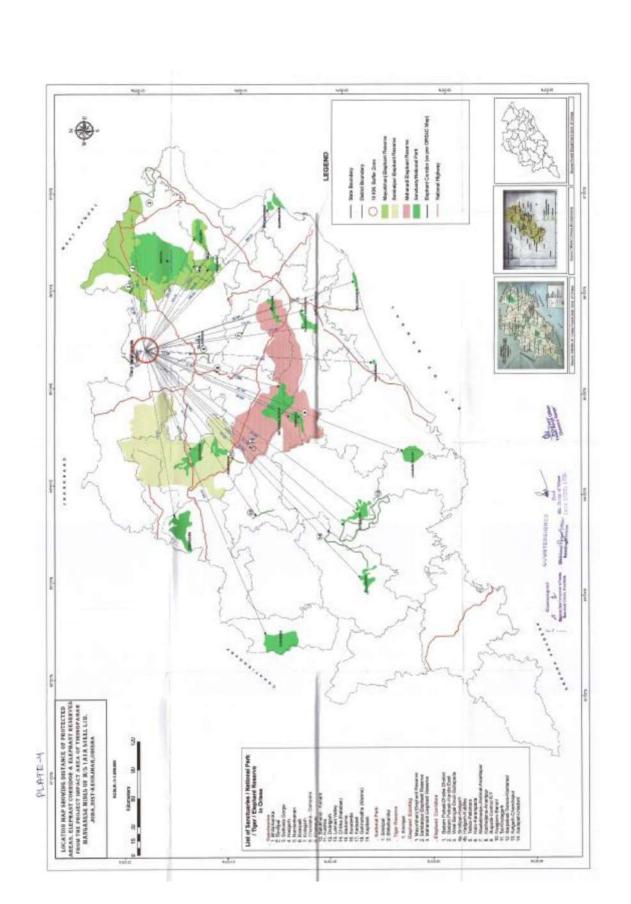
Memo No. 7749

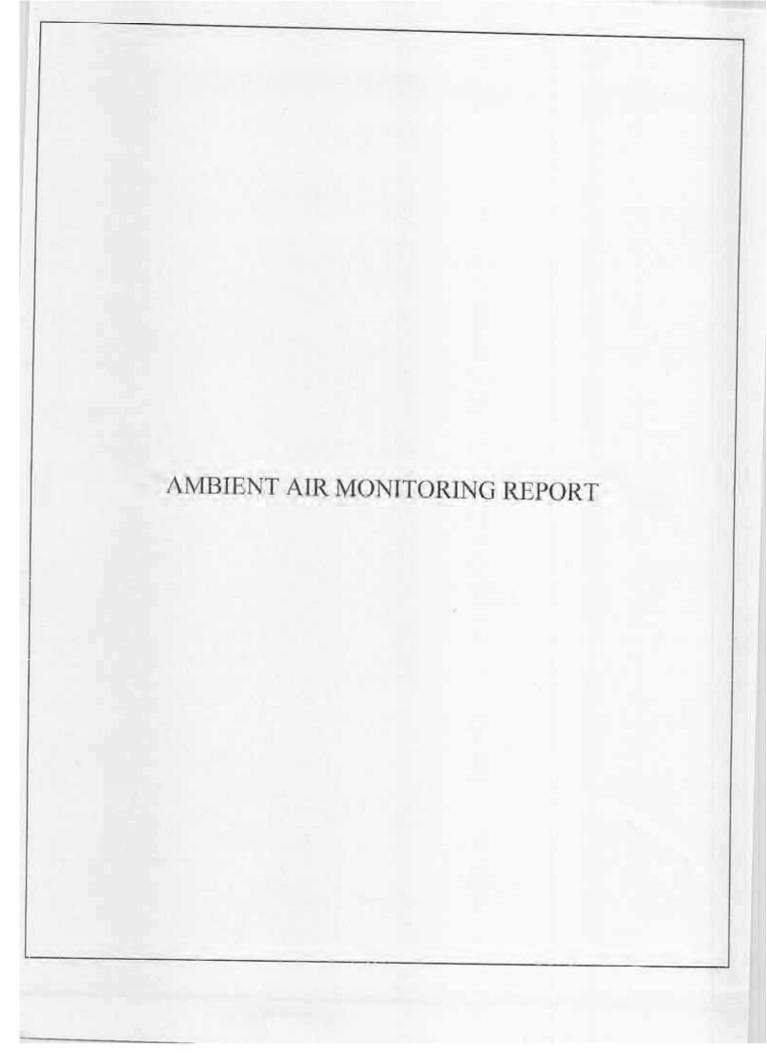
/date 01-09-2015

Copy forwarded for information and necessary action to -

- Special Secretary to Govt. of Odisha, F&E Deptt., Bhubaneswar
- Regional Chief Conservator of Forests, Rourkela Circle with reference to memo No.5701 dt 16.7.2015 of the DFO, Keonjhar Division
- Divisional Forest Officer, Keonjhar Division with reference to his memo No.5700 dt 16.7.2015 alongwith a copy of the approved site specific wildlife conservation plan
- 4. The Head, M/s Bamebari 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





Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate. 3, Pagladanga Road, Kalkata 700015 West Bengal

Tel: +91.7044036120 Email: udayenlab@mitrask.com







Doc No: MSJOGEN/1907

LESTING . INSPECTION

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ULR: TC-695024000004877F

## 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/T1517U

20/03/2024

MSKNB/ED/2023-24/03/YW146K

11/03/2024

11/03/2024 - 20/03/2024

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	
2. Description of sample	Atmospheric Pollution
Unique Identification of sample(If any)	Ambient Air
I. Date of sampling	NA NA
5. Place of sampling	07/03/2024
5. Environmental conditions during sampling & Transport	Joribar Shorting Yard  1) Temperature :14-27 deg C 2) Barometric Pressure: 713 mm of Hg 3) Rain fall No 8 Gold Chain Materialized
. Sampling Plan & Method used	No.8. Cold Chain Maintained IS:5182(P-11,12) & USEPA
. Identification of the personnel performing sampling by MSK . Field Equipments Used	LALIN NAYAK MSK/BBL/FIELD/RDS-12

Report No.: MSKPL/ED/2023-24/T1517U

Sample No.: MSKNB/ED/2023-24/03/YW146K

#### RESULT

SI No.	Parameter	UOM	Method	6600	1
1	Arsenic as (As)	ng/m3		Limit	Result
2	Benzene		USEPA-IO 3.4, June	6 (Annual)	BDL(DL/1.0)
3	Benzo(a)Pyrena	micro grn/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL.4.2)
4	Lead (as Pb.)	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL-0.5)
5	Manganese as Mrr	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
6	Nickel as Ni	micro gm/m3	USEPA-ID 3.4: June	Not Specified	0.13
pinion I	The state of the s	ng/m3	USEPA-IO 3.4, June I, 18th November 2009, for Amb	20 (Annual)	6DL(DL:5.0)

Statement of Conformity

END

Hinnewed By:

Signature

Nama

Didaning Dr. Devotten Ber

Designation. Teccinical in Charge Authorized Signatory

Signature

Dr. Devottam Banerjer

Designation : Teodinical in Charge

he results relate only to the somes) tested.

he match relate only to the names) tested.

In Test Report shall not be reproduced except in full, without the permission of Mare (I.K. Private Limina).

In reperved part of sample(s) for chamical enables (Non - periatrable sample(s) Food. Westers shall be retained for 15 days from the date of secure of the Test Report.

In reserved part of sample(s) for chemical analysis (Soil, Soild & Liquid Wester) shall be retained for 15 days as per CPCB paradiers & (Ar.) I movin won the case of muto of the Test Report, his reserved part of sample(s) for Manabiological analysis (Non - paradiable sample(s) Food, Sauled Wester, Sauled Good) shall be relative for 15 days from the date of muto of the Test Report.

Street Geron (6tr Floor), 748, A.J.C. Bose Rosci, Krikalia - 7000 (6 Weet Belgal, India Tel: 91 33 40143000 / 22050007 Fax: 91 33 22050008

Ernal i impginitrask zim Wabate i www.mirask.com

### Address of Branch:

P.O. Barbil Dt Keonihar Orisse 758 035





Scan for Ports

## Name & Address of Gustomer:

Tata Steel Ltd.(MGM), Joda West

AUPo, - Joda, Dist. - Keonihar, Odisha - 758034. Indix Pin

## TEST REPORT

Report No. :

Date :

Sample No.

Reference No. & Date :

M5KGL/ED/2023-24/005410

21/03/2024

MSKGL/ED/2023-24/03/00331

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 2. Description of sample	AIR
Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Sameban Iron & Mr. Mines (BIMM)
5. Place of sampling	07/03/2024
6. Environmental conditions during sampling & Transport	Near Shorting Yard BIMM
7. Sampling Plan & Method used	Clear & Sunny
a memora used	NA NA

Report No.: MSKGL/ED/2023-24/005410

Sample No.: MSKGL/ED/2023-24/03/00331

#### RESULT

SI No.	Parameter	UOM	W. H	1	
1	Ammonia (NH3)	7.50	Method	Limit	Result
2	Cartion Monoxide (CO)	micro ym/m3	IS 5182 (Part 25)	400 24 HR	15.7
3	Nitrogen Diaxide (NO2)	En/ga	IS: 5182 (Part 10) (O)	2 8HR.	
4		micro gm/m3	IS: 5182 (Part 6) (O)	80 24 HR	0.50
2	Ozonii (O3)	micro grama	IS 5182 (Part 9)	1000	19.8
5	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	180 T HR.	BDL(DL:20.0
6	Particulate Matter (<2.5um)	micro gm/m3		100 24 HR.	186
1	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR	89
		L micro fluxura	IS: 5182 (Part 2)_(O)	80 24 HR	6.7

-END -

Report Verified By

Head Office:



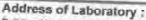
For Mitra S. K. Private Limited

Authorised Signatory

Shrachi Commi (Sin Plant), 748, Au.) C. Bose Hout, Komus - 700016, West Boson, India-Tel. - 97 33 4414 5000 / 37850007 Fax: 91 33 225000 in Email: Into (Emilian) According to www.mittalk.com

DOC NO MISKUGIENVIDIO





Building No. P- 48, Udayan Industrial Estate. 3, Pagladanga Road, Kolkata 700015 West Bengal

Tel: +91 7044036120

Email: udayanlob@miraut.com





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MSKPL/ED/2023-24/X1517C

MSKNB/ED/2023-24/03/NA144A

ULR: TC-695024000004675F

### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/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:

11/03/2024 - 20/03/2024 Permanent Facility

3000155017/056, Date - 16/09/2023

Chemical

20/03/2024

11/03/2024

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

Atmospheric Pollution
Ambient Air
NA NA
07/03/2024
Barnebari Backfilling yard
1) Temperature 14-27 dea C 2) Percent 1
Temperature 14-27 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fal     No & Cold Chain Maintained
IS:5182(P-11,12) & USEPA
LALIN NAYAK
MSK/BBL/FIELD/RDS-17

Report No.: MSKPL/ED/2023-24/X1517C

Sample No.: MSKNB/ED/2023-24/03/NA144A

### RESULT

		RESULT		
Parameter	UOM	Method	111.0	1
Arsenic as (As)	na/ws	The second secon	Limit	Result
			6 (Annual)	BDL(DL:1.0)
			5 (Annual)	BDL(DL:4.2)
			† (Annual)	BDL(DL-0.5)
	micro gm/m3.	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
	micro gm/m3	USEPA-IO 3.4: June		
Nickel as NI	ng/m3			8DL(DL 5:0)
	Arsenic as (As)  Benzene  Benzo(a)Pyrene  Laad (as Pb.)  Manganese as Mn  Nickel as Ni	Arsenic as (As) ng/m3  Benzene micro gm/m3  Benzo(a)Pyrene ng/m3  Laad (as Pb.) micro gm/m3  Manganese as Mn micro gm/m3  Nickel as Ni ng/m3	Parameter         UOM.         Method           Arsenic as (As)         ng/m3         USEPA-IO 3.4, June           Benzene         micro gm/m3         IS 5182 (Part 11)           Benzo(a)Pyrene         ng/m3         IS 5182 (Part 12)           Lead (as Pb.)         micro gm/m3         USEPA-IO 3.4, June           Manganese as Mn         micro gm/m3         USEPA-IO 3.4, June           Nickel as Ni         ng/m3         USEPA-IO 3.4, June	Parameter         UOM         Method         Limit           Arsenic as (As)         ng/m3         USEPA-IO 3.4, June         6 (Annual)           Benzene         micro gm/m3         IS 5182 (Part 11)         5 (Annual)           Benzo(a)Pyrene         ng/m3         IS 5182 (Part 12)         1 (Annual)           Lead (as Pb.)         micro gm/m3         USEPA-IO 3.4, June         1 (24 Hours)           Manganese as Mn         micro gm/m3         USEPA-IO 3.4, June         Not Specified

Limit as per CPCB notification, New Delni, 18th November 2009, for Ambient air quality

Statement of Conformity

-- END ----

Reviewed By:

marker

Designation Tecchnical in Charge Authorized Signatury

Dr. Devottem Bank

Designation : Teochnical in Charge

he results relate only to the Aurola) hested

his Taet Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

his Tree (Report of sample(s) for chamical inhalysis (Non - pershable sample(s) Food, Water) shall be nationed for 15 days from the date of Issue of the Tast Report. Pershable sample(s) shall be nationed 2 days from the date of Issue of the Test Report.

The reserved perior sample(s) for chamical analysis (Soil, Solid & Liquid Waste) shall be reserved perior perior of sample(s) for chamical analysis (Soil, Solid & Liquid Waste) shall be reserved perior perior of sample(s) for discussion of the Test Report.

The reserved perior sample(s) for Microbiological analysis (Non - perior sample(s) Food, Solided Wilder, Squided Food) shall be interved for 15 days from the date of issue of the Test Report.

lead Office: Shrech Centre (5th Floor), 746, A J.C. Bose Road, Kolkula: 17/0016, West Bangel, India

Trid. 91 33 40143000 / 22650007 Fax: 91 35 22850000 Entail info@meraak.com (Wiesde www.mitriek.com)

### Address of Branch:

P.O. Barbil Dt Keoninar Onssa 758 035





Scan for Portal

### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AliPo. - Joda, Dint. - Keonjhar, Odisho - 758034. India Pin

## TEST REPORT

Report No. :

Date:

Sample No.:

Reference No. & Date :

MSKGL/ED/2023-24/005409

21/03/2024

MSKGL/ED/2023-24/03/00327

3000156017/056, Date - 15/09/2023

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

Group     Description of sample	AIR
3. Unique Identification of sample(if any)	Ambient Alr
4. Date of sampling	Barnetiari Iron & Mr. Mines (BIMM)
5. Place of sampling	07/03/2024
5. Environmental conditions during sampling & Transport	Near Back Filling Yard Barneben
7. Sampling Plan & Method used	Clear & Sunny
2 min a metriou used	NA NA

Report No.: MSKGL/ED/2023-24/005409

Sample No.: MSKGL/ED/2023-24/03/00327

#### RESULT

SI No.	Parameter	UOM	de la constante de la constant		-
1	Ammonia (NH3)		Method	Limit	Result
2	Carbon Monoxide (CO)	micro gm/m3	15 5162 (Part 25)	400 24 HR	14.B
3		mg/m3	IS: 5182 (Part 10) (O)	2 8HR.	
7	Nitrogen Dioxide (NO2)	micro gm/m3	JS: 5182 (Part 6) (O)		0.58
4	Dznne (03)	micro gm/m3	IS 5182 (Part 9)	80 24 HR.	18.5
5	Particulate Matter (<10um)	micro gm/m3		180 1 HR.	BDL(DL:20.0)
6	Particulate Matter (<2.5um)		IS: 5182 (Part 23)_(O)	100 24 HR.	179
1	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HR	85
	Supriur Liutube (SO2)	micro gm/m3	IS: 5182 (Parl 2)_(O)	60 24 HR	6.6

END.

Report Verified By

For Mitra S. K. Private Limited

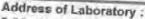
Authorised Signatory

Head Office:

Street Court (5th Figur), 749, A.J.C. Box, Food, school - 700016, West Bernal Inc. 7ct - 91 (3) 48143000 / 22650007 Fax: 91 33 22650000 Ernel vitall nisses com Website www.refrask.com

DOC NO. MISKIGEN/19/07





Building No. P- 48, Udayan Industrial Estate, 3, Pagladenga Road, Kolkata 700015

West Bengal

Tel: +91 7044038120

Email: udayanlab@mitrusk.com





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ULR: TC-695024000004673F

### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

AUPo. - Jode, 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/E15170

20/03/2024

MSKNB/ED/2023-24/03/75141H

11/03/2024

11/03/2024 - 20/03/2024

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	Atmosphere S. P. V.
2. Description of sample	Atmospheric Pollution
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA NA
5. Place of sampling	07/03/2024
	Joribar Weigh Bridge
Environmental conditions during sampling & Transport	1) Temperature: 14-28 deg C 2) Reconstite Processing 245
7. Sampling Plan & Method used	
I. Identification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA
Field Equipments Used	LALIN NAYAK
and additional dised	MSK/BBL/FIELD/RDS-11

Report No.: MSKPL/ED/2023-24/E15170

Sample No.: MSKNB/ED/2023-24/03/75141H

#### RESULT

Parameter	UOM	Mathod	1000	_
Arsenic as (As)	00/m3	10000	Limit	Result
Benzene			6 (Annual)	BDL(DL:1.0)
The second second			5 (Annual)	BDL(DL:4.2)
			J (Annual)	BDL(DL:0.5)
		USEPA-IO 3.4, June	1 (24 Hours)	0.02
	micro gm/m3	USEPA-IO 3.4: June	400 00 00 00 00	
	ng/m3	USEPA-IO 3.4 June	20 /A mayorb	0.47 BOL(DL:5.0)
	Arsenic as (As)  Benzene  Benzo(a)Pyrene  Lead (as Pb )  Manganese as Mn  Nickel as Ni	Arsenic as (As) ng/m3  Benzene micro gm/m3  Benzo(a)Pyrene ng/m3  Lead (as Pb ) micro gm/m3  Manganese as Mn micro gm/m3  Nickel as Ni ng/m3	Arsenic as (As)  Benzene  Benzene  micro gm/m3  IS 5182 (Part 11)  Benze(a)Pyrene  ng/m3  Is 5182 (Part 12)  Lead (as Pb )  micro gm/m3  USEPA-IO 3.4, June  Manganese as Mn  micro gm/m3  USEPA-IO 3.4; June  Nickel as NI  ng/m3  USEPA-IO 3.4; June	Arsenic as (As) ng/m3 USEPA-IO 3.4, June 5 (Annual)  Benzene micro gm/m3 IS 5182 (Part 11) 5 (Annual)  Benzo(a)Pyrene ng/m3 IS 5182 (Part 12) 1 (Annual)  Lead (as Pb ) micro gm/m3 USEPA-IO 3.4, June 1 (24 Rours)  Manganese as Mn micro gm/m3 USEPA-IO 3.4: June Not Specified

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

- END -

Reviewed By

Designation

Teochnical in Charge

Authorized Signatory

Dr. Devoltarri Bane

: Teochnical in Charge

he results relate only to the item(s) termed

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his Task Raport, that not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

The reserved part of sample(s) for dismission straights (Non-perishable sample(s) Food, Water) shall be interested for 15 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soll, Solld & Liquid Waste) shall be retained for 15 days as per CPCB question & (Ar.) I ments from the date of issue of the Test Report.

Shrachi Centre (5th Fisor), 748, A.J.C. Bose Road, Kokula -700015, West Burget, India Tel - 91 33 40143000 / 22650007 Fax - 91 33 22650008 ryski,com Website I www mitrask.com

Address of Branch:

P.O. Barbil Dt Keonjhar Orisse 758 035





Scan for Portal

Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

Al/Pu - Joda, Dist. - Keonjhur, Odisha - 758034 India Pin

TEST REPORT

Report No. :

Date:

Sample No.:

Reference No. & Date :

MSKGL/ED/2023-24/005420

21/03/2024

MSKGL/ED/2023-24/03/00330

3000156017/066, Date - 15/09/2023

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

2. Description of sample	AIR
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Barnebari Iron & Mr. Mines (BIMM)
5. Place of sampling	07/03/2024
Environmental conditions during sampling & Transport	Neur Weigh Bridge BIMM
. Sampling Plan & Method used	Clour & Surmy
The second based	NA:

Report No.: MSKGL/ED/2023-24/005420

Sample No.: MSKGL/ED/2023-24/03/00330

#### RESULT

SI No.	Parameter	UOM	T 10 To 10	_	
1	Ammonia (NH3)		Method	Limit	Result
2	Carbon Monoxide (CD)	rnicro gm/m3	IS 5182 (Part 25)	400 24 HR.	
3		mg/m3	IS: 5182 (Part 10) (O)	2 8HR.	16.4
-	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6) (O)		0.55
14	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	80 24 HR.	19.8
.5	Particulate Matter (<10um)	trilaro gm/in3		180 1 HR.	BDL(DL:20.0)
6	Particulate Matter (<2.5um)	micro gm/m3	IS: 5182 (Part 23)_(O)	100 24 HR.	199
7	Sulphur Diadde (SO2)		IS 5182 (PT-24),2019 (O)	60 24 HR.	102
	- 502)	micro gm/m3	IS: 5182 (Part 2) (O)	80 24 HR	7.7

END -

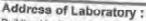
Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Dac No: MSK/GEN/19/07





Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengat

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





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ULR: TC-695024000004672F

### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AVPo - Jode, 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/C1517X

20/03/2024

MSKNB/ED/2023-24/03/3X142G

11/03/2024

11/03/2024 - 20/03/2024

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			
2. Description of sample	Atmospheric Pollution		
Unique Identification of sample(if any)	Ambient Air		
4. Date of sampling	NA NA		
5. Place of sampling	07/03/2024		
6. Environmental conditions during sampling & Transport	Bamebari Project Office  1) Temperature: 14-28 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall No 5 Cold Chair Maintained		
7. Sampling Plan & Method used	No 5 Cold Chain Maintained IS:5182(P-11, I2) & USEPA		
identification of the personnel performing sampling by MSK     Field Equipments Used	LALIN NAYAK MSK/BBL/FIELD/RDS-5		

Report No.: MSKPL/ED/2023-24/C1517X

Sample No.: MSKNB/ED/2023-24/03/3X/142G

### RESULT

SI No.	Parameter	UOM	Method	11.5	1
1	Arsenic as (As)	ng/m3	123354	Limit	Result
2	Benzene		USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
3	Berizo(a)Pyrene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL-4.2)
4		ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
	Lead (as Pb )	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	
5	Manganese as Mπ	micro gm/m3	USEPA-IO 3.4: June	Not Specified	BDL(DL:0.01)
В	Mickel as NI	ng/m3	USEPA-IO 3.4, June		0.23
pinion:	Limit as per CPC	The state of the s	1, 18th November 2009, for Amb	20 (Annual)	BDL(DL:5.0)

Limit as per CPCB notification, New Defni, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Reviewed By:

Signmuni

Overgnation Teochylosi in Charge

Dr. Devottern Barrery

Authorized Signatory

Signature

Demmeral Dr. Dovottam Baneryee

Designation Tecchnical in Charge

he results relate only to the tem(s) listed

ha results reason only to the complex issued.

The Test Report shall not be reproduced except in full, without the permission of Miltra S.K. Private Limited.

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

Permission of the Test Report.

he reserved part of sample(s) for chicagons analysis (Nor - perchable sample(s) Food, Sealed Water, Seeled from Sealed Sealed from Sealed Seal Bivacle Cours (Sin Floor), 748, A.J.C. Boss Road, Kokata - 700016, West Berger India Tel. : 91 33 40143000 / 23650007 Fax - 91 33 22650000

Empli vela@mersak.com Wilcoise: www.mitrank.com

Address of Branch:

P.O. Barbil Dt Koonihar Onssa 758 035





Scan for Portal

Name & Address of Customer:

Tala 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/2023-24/005405

21/03/2024

MSKGL/ED/2023-24/03/00329

3000156017/056, Dale - 15/09/2023

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

2. Description of sample	AIR
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Bernebari Iron & Mr. Mines (BIMM)
5. Place of sampling	07/03/2024
5. Environmental conditions during sampling & Transport	Near Project Office BIMM
. Sampling Plan & Method used	Clear & Sunny
and the second dised	NA NA

Report No.: MSKGL/ED/2023-24/005405

Sample No.: MSKGL/ED/2023-24/03/00329

#### RESULT

SI No.	Parameter	UOM	4 100	1	
1	Ammonia (NH3)		Method	Limit	Result
2	Carbon Monoxide (CO)	micro gm/m3	IS 5182 (Pari 25)	400 24 HR	
3		mg/m3	IS 5182 (Part 10) (O)	2 BHR	15,4
-	Nitrogen Dioxide (ND2)	micro gm/m3	IS: 5182 (Part 6) (O)		0,53
4	Ozone (O3)	micro gm/m3		80 24 HR.	23.7
5	Perticulate Matter (<100m)	micro um/m3	IS 5182 (Part 9)	180 1 HR.	BDL(DL 20.0
8	Particulate Matter (<2.5um)	1000	(S: 5182 (Part 23) (O)	100 24 HR	210
1	Sulphur Dioxide (SO2)	micro.gm/m3	IS 5182 (PT-24),2019 (O)	60'24 HR.	
	SOMETIME LAUXION (SCI2)	micro gm/m3	IS: 5182 (Part 2)_(0)	80 24 HR.	8.1

END -

Report Verified By



For Mitra S. K. Private Limited

**Authorised Signatory** 

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate. 3, Pagladanga Rosd, Kolkata 700015

West Sangal

Tel.: 491 7044036120

Email: udayanlab@milreak.com





Scan for Portal

ULR: TC-695024000004684F

Doc No. MSK/GEN/19/07

### 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:

11/03/2024

20/03/2024

11/03/2024 - 20/03/2024 Permanent Facility

3000156017/056, Date - 16/09/2023

MSKPL/ED/2023-24/41517U

MSKNB/ED/2023-24/03/WF147R

Chemical

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

1. Group	10.1111 974-1944		
2. Description of sample	Atmospheric Pollution		
Unique Identification of sample(if any)	Amblent Air		
4. Date of sampling	NA.		
5. Place of sampling	08/03/2024		
	Near Shorting Yard BIMM		
5. Environmental conditions during sampling & Transport	1) Temperature :15-32 deg C 2) Barometric Pressure: 713 mm of Hg 3) Rain fall		
, Sampling Plan & Method used	THE SECOND CHAIR WIGHTISHING		
Identification of the sussessed	IS:5182(P-11,12) & USEPA		
I. Identification of the personnel performing sampling by MSK I. Field Equipments Used	Pranab Setti, Mukesh Highburu		
A Line Politicular naed	MSK/BBL/FIELD/RDS-12		

Report No.: MSKPL/ED/2023-24/4 [517U

Sample No.: MSKNB/ED/2023-24/03/WF147R

#### RESULT

Chemical			KESULI		
SI No.	Parameter	UOM	Method	Print.	1
1	Argenic as (As)	ng/m3	1000000	Limit	Result
2	Benzene		USEPA-IO 3.4, June	6 (Annual)	BDL:(DL:1.0)
3	Benzo(a)Pyrene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL:(DL.4.2)
4		ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL:(DL:0.5)
5	Lead (as Pb.)	micro gm/m3	USEPA-10 3.4, June	1 (24 Hours)	BDL:(DL:0.01)
	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June	Not Specified	
8	Nickel as Ni	ng/m3	USEPA-10 3.4, June		0.14
pinlon :	Limit as per CPC	R notification New Park	i. 18th November 2009, for Amit	20 (Annual)	BDL:(DL:5.0)

Limit as per CPGB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

- END ---

Raymwood By:

Signature

umables Dr. Devotem Bare

Manu Designation

Teophnical in Charge

Authorized Signaloxy

Bignatice

Name

De Barrer Dr. Devottom Bane

Designation

Tecchnical in Charge

The results relate only to the lam(a) sested

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The reserved part of sample(s) for chamical analysis (Non - perishable sadiple(s) Food. Water) shall be retained for 15 days from the date of issue of the Test Report. Personally sample(s) for chamical analysis (Non - perishable sadiple(s) Food. Water) shall be retained for 15 days from the date of issue of the Test Report. Personally sample(s) for chamical analysis (Soil. Sold & Lejud Weste) and be reserved part of sample(s) for chamical analysis (Soil. Sold & Lejud Weste) and be reserved for 15 days as per CPCB pudding & (Att 1 month from the date of issue of the Test Report. The reserved part of sample(s) for Microbiological analysis (Non - penshable sample(s) Food. Sealed Wester, Souled food) shall be resained for 15 days lives the date of sample fine Test Report.

Strachi Ceren (5th Floor), 748, A J.C. Bose Road, Koluster - 700016, West Mengal, India fel - 81 33 40143000 / 22850007 Fox - 91 33 22450008 Email: eVicignitrass.com Website: www.mitnask.com

### Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





Scan for Portal

## Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

Al/Po. - Joda. Dist. - Keoryhar, Odieho - 750034 India Pto

## TEST REPORT

Report No. :

Date :

Sample No.

Reference No. & Date :

MSKGL/ED/2023-24/005417

21/03/2024

MSKGL/ED/2023-24/03/00338

3000156017/056, Date - 15/09/2023

We hereby certify that the following sample Drawn by us has be

Group     Description of sample	AIR
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Barnebari Ivon & Mn. Mines (BIMM)
5. Place of sampling	06/03/2024
6. Environmental conditions during sampling & Transport	Near Shorting Yard BIMM
7. Sampling Plan & Method used	Clear & Sunny
The state of the s	NA.

Report No.: MSKGL/ED/2023-24/005417

Sample No.: MSKGL/ED/2023-24/03/00338

#### RESULT

SI No.	Parameter	NOM	Method	1	7
1	Ammonia (NH3)	micro gm/m3		Limit	Result
2	Carbon Monoxide (CO)		IS 5182 (Part 25)	400 24 HR	16.7
3		mg/m3	IS: 5182 (Part 10)_(O)	2 UHR.	
4	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 8)_(0)	80 24 HR.	0.49
*	Ozone (O3)	micro gra/m3	IS 5182 (Part 9)		21.3
5	Particulate Matter (<10um)	micra gm/m3		180 1 HR.	BDL(DL20.0)
6	Particulate Matter (<2.5um)	micro gm/m3	IS: 5182 (Part 23) (O)	100 24 HR.	194
7	Sulphur Dioxide (SO2)		IS 5182 (PT-24),2019 (O)	60 24 HR.	96
	(302)	micro grir/m3	IS: 5182 (Part 2)_(O)	80 24 HR.	7.2

END -

Report Verified By

For Mitra S. K. Private Limited

**Authorised Signatory** 

Head Office: Shard Cartre (Sti Flory), 746, A.J.C. Bone Road, Komuna - 700016, Wars Bengal, Insti-Tel. 81 33 40143000 / 22650007 Fax: 91 33 22600009 Email: edujumbask.com Website: www.militask.com

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate. 3, Pagladanga Road, Kolkata 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mikask.com







Scan for Portal

ULR: TC-595024000004683F

Doc No.: MSKUGEN/19/07

### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AVPo. - Joda, Dist. - Keonjhar, Odisha - 75803A 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/H1517L

20/03/2024

MSKNB/ED/2023-24/03/SQ144M

11/03/2024

11/03/2024 - 20/03/2024

Permanent Facility

3000155017/055, Date - 16/09/2023

Chemical

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

1. Group			
2. Description of sample	Atmospheric Pollution		
Unique Identification of sample(if any)	Ambient Air		
Date of sampling	NA NA		
, Place of sampling	08/03/2024		
	Near Weigh Bridge BIMM		
Environmental conditions during sampling & Transport	1) Temperature: 15-32 dea C 2) Barometric Processing 733		
Sampling Plan & Method used	Programme Committee and Commit		
. Identification of the personnel performing sampling by MSK	18:5182(P-11:12) & USEPA		
Field Equipments Used	Pranab Setti, Mukesh Highburg		
Triolo Equipments Osed	MSK/BSL/FIELD/RDS-11		

Report No.: MSKPL/ED/2023-24/H1517L

Sample No.: MSKNB/ED/2023-24/03/50/144M

#### RESULT

Chemical			RESULT		
SI No.	Parameter	UOM	Method	1100	1
1	Arsenic as (As)	ng/m3	0.500	Limit	Result
2	Benzene		USEPA-10 3.4, June	6 (Annual)	BDL(DL.1.0)
3	Benzo(a)Pyrene	micro grn/m3	IS 5102 (Part 11)	5 (Annual)	BDL(DL 4.2)
4		ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
	Lead (as Pb )	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	
5.	Manganese as Mri	micro gm/m3	USEPA-IO 3.4: June		BDL(DL:0.01)
6	Nickel as Ni	ng/m3		Not Specified	BDL(DL:0.01)
noinig	Limit as per COC		USEPA-IO 3.4, June	20 (Annual)	BOL(DL50)

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

- END -

Reviewed By:

Signature

Designation

Teleconical in Charge

Authorized Signatory

Dann

Dr. Devottem Bare

Designation : Tecchnical in Charge

he results relate only to the item(s) tested

The results results only to the Remittal testing it is a result of the Report shall without account in Aut. without the permission of Milra S.K. Private Limited.
The reserved part of simple(s) for chemical except in Aut. without the permission of Milra S.K. Private Limited.
The reserved part of simple(s) for chemical excepts (Non - perishable sample(s) Food. Without shall be retained for 15 days from the date of time Test Report. Personable sample(s) shall be retained 2 days.

The reserved part of simple(s) the Test Report.

The reserved part of sample(s) for chemical analysis (Solt, Solid & Liquid Wissis) shall be maximal for 15 days on per CPCB qualities & (Ab) 1 month from the sale of issue of the Test Report.
The reserved part of sample(s) for Microbiological exalysis (Non - perchabits sample(s) Food Sealed Wister, Sealed Mister, Sealed filed) shall be related for (5 days from the date of issue of the Test Report. Weeds Conne (5th Place), 748, A.J.C. Boss Roset Konnes -700015, West Bengst India Tet : 91 33 404 3000 / 22650007 Fax: \$1.33 23650000 Email: #400 cossis.com Websits : www.mitrask.com

### Address of Branch:

P.O. Barbil Ot Knoniher Orissa 758 035





Scan for Portal

## Name & Address of Customer:

Tata Shel Ltd (MGM)\_Joda West

AVPo. - Joda, Dist. - Keonifur, Odisha - 758034 India Pin

## TEST REPORT

Reference No. & Date :

Report No. :

Date:

Sample No.:

MSKGL/ED/2023-24/005412

21/03/2024

MSKGL/ED/2023-24/03/00337

3000156017/056, Date - 15/09/2023

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

1. Group 2. Description of sample	AIR
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Barnebari Iron & Mr. Mines (BIMM)
5. Place of sampling	08/03/2024
6. Environmental conditions during sampling & Transport	Near Weigh Bridge BIMM
7. Sampling Plan & Method used	Clear & Surmy
A maning pact	NA NA

Report No.: MSKGL/ED/2023-24/005412

Sample No.: M5KGL/ED/2023-24/03/00337

#### RESULT

SI No.	Parameter	UOM	Manage and a second	1	-
1	Ammonia (NH3)	Printe amb-2	Method	Limit	Result
2	Carbon Monoxide (CO)	micro gm/m3	IS-5182 (Part 25)	400 24 HR	15.5
3	Nitrogen Dioxide (NO2)	mg/m3	IS: 5182 (Part 10)_(O)	2 BHR.	
4		micro gm/m3	IS: 5182 (Part 6) (O)	80 24 HR.	0.56
-	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)		21.6
5	Particulate Matter (<10um)	micro gm/m3	(S: 5182 (Part 23), (O)	180 1 HR.	BDL(DL:20.0)
6	Particulate Motter (<2.5um)	micro gm/m3		100 24 HR	212
T	Sulphur Dioxide (SO2)		IS 5182 (PT-24),2019_(O)	.60 2= HR.	112
		micro gm/m3	IS: 5182 (Part 2), (O)	60 24 HR.	0.0

END

Report Verified By

For Mitra S. K. Private Limited

( 36 m Authorised Signatory

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate. 3, Pagladanga Road, Kolksta 700015 West Bengal

Tel. 1+91 7044038120

Emeil, udayanlab@mitrask.com







Dos No.: MSIUGEN/19/07

TESTING + INSPECTION

Scan for Portal

ULR: TC-895024000004682F

### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odinha - 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/G1517N

20/03/2024

MSKNB/ED/2023-24/03/JQ146M

11/03/2024

11/03/2024 - 20/03/2024

Permanent Facility

3000186017/056, Date - 16/09/2023

Chemical

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

Group	
2. Description of sample	Atmospheric Poliution
3. Unique Identification of sample(if any)	Amblent Aic
1. Date of sampling	NA NA
5. Place of sampling	08/03/2024
A STATE OF THE PARTY OF THE PAR	Near Project Office BIMM
3. Environmental conditions during sampling & Transport	1) Temperature: 15-32 deg C 2) Barometric Pressure: 713 mm of Hg 3) Rain fall
Sampling Plan & Method used	
Identification of the personnel performing sampling by MSK	IS:5182(F-11,12) & USEPA
Field Equipments Used	Pranah Selti, Mukesh Highburu
was addiplicated Osed	MSK/BBL/FIELD/RDS-5

Report No. : MSKPL/ED/2023-24/G1517N

Sample No.: MSKNB/ED/2023-24/03/JQ146M

#### RESULT

Chemical					
SI No.	Parameter	UOM	Method	14-14	
1 -	Arsenic as (As)	ng/m3		Limit	Result
2	Benzene		USEPA-IO 3.4, June	6 (Annual)	BDL(DL 1.0)
3	Benzo(s)Pyrene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
4		ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
	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	
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June		0.10
pinlon :	Limit as per CPC	E politication, New Date	18th November 2009, for Amb	20 (Annual)	BDL(DL 5.0)

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

NA

- END ---

Signature

Dance Dr. Davottam Basser

Designation

Teccnoical in Charge

Authorized Signatory

od Banes Dr. Devotters Barrer

Teodinical in Charge

he results rainte only to the dem(s) tempo

The 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 channel analysis (Non - perishable sample(s) Food, Water) shall be netwined for 15 days from the outs of the Test Report.

Perishable sample(s) about the Test Report.

Office date is salled or the test report.

The reserved part of sample(s) for clientical analysis (Soil, Solid & Liquid Weste) shall be reserved for 15 days as per CPCB quideline & (Air) 1 moves, teem the date of source of the Test Report, the reserved part of sample(s) for Microbiological evaluate (Non - penetable sample(s) Food, Sealed Water, Sealed food) shall be regarded to: 15 days from the date of source of the Test Report. Struchi Cartre (Str Floor), 74B, A.J.C, Bose Rosts, Keliusia - 710010, What Bergall, India Tel. - 91 33 40143000 / 22650007 Fex ; 31 33 2265000. Email: ethigenitrisis.com Wildeste: www.mitrask.com

Address of Branch:

P.O. Barbil Dt Keonihar Orissa 758 035





Scan for Portal

Name & Address of Gustomer ;

Tata Steel Ltd.(MGM) Joda West

AVPo. - Joda, Dist. - Keonihar. Odishu - 758034. India Pin

TEST REPORT

Report No.

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/005407

21/03/2024

MSKGL/ED/2023-24/03/00330

3000156017/056, Date - 15/09/2023

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

Group     Description of sample	AIR
3. Unique Identification of sample(if any)	Ambient Air
I. Date of sampling	Bamubari Iron & Mn. Mines (BIMM)
5. Place of sampling	08/03/2024
5. Environmental conditions during sampling & Transport	Near Project Office BIMM
. Sampling Plan & Method used	Clear & Sunny
The first or mention read	NA NA

Report No.: MSKGL/ED/2023-24/005407

Sample No.: MBKGL/ED/2023-24/03/00336

#### RESULT

SI No.	Parameter	UOM	400.0		
1	Ammonia (NH3)		Method	Limit	Result
2	Carbon Monoxide (CO)	micro gm/m3	IS 5182 (Part 25)	400 24 HR	16.1
3	Nitrogen Dioxide (NO2)	mg/m3	IS: 5182 (Part 10)_(O)	2 8HR,	
A		micro gm/m3	IS: 5182 (Part 6) (O)		0.47
-	Oznae (O3)	micro gm/m3	IS 5182 (Part 9)	80 24 HR	22,4
5	Particulate Molter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	180 1 HR	BDL(DL-20,0)
6	Particulate Matter (<2.5um)	migra gni/m3		100 24 HR	204
7	Sulphur Dioxide (SO2)		IS 5182 (PT-24),2019 (O)	60.24 HR.	97
	2.3602)	micro gm/m3	IS: 5182 (Part 2)_(0)	80 24 HR.	7.8

-END -

Report Verified By

Head Office:



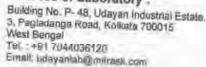
For Mitra S. K. Private Limited

Authorised Signatory

Straid: Centra (Str. Fisor), 74E, S.J. C. Brass Rosel, Kollema - 7x00 to: West Blancol, Inc., 91:33,40140000 / 2000000 Final: 91:30 22500000 Email: Info@minisk.com Widalte - www.spitasik.com

Doc No : MSK/GEN/19/07





Address of Laboratory:





Scan for Portal

ULR: TC-695024000004680F

## 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/2023-24/21517Y

20/03/2024

MSKNB/ED/2023-24/03/A6143Z

11/03/2024

11/03/2024 - 20/03/2024

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:

Group  1. Group  1. Group  1. Group	
2. Description of sample	Atmospheric Pollution
3. Unique identification of sample(if any)	Amblent Air
4. Date of sampling	NA .
5. Place of sampling	08/03/2024
	Near Back Filling Yard Bameban
6. Environmental conditions during sampling & Transport	1) Temperature :15-32 deg (C2) Razametria Pressure 745
7. Sampling Plan & Method used	
I Identification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA
Field Equipments Used	Pranab Setti, Mukesh Highburu
A series and administration of the series and series an	MSK/BBL/FIELD/RDS-17

Report No.: MSKPL/ED/2023-24/21517Y

Sample No.: MSKNB/ED/2023-24/03/A6143Z

#### RESULT

Chemical					
SI No.	Parameter	UOM	Method		
1	Arsenic as (As)	ng/m3		Limit	Result
2	Sanzene		USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL-4.2)
4		ng/m3	IS 5182 (Part 12)	1 (Annual)	
	Lead (as Pb.)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.5)
D	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June		0.06
6	Nickel as Ni	ng/m3		Not Specified	0.42
pinion:	Limit as per CPC		USEPA IO 3.4, June I, 18th November 2009, for Amb	20 (Annual)	12.1

Limit as per CPCB notification, New Deihi, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Reviewed By

Stoneturn

so taami Dr. Devollars Baneri

Dissignation Teochnical in Charge

novaB (So Dr. Devoltam Baner

Designation : Teachnical in Charge

he results relate only to the item(s) tested, he Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited to Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited to the results of the permission of

he reserved part of sample(s) for chamical analysis (Non - parameter) or assumed to the date of lease of the Teas Report. Perishable sample(s) Food. Water) shall be retained for 15 days from the date of lease of the Teas Report. Perishable sample(s) small be retained 2 days.

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Shrachi Centre (Sin Floor), 74B, A.J.C. Bose Road, Konuse - 700016, Wass Birrowl, India Tol. 91 33 4014-8000 / 22650007 Fax: 91 33 22650004 Email: info@mitrask.com Website: www.enfrask.com

Address of Branch:

P.O. Barbil Dt Keon har Orissa 756 035





Scan for Portal

Name & Address of Customer:

Tata Steel Ltd.(MGM), Joda West

AVPo, - Joda, Dist. - Keonjihar Ddisha - 758034 India Pin

TEST REPORT

Report No.: Date:

Sample No. :

Reference No. & Date :

MSKGIJED/2023-24/005406

21/03/2024

MSKGL/ED/2023-24/03/00334

3000156017/056; Date - 15/09/2023

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

2. Description of sample	AIR
3. Unique Identification of sample//	Ambient Air
Date of sampling	Barnebari Iron & Mn. Mines (BIMM)
Place of sampling	08/03/2024
Environmental conditions during sampling & Transport	Near Back Filling Yard Barnebaci
Sampling Plan & Method used	Clear & Sunny
a mound used	NA NA

Report No.: MSKGL/ED/2023-24/005406

Sample No.: MSKGL/ED/2023-24/03/00334

#### RESULT

SI No.	Parameter	UOM			
1	Ammonia (NH3)	1	Method	Limit	Result
2	Carbon Monoxide (CO)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	
3		mg/m3	JS 5182 (Part 10)_(O)		15.1
-	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6) (O)	2 BHR.	0.60
4	Dzone (O3)	micro gnym3		80 24 HR.	19,7
5	Particulate Multer (<10um)	micro gm/m3	IS 5182 (Part 9)	180 1 HR	BDL(DL-20.0)
В	Particulate Matter (<2.5um)		IS: 5182 (Part 23)_(O)	100 24 HPL	198
7	Sulphur Dibxide (SO2)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HR	
	- Program Canada (SO2)	micro gm/m3	IS: 5182 (Part 2) (O)	80 24 HR	92
				00 24 FIR.	6.5

END

Report Verified By

For Mitra S. K. Private Limited

- 32 **Authorised Signatory** 

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3. Pagladanga Road, Kolkala 700015 West Bengal

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







DOC NO. MSKICENITHOT

TESTING +INSPECTION

Scan for Portal

ULR: TC-696024000005201F

## 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/X18046

26/03/2024

MSKNB/ED/2023-24/03/GB2513

18/03/2024

18/03/2024 - 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			
2. Description of sample	Almospheric Pollution		
Unique Identification of sample(if any)	Ambient Air		
Date of sampling	NA		
5. Place of sampling	14/03/2024		
6. Environmental conditions during sampling & Transport	Near Joribar Shorting Yard (BIMM)  1) Temperature: 19-34 deg C 2) Barometric Pressure: 709 mm of Hg 3) Rain fall No & Cold Chain Maintained		
Sampling Plan & Method used  I Identification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA		
Field Equipments Used	Akash Kumar Setti MSK/BBL/FIELD/RDS-12		

Report No.: MSKPL/ED/2023-24/X16046

Sample No.: MSKNB/ED/2023-24/03/G82513

#### RESULT

SI No.	Parameter	UOM	Manage and		-
1	Arsenic as (As)		Method	Limit	Result
2	Berizene	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
3		micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL 4.2)
4	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	
-	Lead (as Pb )	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.5)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June		BDL(DL:0.01)
6	Nickel as NI	ng/m3	USEPA-IO 3.4, June	Not Specified	0.13
pinion :	Limit as par CPC		1, 18th November 2009, for Amb	20 (Annual)	BDL(DL:5.0)

Limit as per CPCB notification, New Dethi, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Reviewed By.

Signature

Designation Essecutive Chem Authorized Significal

Designation.

Lab in charge

so requits relate only to the flam(s) leaded.

is report shall not be reproduced except to full, without the permission of Mars S.K. Private Limited.

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In report of summer of the Test Report.

The Test Report. Produced except to full markets (Non-permission of Mars S.K. Private Limited.

In the date of sales of the Test Report.

to the date of passes of the Year Report.

If the entry of part of sample(s) for Alexander analysis (Soil, Soils & Liquid Wisser) shall be retained for 15 days as per CPCB guideline & (Air) 1 maxil/ from the date of lesses of the Task Report is reserved part of sample(s) for Microbiological analysis (Non-parishable sample(s) Food, Sasted West, Souled food) shall be retained for 15 days from the date of soule of the Task Report. Shrach Cooks (Sin Fibor), 748, A.J.C. Bose Road, Kolums - 700016, West Bongal, India. St. 33.4014/30007-22550007 Fax: St. 25.2255000m Email: Info@micrafi.com Website: www.mitrubi.com

Page 1 of 1

Multipadity

Address of Branch:

P.O. Barbii Dt Keonihar Orissa 758 035





Scan for Portal

Name & Address of Customer:

Tuta Steel Ltd.(MGM) Joda West

AVPo. - Joda, Dist. - Keonihar, Odisha - 758034 India Phi

TEST REPORT

Reference No. & Date :

Report No.: Date:

Sample No.:

MSKGL/ED/2023-24/005567

27/03/2024

MSKGL/ED/2023-24/03/00614

3000156017/058, Date - 15/09/2023

We hereby certify that the following sample Drawn by us has been

Group     Description of sample	AIR
3. Unique identification of sample(if any)	Ambient Water
. Date of sampling	Barnebari Iron & Mn. Mines (BIMM)
Place of sampling	14/03/2024
Environmental conditions during sampling & Transport	Near Juribar Shorting Yard (BIMM)
Sampling Plan & Method used	Claur & Sunny
The same of the sa	NA .

Report No. : MSKGL/ED/2023-24/005567

Sample No. : MSKGL/ED/2023-24/03/00814

#### RESULT

SI No.	Parameter	UOM	Mark .	1	
1	Ammonia (NH3)		Method	Limit	Result
2	Carbon Monoxide (CO)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	35.0
3		mg/m3	15: 5182 (Part 10)_(O)	2 BHR,	15.0
	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6) (O)		0.48
-0.	Ozpne (O3)	micro grovm3	IS 5182 (Part 9)	80 24 HR.	21.8
£	Particulate Metter (<10cm)	micro gm/m3		180 1 HR.	BDL(DL 20.0)
0	Particulate Matter (<2.5um)		IS: 5182 (Part 23)_(O)	100 24 HR	192
7	Sulphur Diaxide (SO2)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR	92
	Suprior Didución (SCI2)	miero gra/m3	(S: 5182 (Part 2)_(O)	80 24 HR	7.3

END

Report Verified By

Head Office:



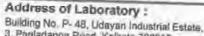
For Mitra S. K. Private Limited

**Authorised Signatory** 

States Course (Sh Flour), 74B, A.J.C. Boss Road, Notices - 7000 fb, West Barried, Indicated 1: 21 83 40143000 / 27850007 Fits: 31 83 22650008 Fires / infall pretrain com Website: www.mitnest.com/

Doc No. MSK/GEN/19/07





3, Pagladange Road, Kolketa 700015 West Bengal

Tel. :+81.7044036120 Email: udayanlab@mitraak.com





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ULR: TC-895024000005200F

### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Pn. - 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/C16049

26/03/2024

MSKNB/ED/2023-24/03/9U2469

18/03/2024

18/03/2024 - 25/03/2024

Permanent Facility

3000156017/056, Date - 15/09/2023

Chemical

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

1. Group	
2. Description of sample	Atmospheric Pollution
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA NA
5. Place of sampling	14/03/2024
	Near Joribar Weigh Bridge (BIMM)
5. Environmental conditions during sampling & Transport	1) Temperature: 19-34 deg C 2) Barométric Pressure: 709 mm of Hg 3) Rain fall
. Sampling Plan & Method used	+ 35 M SOUG CARRID MARILAIDED
Identification of the necessary and and	IS:5182(P-11,12) & USEPA
I. Identification of the personnel performing sampling by MSK.	Akash Kumar Setti
Course estarbunettes nace	MSK/BBL/FIELD/RDS-11

Report No.: MSKPL/ED/2023-24/C16049

Sample No.: MSKNE/ED/2023-24/03/9UZ4B9

#### RESULT

SI No. Parameter		Parameter UOM Method	Llinit		
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June		Result
2	Benzene	micro gm/m3		8 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene	na/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL/4.2)
4	Lead (as Pb.)		IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
5	Manganese as Mn	micro-gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.03
8	Nickel as Ni	micro gm/m3	USEPA-IO 3.4: June	Not Specified	0.40
olnion :		ng/m3	USEPA-IO 3.4, June	20 (Annual)	20.8

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END ----

Reviewed By:

Ms. Plus Garquiy

Designation : Executive Chemist

Authorized Signatory

Seviation

Designation .

Lab In charge

The results relate city to the nem(s) teelect.

The results relate only to the nem(s) rected.

The Test Report shall not be reproduced except in fait, without the permission of Micro & K. Private Limited.

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

from the date of large of the Test Report.

from the date of issue of the Test Report.

The reserved part of sample(s) for chemical energies (Soit & Liquid Wesser) and the retained for 15 days as per CPCB guideline & (Air) 1 morals from the date of issue of the Test Report.

The reserved part of sample(s) for Memberlogical energies (Non - parabable sample(s) Food, Sasted Wester, Bested food) shall be retained for 15 days from the date of issue of the Test Report.

Sevectiv Centre (5th Foor), T48, A.J.C. Bose Road, Kolkete -700018, West Bungst, Indias Tel., 51:33:40143000 / 22650007 Fax: 91:33:22650001 Email: Info@matsas.com Website: www.milinsk.com

Address of Branch:

P.O. Barbii DI Keonjhar Orissa 758 035





Scan for Portal

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Jode Dist. - Keonjbar, Odishu - 758934 India Pin

TEST REPORT

Report No. :

Date:

MSKGL/ED/2023-24/005560

27/03/2024

Sample No. :

MSKGL/ED/2023-24/03/00613

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	
3. Unique Identification of sample(if any)	Ambient Water
1. Date of sampling	Barnebari Iron & Mn. Mines (BIMM)
	14/03/2024
5. Place of sampling	Near Joribar Weigh Bridge (BIMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	
	NA NA

Report No.: MSKGL/ED/2023-24/005566

Sample No.: MSKGL/ED/2023-24/03/00613

#### RESULT

nalysis	nalysis Result of Ambient Air						
SI No.	Parameter	UOM	Method	11-14			
1	Ammonia (NH3)	Em/mg oralm	IS 5182 (Part 25)	Limit	Result		
2	Carbon Monoxede (CO)	mg/m3	The state of the s	400 24 HR.	15,2		
3	Nitrogen Dioxide (NO2)		IS: 5182 (Part 10)_(O)	2 8HR.	0.53		
A	Part Co., Marie Co.	micro gm/m3	IS 5182 (Part 6) (O)	80 24 HR.	20.5		
-	Ozone (Q3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR	BDL(DL 20,0		
5	Particulate Matter (<10um)	micra gm/m3	IS: 5182 (Part 23)_(O)	100 24 HR			
5	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)		194		
7	Sulphur Dlaxite (SO2)			60 24 HR.	95		
	Total and and a	micro gm/m3	IS: 5182 (Part 2)_(O)	50 24 HR	7.8		

END -

Report Verified By

Head Office:

For Mitra S. K. Private Limited

Can.

Authorised Signatory

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate. 3, Pagladanga Road, Kolkala 700015 West Bangar

Tel: +91 7044036120

Emair udsyaniih@miltask.com







Scan for Portal

ULR: TC-895024000005189F

Dige No.: MSK/GEN/13/07

TERTING . INSPECTION

## 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/B1604W

26/03/2024

MSKNB/ED/2023-24/03/6G24EC

18/03/2024

18/03/2024 - 26/03/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

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

Group     Description of sample	Atmospheric Pollution
3. Unique identification of sample(if any)	Ambient Air
. Date of sampling	NA
. Place of sampling	14/03/2024
. Environmental conditions during sampling & Transport	Near Project Office (BIMM)
Sampling Plan & Method used	Temperature :19-34 deg C 2) Barometric Pressure: 709 mm of Hg 3) Rain fall     No & Cold Chain Maintained:
Identification of the personnel performing sampling by MSK Field Equipments Used	IS:5182(P-11,12) & USEPA Akash Kumar Selti
and the state of t	MSK/BBL/FIELD/RDS-14

Report No.: MSKPL/ED/2023-24/B1604W

Sample No.; MSKNB/ED/2023-24/03/6GZ4EC

#### RESULT

SI No.	Parameter	NOM	Method	100	
1	Arsenic as (As)	10.70	33.55.55.55	Limit	Result
2	Benzene	ng/m3	USEPA-10 3.4, June	6 (Annual)	BDI (DI A M
3.		micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL.1.0)
4	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL 4 2)
5	Lead (as Pb.)	micro gm/m3	USEPA-IO 3.4, June		BDL(DL:0.5)
	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June	1 (24 Hours)	BDL(DL 0.01)
5	Nickel as Ni	na/m3	USEPA-IO 3.4, June	Not Specified	0.24
pinton :	Limit as per CPC		i. 18th November 2009, for Amb	20 (Annual)	BDL(DL:5:0)

Limit as per CPCB notification, New Delhi. 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Raviewed By

Nante

Distinusion Ensoutive Chemissi Authorized Signatory

Signature

Designation

Lab In charge

The results related only to the item(s) leaded.
This Test Report shall not be reproduced except in Aut, without the plantasion of Mitta S.K. Private Limited.
The reserved part of sample(s) for classical enables (Non - perithable sample(s) Food, Water) plant to a returned for 18 days from the date of sample (s) and Report.
The reserved part of sample(s) for classical analysis (Soil, Soild & Lead Waste) and to enable the Test Report and the Test Report.
The reserved part of sample(s) for distributed analysis (Non - perithable sample(s) for the test sample(s) for distributed analysis (Non - perithable sample(s) for Sample (s) for distributed analysis (Non - perithable sample(s) Food. Sample Water, Sample (s) are 15 days from the date of sample of sa

Shrachi Gerze (5th Floor), 74B, A.J.C. Boss Road, Kolkele 7(0)016, West Bengal, India-Tel: 191 33 401430007 22650007 Fax: 51 33 22660006 Erseil: Info@mitrask.com Website: www.mitrask.com

Address of Branch:

P.O. Barbil Dt Keonjthar Orissa 758 035





Scan for Porta

Name & Address of Customer:

Trita Steel Ltd.(MGM)\_Jods West

At/Po. - Jorda Dist. - Keonihar, Odisha - 758034 India Pin

TEST REPORT

Report No. :

Date:

MSKGL/ED/2023-24/005663

27/03/2024

Sample No. :

MSKGL/ED/2023-24/03/00612

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	
3. Unique Identification of sample(if any)	Ambient Water
4. Date of sampling	Barnebart Iron & Mr. Mines (BIMM)
	14/03/2024
5. Place of sampling	Near Project Office (BIMM)
5. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	
The state of the s	INA.

Report No.: MSKGL/ED/2023-24/08556:1

Sample No.: MSKGU/ED/2023-24/03/00612

#### RESULT

nalysis l	nalysis Result of Ambient Air					
SI No.	Parameter	MOU	Method	Limit	10000	
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	-	Result	
2	Garbon Monorede (CO)	ms/m3		400 24 HR.	14.7	
D.	Nitrogen Diaxide (NO2)		IS: 5182 (Part 10)_(O)	2 8HR.	0.48	
4		micra gm/m3	IS: 5182 (Part 6)_(O)	80 24 HR.	24,4	
	Ozone (O3)	micro gm/m3	IS-5162 (Part 9)	180 1 HR.	BDL(Dt-20,0	
B .	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23)_(O)	100 24 HR.		
6	Particulate Matter (<2.5um)	micro gm/m3			215	
7	Sulphur Dioxide (SO2)		IS 5182 (PT-24),2018_(O)	60 24 HR.	106	
-	Osipian Danade (SO2)	micru gm/m3	IS: 5182 (Part 2)_(O)	80 24 HR.	8,4	

- END -

Report Verified By

For Mitra S. K. Private Limited

**Authorised Signatory** 

Head Office: Stracks Contre (3th Poor), 748, A.J.C. Buse Road, KcR. in - 700016, World Design Lines. 181-39 40143000 / 20160007 Fize: 191-39 20200001 Email: - bifo/gratinask.com Wadaste - www.nstrask.com

Page 1 of t

Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

West Bengal

Tel : +91 7044036120

Email, udayanlab@mitrask.com







DOC No.: MSK/GEN/1907

TERTING «IMSPECTION

Scan for Portal

ULR: TC-695024000005205F

## Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Diet. - Keorghar, Odisha - 758034 Indie

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/2023-24/616042

26/03/2024

MSKNB/ED/2023-24/93/U524FN

18/03/2024

18/03/2024 - 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:

Group     Description of sample	Atmospheric Pollution	
3. Unique Identification of sample(if any)	Ambient Air	
Date of sampling	NA NA	
Place of sampling	14/03/2024	
Environmental conditions during sampling & Transport	Near Back Filling Yard Barnebari (BIMM)  1) Temperature :19-34 deg © 2) Barometric Pressure, 709 mm of Hg 3) Rain fall No & Cold Chair Maintained	
Sampling Plan & Method used	No & Cold Chain Maintained IS:5152(P-11,12) & USEPA	
Identification of the personnel performing sampling by MSK. Field Equipments Used	Akash Kumar Setti	
	MSK/BBL/FIELD/RDS-17	

Report No.: MSKPL/ED/2023-24/816042

Sample No.: MSKNB/ED/2023-24/03/U524FN

#### RESULT

Si No.	Parameter	UOM	Method	10.00	
1	Arsenic as (As)	ng/m3	- Control	Limit	Result
2	Benzene		USEPA-IO 3.4, June	(IsunnA) 8	BDL(DL:1.0)
3	Benzo(a)Pyrene	micro gm/m3	(S 5182 (Part 11)	5 (Annual)	BDL(DL/4.2)
4	Lead (as Ph.)	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL-0.01
6	And the second second	micro gm/m3	USEPA-IO 3.4: June	Not Specified	0.10
pinion :	Nickel as Ni	ng/m3	USEPA-IO 3.4, June I, 18th November 2009, for Amb	20 (Assumb	BDL(DL-5,0)

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient sir quality

Statement of Conformity

END -

Executive Chamile

Autorizing Signalory

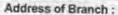
Signature

Lab in charge

The results relate only to the sem(s) insted

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The reserved part of sample(s) for the Report.
The reserved part of sample(s) for Cert Report.
The reserved part of sample(s) for Cert Report.
The reserved part of sample(s) for Chemical analysis (Soil, Soild & Liquid Wester) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the case of sample of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non - permissible sample(s) Food. Souled Water, file and food) at all be retained for 15 days from the case of sample of the Test Report.

Shracia Cardra (5th Floor), 748, A.J.C. Boald Road, Kokasta - 700010, West Margail, India Tel. : 91 33 40143000 / 22650007 Fax : 91 33 22650008 Ernall: http://www.com/Website: www.mittask.com/



P.O. Barhil DI Keonjhar Orissa 758 035





Scan for Portal

### Name & Address of Customer :

Tala Steel Ltd.(MGM)\_Joda West

At/Po - Joda Dist - Keonjhar, Odisha - 758034 Indix Pin

### TEST REPORT

Report No. :

Date:

MSKGL/ED/2023-24/005570

27/03/2024

Sample No.:

MSKGL/ED/2023-24/03/00618

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 Water	_
3. Unique Identification of sample(if any)	Barnebart fron & Mr. Mines (BIMM)	_
4. Date of sampling	14/03/2024	
5. Place of sampling	Near Back Filling Yard Barnobari (BIMM)	_
0. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA NA	_

Report No.: MSKGL/ED/2023-24/005570

Sample No.: MSKGL/ED/2023-24/03/00616

#### RESULT

SI No.	Parameter	UOM	Method	Limit	Result
1	Ammontu (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR	14.7
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10)_(O)	2 BHR.	0.62
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.	BUL(DL:20.0
5	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	100 24 HR.	185
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HR.	89
7	Sulphur Dioxide (SQ2)	micro gm/mä	IS: 5182 (Part 2) (O)	80 24 HR.	7.1

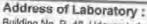
END -

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory





Building No. P- 48, Udayan Industrial Estate, 3. Pagladanga Road, Kolkata 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





Scan for Portal

MSKPL/ED/2023-24/P1604R

MSKNB/ED/2023-24/03/C924ET

ULR: TC-695024000005208F

### 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

Discipline:

Reference No. & Date :

18/03/2024 - 26/03/2024

26/03/2024

18/03/2024

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)	200000000000000000000000000000000000000
4. Date of sampling	NA
5. Place of sampling	15/03/2024
	Near Joribar Shorling Yard (BIMM)
6. Environmental conditions during sampling & Transport	1) Temperature 18-33 deg C 2) Sammetric Pressure 254 and 511-512
7. Sampling Plan & Method used	TO SEE SOUM COUNTY INVESTIGATION OF THE PROPERTY OF THE PROPER
8. Identification of the personnel performing sampling by MSK	IS:5162(P-11,12) & USEPA
Field Equipments Used     Field Equipments Used	Lalin Kumar Naik
and adaptions open	MSK/BBL/FIELD/RDS-12

Report No.: MSKPL/ED/2023-24/P1804R

Sample No.: MSKNB/ED/2023-24/03/C924ET

### RESULT

SI No.	Parameter	MON	Method	Limit	1
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June		Result
2	Benzene	micro gm/m3		6 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL 4.2)
4	Lead (as Pb.)	1 2 2 2 2 2 2 2	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
5	Manganese as Mn	micro gm/m3	USEPA IO 3.4, June	1 (24 Hours)	0.02
6	Nickel as Ni	micro gm/m3	USEPA-IO 3.4: June	Not Specified	0.13
: noinig		ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Limit as per CPCB notification, New Defhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END -

Reviewed By

Ms. Plat Georgely Thesepression. Executive Chemian Austronized Signatory

Skinstlete

Designation

Lab In charge

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

This Test Report shall not be reproduced except in full, without the permission of Mitre & K. Private Limited,
The reserved part of sample(s) for chemical analysis (Non - periohable sample(s) Food, Witsor) shall be retained for 15 days from the date of issue of the Test Report.

Personable sample(s) shall be retained 2 dove.

The reserved part of sample(s) for chemical energies (Soil, Solid & Liquid Weste) shall be retained for 15 days as per CPCR guideline & (Air) I month from the case of estate of the Test Report.
The reserved part of sample(s) for Necrobiological analysis (Non - pacificable sample(b) Food, Sealed Wester, Sealed God) after the retained for 15 days from the Onto of source of the Test Report. Streon Centre (5th Fidor), 745, A.J.C. Blow Road, Kollistä - 700016, Wasi Bengal, India. Tel., 91 33 40143(x)0) / 22050007 Fex: 91 33 22550000. Emili info@militali.com Wisbatte ; www.militelii.com

Address of Branch:

P.O. Barbil Dr Keonjher Orlssa 758 035





Scan for Portal

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AMPo. - Joda. Dist. - Keonyhar, Odisha - 758034. India Pin

TEST REPORT

Reference No. & Date :

Report No. : Date :

Sample No.:

MSKGL/ED/2023-24/005561

27/03/2024

MSKGL/EU/2023-24/03/00621

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 Water
Unique Identification of sample(if any)     Date of sampling	Barneberi Iron & Mr. Mines (BIMM)
5. Place of sampling	15/03/2024
5. Environmental conditions during sampling & Transport	Near Joribar Shorting Yard (BIMM)
7. Sampling Plan & Method used	Clear & Sunny
The same of the sa	NA NA

Report No.: MSKGL/ED/2023-24/005561

Sample No.: MSKGL/ED/2023-24/03/00621

#### RESULT

SI No.	Parameter	HOM	Method		1
1	Ammonia (NH3)	micro gm/m3		Limit	Result
2	Carbon Monoxide (CO)		IS 5182 (Part 25)	400 24 HR:	15.6
3	Nitrogen Dlaxide (NO2)	mg/m3	IS: 5182 (Part 10)_(O)	2 8HR.	0.51
4	Ozane (O3)	micro gm/m3	IS: 5182 (Part 6)_(O)	80 24 HR.	21.4
5	Particulate Matter (<10um)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	BDL(DL2010
fi.	Particulate Matter (<2.5um)	micro gm/m3	IS: 5182 (Part 23) (O)	100 24 HR.	197
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HR.	95
	Sulphur Didxide (SO2)	Eming urain	IS: 5182 (Part 2)_(O)	80 24 HR.	7,8

- END -

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Head Office: 3

Sharen Cenny (6th Floor), TAB, A.J.C. Bose Rend, Kowara - 700016, West Barget, Inna-Tet, 191 22 40143000 / 72050007 Fax, 31 32 22500000 Emist Info@minesk.com Wobsite 1 www.minak.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







Doc No.: MSK/GEN/19/07

Scan for Portal

ULR: TC-695024000005207F

## Name & Address of Customer :

Tala Steel Ltd.(MGM)\_Jona West

Al/Po. - Joda, Dist. - Keonthar, Odisha - 758034 India

TEST REPORT

Report No. :

Date: Sample No. : MSRPL/ED/2023-24/51604D 26/03/2024

MSKNB/ED/2023-24/03/BE251S

18/03/2024

Date of receipt of sample; Date(s) of performance:

18/03/2024 - 28/03/2024 Permanent Facility

Location of performance of 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:

2. Description of sample	Atmospheric Pollution
Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA NA
6. Place of sampling	15/03/2024
6. Environmental conditions during sampling & Transport	Near Joribar Weigh Bridge (BIMM)
/. Sampling Plan & Method osad	Temperature 18-33 deg C 2) Barometric Pressure: 711 mm of Hg 3) Rain fail     No II. Colo Chain Maintained
3. Identification of the personnel performing sampling by MSK	IS:5162(P-11,12) & USEPA
P. Field Equipments Used	Lalin Kumar Nalk
T. P. Control of the	MSK/BBL/FIELD/RDS-11

Report No.: MSKPUED/2023-24/51604D

Sample No.: MSKNB/ED/2023-24/03/BE251S

#### RESULT

SI No.	Parameter	UOM	The state of the s		
1	Arsenic as (As)		Method	Limit	Result
2	Benzene	ng/m3	USEPA-IO 3.4, June	6 (Annual)	
3		micro gm/m3	IS 5182 (Part 11)	5 (Аппиаl)	BDL(DL:1.0)
6	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)		BDL(DL4.2)
4	Lead (as Pb.)	micro gm/m3	USEPA-ID 3.4, June	1 (Annual)	BDL(DL:0.5)
5	Manganese as Mn	micro gm/m3		1 (24 Hours)	0,05
	Mickel as NI	ng/m3	USEPA-IO 3.4: June	Not Specified	0.28
pinion :			USEPA-IO 3.4, June i, 18th November 2009, for Amb	20 (Annual)	34.2

Limit as per CPCB notification. New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END ---

Reviewed By:

Neme

Executive Chemia

Designation

Authorized Signetory

Designation

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

This Test Report shall not be reproduced except in full, without the permission of Miltra S.K. Private Limited
the reserved part of sample(s) for drientical analysis (Non - perishable sample(s) Food, Wallor) after the relational for 15 days from the date of issue of the Test Report.

Per reserved part of sample(s) for chemical enalysis (Soil Soil & Legid Weets) shall be retained for 15 days as per CPCB quickers A. (Arc.) I month from the date of issue of the Test Report.

The reserved part of sample(s) for chemical enalysis (Non - personable sample(s) food, Sonited Weets), Solid & Legid Weets, Solid & Legid Weets, Solid & Valley, foreign Centre (5th Picer), 74B, A.J.C. Bose Road, Kolomo -7001t6, Www.Bengel India Tel: 91 33 40143000 / 22650007 Fax: 91-33 2265000h Email: w/c@mitrisk.com Webpite: www.mitrisk.com

### Address of Branch:

P.O. Barbii Dt Keonjhar Orisse 758 035





Scan for Portal

## Name & Address of Customer:

Tata Steel Ltd.(MGM) Jorda West

AUPg, - Joda Dist - Keonjhar, Odisha - 759034 India Pin

## TEST REPORT

Reference No. & Date :

Report No. :

Sample No. :

Date:

MSKGL/ED/2023-24/005560

27/03/2024

M5KGL/ED/2023-24/03/00620

3000156017/056, Date - 15/09/2023

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

Group     Description of sample	AIR
1. Unique Identification of sample(if any)	Ambient Water
4. Date of sampling	Barnebari Iron & Mr. Mines (BIMM)
5. Place of sampling	15/03/2024
6. Environmental conditions during sampling & Transport	Near Joribar Weigh Bridge (BIMM)
. Sampling Plan & Method used	Clear & Sunny
t and the discussion of the second	NA NA

Report No.: MSKGL/ED/2023-24/005560

Sample No.: MSKGL/ED/2023-24/03/00620

### RESULT

SI No.	Parameter	Parameter Hoss		-	
1		UOM	Method	Limit	Result
2	Ammonia (NH3)	micro gm/m3	IS 5162 (Part 25)		Result
4	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10)_(O)	400 24 HR.	15.8
d	Nitrogun Dioxide (NO2)	micro grr/m3		2 8HR.	0.56
4	Ozone (O3)	micro gar/mā	IS: 5182 (Part 6)_(O)	80 24 HR.	22.3
5	Particulate Matter (<10cm)		IS 5182 (Part 9)	180 1 HR.	BDL(DL:20,0)
8	Particulate Matter (<2.5um)	miland gm/m3	IS: 5182 (Part 23)_(O)	100 24 HR.	202
7		micro gm/m3	IS 5182 (PT-24),2018_(O)	60 24 HR	
	Sulphur Diaxide (SO2)	milaro ganim3	IS: 5182 (Part 2)_(O)	60 24 HR.	7.9

END -

Report Verified By

Head Office:



For Mitra S. K. Private Limited

Authorised Signatory

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate. 3, Pagladanga Road, Kolkula 700015 West Bengal

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







DOC NO. MISHURENHART

TESTING + INDRECTION

Scan for Portal

ULR: TC-695024000005206F

## 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/ED/2023-24/M1604P

26/03/2024

MSKNE/ED/2023-24/03/5M24FL

18/03/2024

18/03/2024 - 26/03/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

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

2. Description of sample	Atmospheric Pollution
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA NA
5. Place of sampling	15/03/2024
6. Environmental conditions during sampling & Transport	Near Project Office (BIMM)
7. Sampling Plan & Method used	Temperature :18-33 deg C 2) Berometric Pressure: 711 mm of Hg 3) Rain fai     No & Cold Chain Maintained
3. Identification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA
9. Field Equipments Used	Lalin Kumar Nak
	MSK/BBL/FIELD/RDS-5

Report No.; MSKPL/ED/2023-24/M1604P

Sample No.: MSKNB/ED/2023-24/03/5M24FL

### RESULT

SI No.	Parameter	UOM	Autor		
1	Arsenic as (As)	0.500	Method	Limit	Result
2	Benzene	ng/m3	USEPA-IO 3.4, June	6 (Annual)	
1		micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL.1.0
A	Benzo(a)Pyrene	Em/gn	IS 5182 (Part 12)		BDL(DL:4.2)
-	Lead (as Pb )	micro gm/m3	USEPA-IO 3.4, June	1 (Annual)	BDL(DL:0.5)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4; June	1 (24 Hours)	0.04
6	Nickel as Ni	ng/m3		Not Specified	0.23
pinlon			USEPA-IO 3.4, June I, 18th November 2009, for Amb	20 (Annual)	9.3

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Designation

Ms. Pluti Ganguly Executive Chemial Authorized Signalary

Lat in charge

The results relate only to the sem(s) tested.
This Test Report shall rest be reproduced except in full, without the permission of Mitra S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (Non - permission example(s) Food, Whiten shall be retained for 15 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Sol. Solid & Liquid Wasse) shall be retained for 15 days as per CPCB guarance & (Airy 1 mars) from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Sol. Solid & Liquid Wasse) shall be retained for 15 days as per CPCB guarance & (Airy 1 mars) from the date of issue of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non - periodable sample(s) Food, Seeled Wasser, Seeled food) shall be reserved for 15 days from the date of issue of the Test Report.

Head Office: Sheet/ Curary (8th Floor), 748, A.J.C. Boss Roed, Kokulia - 700016, What Bengal India.

Email: edo@mirross.com Website: www.mitrask.com

### Address of Branch:

P.O. Barba Dt Keonjihar Orlssa 758 035





Scan for Portal

## Name & Address of Customer :

Tabi Steril Ltd. (MGM)\_Joda West

Al/Po, - Jode, Dist - Keonjhar, Odisha - 758034 India Pin

## TEST REPORT

Reference No. & Date :

Report No. :

Sample No. :

Date :

MSKGL/ED/2023-24/005571

27/03/2024

MSKGL/ED/2023-24/03/00619

3000156017/056, Date - 15/09/2023

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

Group     Description of sample	AIR
3. Unique (dentification of sample(if any)	Ambient Air
4. Date of sampling	Barnebari tron & Mr. Mines (BIMM)
5. Place of sampling	15/03/2024
6. Environmental conditions during sampling & Transport	Near Project Office (BIMM)
7. Sampling Plan & Method used	Clear & Sunny
y man as mounted tised.	NA NA

Report No.: MSKGL/ED/2023-24/005571

Sample No.: MSKGL/E0/2023-24/03/00619

#### RESULT

nalysis Result of Ambient Air						
SI No.	Parameter	UOM	Method	1		
1	Ammonia (NH3)	micra gm/m3	377777	Limit	Result	
2	Carbon Monoxide (CO)		IS 5182 (Part 25)	400 24 HR.	15.0	
3	Nitrogen Diaxide (NO2)	mg/m3	IS 5182 (Part 10) (O)	2 8HR.	0.51	
4		micro gm/m3	IS: 5182 (Part 6) (O)	80 24 HR.	23.1	
-	Ozone (O3)	micro grr/m3	IS 5182 (Part 9)	160 1 HR.	7.7	
2	Particulate Mether (<10um)	micro grn/m3	IS: 5182 (Part 23) (O)		BDL(DL:20.0	
6	Particulate Matter (<2,5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)	100 24 HR.	226	
7.	Sulphur Dioxide (SO2)	micro gmm3		60 24 HR	109	
		Lunera Busina	(S: 5182 (Part 2)_(O)	60 24 HR.	8.2	

END

Report Verified By

Head Office:

For Mitra S. K. Private Limited

**Authorised Signatory** 

Strachi Centra (9th Floor), 74E, A.J.C. Bose Plant, Kollinsa - 70th 16, West Bosens, June 191 21 49143000 / 22650007 Fax: 91 20 2350000 Email: edoBreshall.com Wobste | www.cebesk.com

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkala 700015 West Bengal

Tel: +91 7044038120

Email udayanlııb@mitrask.com







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ULR: TC-895024000005212F

DOC NO. MSNOGEN/19/07

TESTING + INSPECTION

### Name & Address of Gustomer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Diet. - Keonyhar, 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 :

Disciplina:

MSKPL/ED/2023-24/91604S

26/03/2024

MSKNB/ED/2023-24/03/R6250L

18/03/2024

18/03/2024 - 25/03/2024

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	
2. Description of sample	Atmospheric Pollution
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA NA
Place of sampling	15/03/2024
Carlotte and the second	Near Back Filling Yard Barnebari (BIMM)
5. Environmental conditions during sampling & Transport.	1) Temperature :18-33 deg C 2) Resemble Desemble :1
Sampling Plan & Method used	
Identification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA
Field Equipments Used	Lalin Kumar Naik
- 1 and administration	MSK/BBL/FiELD/RDS-17

Report No.: MSKPL/ED/2023-24/916048

Sample No.: MSKNB/ED/2023-24/03/R6250L

#### RESULT

Chemical						
SI No.	Parameter	NOW	Method	10.00	_	
1	Arsenic as (As)	ng/m3	CO-Part M	Limit	Result	
2	Benzene		USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)	
3	Benzo(a)Pyrene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)	
4	Lead (as Pb )	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)	
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)	
8		micro gm/m3	USEPA-IO 3.4: June	Not Specified	0.10	
pinion:	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL-5.0)	

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END -

Reviewed By:

Significan

Mu. Piati Ganguly

Designation

Executive Chemiat

Authorized Signatory

Signature

Designation

List in charge

The results relate only to the term(s) tested
The Test Report shall not be reproduced accupy in full, without the permission of Mars S.K. Private Limited
The reserved part of paragraphs (a) for chemical analysis (Non - perioduced sample(s) Food. Wester) shall be related for 15 days from the date of insula of the Test Report.
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The necessary of part of sample(s) for charactel analysis (Bott Solid & Liquid Waters) what be retained for 15 days as per CPCB guidaline & (Aid. 1 month from the date of same of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - personator sample(s) Food. Sealed Weter. Similar feed) shall be retained for 15 days from the date of insure of the Test Report.

Head Office: Streets (Str Flor), 748, A.J.C. Boss Road, Kolinsts - 700016, Warri Songisi, India, 91.32.401430001 Fax : 81.33.2550008

Ernel mortiminus com Wilberts www.mitrank.com



P.O. Barbil Dt Keoninar Orissa 758 035

Name & Address of Customer:

AVPo, - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Tata Steel Ltd.(MGM) Joda West





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### **TEST REPORT**

Report No. :

MSKGL/ED/2023-24/005562

Date :

27/03/2024

Sample No.:

MSKGL/ED/2023-24/03/00625

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 mente-

1. Group	AIR		
2. Description of sample	Ambient Water		
3, Unique Identification of sample(if any)	Barnabari fron & Mrs. Mines (BIMM)		
4. Date of sampling	15/03/2024		
5, Place of sampling	Near Back Filling Yard Burneburi (BIMM)		
6. Environmental conditions during sampling & Transport	Clear & Sunny		
7. Sampling Plan & Method used	NA .		

Report No.: MSKGL/ED/2023-24/006562

Sample No.: MSKGL/ED/2023-24/03/00625

#### RESULT

SI No.	Parameter	NOW	Method	Limit	200
1	Ammonia (NH3)	micro gn/m3			Result
-			IS 5182 (Part 25)	400 24 HR	14.6
4	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10)_(O)	2 8HR.	0.57
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6)_(D)	80 24 HR	20.6
.4	Ozone (O3)	тисто деп/т3	IS 5182 (Part 9)	180 1 HR.	BDL(DL 20,0)
A	Particulate Matter (<10um)	micro gm/m3	(S: 5182 (Part 23) (O)	100 24 HR.	182
A	Particulate Maller (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HR.	67
7	Sulphur Bioxide (\$02)	micro gm/m3	IS: 5182 (Part 2) (O)	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, Pagladanga Road, Kolkata 700015 West Bengal

Tel.: +91.7044038120 Email: udayanlah@milrask.com







ULR: TC-695024000005980F

DOD NO. MISKIGEN/19/07

## 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/2024-25/72L22M

03/04/2024

MSKNB/ED/2023-24/03/V036DF

26/03/2024

26/03/2024 - 03/04/2024

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	
3. Unique identification of sample(if any)	Ambient Air
4. Date of sampling	21/03/2024
5. Place of sampling	Near Back Filling Yard Barnebari (BIMM)
6. Environmental conditions during sampling & Transport	1) Temperature :19-31 deg C 2) Barometric Pressure: 712 mg of the 21 Date Co.
7. Sampling Plan & Method used	No. & Cold Chain Maintained IS:5182(P-11.12) & USEPA
3. Identification of the personnel performing sampling by MSK	Mukesh Highburu
9. Field Equipments Used	MSK/BBL/FIELD/RDS-17

Report No.: MSKPL/ED/2024-25/72L22M

Sample No.: MSKNB/ED/2023-24/03/V036DF

### RESULT

Parameter	NOW	Method	Limit	Result
Arsenic as (As)	ng/m3	USEPA-IO 3.4, June		BDL(DL1.0)
Benzene	micro gm/m3			BDL(DL-4.2)
Berizo(a)Pyretie	ng/m3	IS 5182 (Part 12)		BDL(DL:0,5)
Lead (as Pb )	micro gm/m3	USEPA-IO 3.4, June	1 4 2 7 1 1 1 7 2 4	BDL(DL:0.01)
Manganese as Mn	micro gm/m3		201000000000000000000000000000000000000	
Nickel as Ni	ng/m3			0.10 BDL(DL:5.0)
	Arsenic as (As) Benzene Benzo(s)Pyrene Lead (as Pb ) Manganese as Mn	Arsenic as (As) ng/m3  Benzene micro gm/m3  Benzo(a)Pyrene ng/m3  Lead (as Pb ) micro gm/m3  Manganese as Mn micro gm/m3	Arsenic as (As) ng/m3 USEPA-IO 3.4, June  Benzene micro gm/m3 IS 5182 (Part 11)  Benzene ng/m3 IS 5182 (Part 12)  Lead (as Pb ) micro gm/m3 USEPA-IO 3.4, June  Manganese as Mn micro gm/m3 USEPA-IO 3.4: June	Arsenic as (As) ng/m3 USEPA-IO 3.4, June 6 (Annual)  Benzene micro gm/m3 IS 5182 (Part 11) 5 (Annual)  Benzo(a)Pyrene ng/m3 IS 5182 (Part 12) 1 (Annual)  Lead (as Pb ) micro gm/m3 USEPA-IO 3.4, June 1 (24 Hours)  Manganese as Mn micro gm/m3 USEPA-IO 3.4: June Not Specified

Limit as per CPCB notification, New Deltii, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END -

Reviewed By

Signature

Designation

Executive Creenist

Authorized Signatory

Lab in charge

The results relate only to the semi(s) tested
That Test Report shall red be reproduced except in full, without the permission of Mile S.K. Private Lawring.
The reserved part of sample(s) for charminal analysis (Non – parts able sample(s) Food. Visitor) shall be retained for 16 days from the date of issue of the Test Report. Perspecte sample(s) that be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Soild & Liquid Weste) shall be retinined for 15 days as per CPCB guidaline & (Air) 1 month from the class of issue of the Test Report.
The reserved part of sample(s) for Microbiological ensitysis (Non - point science) should water, Seeled Water, Seeled Water, Seeled food) should be retained for 15 days from the class of its Elevent Test Report.

Struct's Cores (Sin Floor), 748, A.J.C. Bose Roset, Kolkuss - 700016, West Sangal, India. 16. 91-33-40143000 / 22050007 Fax: 91-33-22650008 Email: rfo@mirresk.com Websile, www.mirresk.com Head Office:

Al/Pu. - Jodá, Dist: - Keonjhur, Odisha - 758034 India Pin



P.O. Barbit Di Koonmar Orissa 758 035

Tata Steel Ltd.(MGM) Joda West





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### TEST REPORT

Name & Address of Customer: Report No.:

Date:

MSKGL/ED/2020-24/005635

30/03/2024

Sample No. :

MSKGL/ED/2023-24/03/00686

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)	Barnebari Iron & Mn. Mines (BIMM)	
4. Date of sampling	22/03/2024	
5. Place of sampling	Back Filling Yard Barnebari (BIMM)	
6. Environmental conditions during sampling & Transport	Clear A Sunny	
7. Sampling Plan & Method used	NA NA	

Report No.: MSKGL/ED/2023-24/005635

Sample No.: MSKGL/ED/2023-24/03/00686

#### RESULT

nalysis Result of Ambient Air						
SI No.	Parameter	UOM	Method	Limit	Result	
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	14.3	
2	Carbon Monande (CO)	mg/m3	IS: 5182 (Part 10) (O)	2 8HR.	0,56	
3	Nitrogen Dioxide (NO2)	micro gm/m3	S: 5182 (Part 6)_(O)	80 24 HR	21.2	
4	Ozone (O3)	micro gm(m3	IS 5182 (Part 9)	180 1 HR.	BDL(DL-20.0)	
5	Particulate Matter (<10um)	miora gm/m3	IS: 5182 (Part 23) (O)	100 24 HR	187	
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HR	90	
7	Sulphur Dioxide (SO2)	micro gnVm3	IS: 5182 (Part 2) (O)	80 24 HR	5.0	

- END -

Report Verified By

For Mitra S. K. Private Limited

**Authorised Signatory** 

Head Office:

Giventri Comre (Srs Floor), 748. A.J.C. Rose Road, Kolksta - 700010. West Bernell, trans-Tell. 91.32.40143000 / 27050007 Pay. 91.33.22950000 Ernell: vdo@mitmak.com Widelie: were mitratk.com.

#### Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate 3, Pagladanga Road, Kolkata 700015. West Bengal

Tel.: -91 7044036120 Email: udayanlab@milraak.com





Scan for Portal

ULR: TC-695024000005978F

Doc No. MSK/GEN/19/07

### Name & Address of Customer:

Tata Steel Ltd (MGM)\_Joda West

AVPo. - 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:

26/03/2024

03/04/2024

26/03/2024 - 03/04/2024

MSKPL/ED/2024-25/KAL22S

MSKNB/ED/2023-24/03/9236EB

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 NA
4. Date of sampling	21/03/2024
5. Place of sampling	Near Joribar Shorting Yard (BIMM)
6. Environmental conditions during sampling & Transport	Temperature :19-31 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fail     No 6 Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Mukesiy Highburu
9. Field Equipments Used	MSK/BBL/FIELD/ROS-12

Report No. : MSKPL/ED/2024-25/KAL22S

Sample No.: MSKNB/ED/2023-24/03/9236EB

#### RESULT

Chemical						
SI 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(DL4.2)	
1	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)	72	

Opinion:

Limit as per CPCS notification. New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Ms. Pini Garmali

Designation Executive Charmat

Authorized Sinnels

Lab In charge Designation

The results relate only to the item(s) insted.
This Test Report shall not be reported outset in full, without the permission of Mitte S.K. Private Limited.
The resurved part of sample(s) for chemical enabysis (Non – persinable comple(s) Food. Whiten shall be retained for 15 days from the case of the Test Report. Perichable immple(s) shall be retained 3 days.

If on the date of issue of the Test Report.

The reserved part of sample(s) for charmonical analysis (Soil, Gold & Liquid Wants) shall be retained for 15 days as per CPCB guidaline E (Air) 1 reader from the date of issue of the Text Report.

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

Head Office: Breach Centre (this Floor), 748, A.J.C. Bose Road, Koltaks -700016, West Bergel, India, 191 33-4(thi-930007 2860007 Film: 91 33-2650008

Email: Pro/Emiliask.com Website: www.mirrask.com

Address of Branch:

P.O. Barbil Dt Koonjhar Oritisa 756 035

Name & Address of Customer:

AVPo. - Jodu, Dist. - Keonjnar, Odisha - 798034 India Pin

Tata Stool Ltd.(MGM) Joda West





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### TEST REPORT

Report No. :

MSKGL/ED/2023-24/005630

Date ;

30/03/2024

Sample No. :

MSKGL/ED/2023-24/03/008/5

Reference No. & Date :

3000156017/056, Date - 15/09/2023

We hateby cartify 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)	Barnobari Iron & Mn. Minus (BIMM)	
4. Date of sampling	21/03/2024	
5, Place of sampling	Near Jordan Shorting Yard (BIMM)	
f. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA NA	

Report No.; MSKGL/ED/2023-24/005633

Sample No.; MSKGL/ED/2023-24/03/00875

#### RESULT

SI No.	Parameter	MON	Method	Limit	Result
1	Ammonia (NH3)	micro gn/m3	IS 5182 (Part 25)	400 24 HR.	16.2
2	Carbon Monocide (CO)	mg/m3	IS: 5182 (Part 10) (O)	2 8HR.	
3	Mitrogen Dioxide (NO2)	micra gm/m3	15: 5182 (Part 6) (O)	80 24 HR.	0.53
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	22.1
5	Particulate Matter (<10um)	micro gm/m3	IS: 5162 (Part 23) (O)	100 24 HR	BDL(DL:20.0)
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60.24 HR.	243
7	Sulphur Dioxide (SO2)	micro gn/m3	IS: 5182 (Part 2) (O)	80 24 HR.	9.0

\_\_\_ END \_\_\_

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Head Office:

Shrade C. one (an Rice), 748, A.J.C. Bose Head, Kokura -700016, West berook from Tax: 81 33 48143000 / 27650007 Fax: 81 33 2250000. Final: edogradusk.com Websitn : www.perask.com

Doc No. MSKIGEN/19/07







Scan for Portal

ULR: TC-695024000005975F

## Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Address of Laboratory:

West Bengal Tel: +91 7044038120 Email udayanlab@milrask.com

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

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/ED/2024-25/GVF22A

03/04/2024

MSKNB/ED/2023-24/03/3C369C

26/03/2024

26/03/2024 - 03/04/2024

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	
Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA .
5. Place of sampling	21/03/2024
S-Control Management of the Control	Near Joribar Weigh Bridge (BIMM)
5. Environmental conditions during sampling & Transport	1) Temperature :18-31 deg C 2) Barometric Deserver 742 711-711
. Sampling Plan & Method used	- Loss Sessie Schille Memilianield
Lidentification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA
Field Equipments Used	Mukesh Highburu
	MSK/BBL/FIELD/RDS-11

Report No.: MSKPL/ED/2024-25/GVF22A

Sample No.: MSKNB/ED/2023-24/03/3C369C

## RESULT

SI No.	Parameter	NOM	Method	Limit	
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June		Result
2	Benzene	micro gm/m3	IS 5182 (Part 11)	6 (Annual)	BDL(DL-1.0
3	Benzo(a)Pyrena	ng/m3		5 (Annual)	BDL(DL:4.2
4	Lead (as Pb.)	micro gm/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5
5	Manganese as Mn		USEPA-10 3.4, June	1 (24 Hours)	0.02
6	Nickel as Ni	micro gm/m3	USEPA-ID 3.4: June	Not Specified	0.40
pinion :		ng/m3	USEPA-IO 3.4, June I, 18th November 2009, for Amit	20 (Annual)	BDL(DL:5:0)

Limit as per CPGB notification, New Dalhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Reviewed By

Bioradive

Designation Executive Chemist Authorized Signatory

Designation

Signature

Lab in charge

The results relate only to the dam(s) tested

The results retote 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 reserved part of sample(s) for change analysis (Non-operature sample(s) Food. Water) shall be retoined for 15 days from the date of issue of the Test Report. Poreliable sample(s) shall be retained a sample of the Test Report.

The reserved part of sample(s) for the Report.

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The reserved part of sample(s) for the Report.

The reserved part of exemples, for chamical analysis (Soil, Spirit & Lepis) Wester) entit be reliasted for 15 days as per UFCB guideline 5. (Au), 3 month from the claim of text Report. The reserved part of exemples,3 for Microbiological analysis (Non - parehable samples) Food, Sealed Water, Sealed food) shall be reliable from the date of texts of the Total Report.

Straids Carers (5th Floor), 74B, A.J.C. Bose Road, Kolvaia –700016, West Bengal, Inc. Tel. Bt 32 40143000 / 22650007 Fax: \$1.33 22650006 Email lates protrack com Website laww.misrask.com

Address of Branch:

P.O. Berbil Dt Keonjhwi Onssa 758 035





Scan for Portal

#### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Oist - Keunjhar, Odisha - 758034 India Pin

# TEST REPORT

Reference No. & Date :

Report No.: Date:

MSKGL/ED/2023-24/005632

30/03/2024

Sample No. :

MSKGL/ED/2023-24/03/00874

3000156017/056, Date - 15/09/2023

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

1. Group	AIR	
2. Description of sample	Ambiert Air	
3. Unique Identification of sample(if any)	Barnebari Iron & Mr. Mines (BIMM)	
4. Date of sampling	21/03/2024	
5. Place of sampling	Near Jonbar Weigh Bridge (BIMM)	
6. Environmental conditions during sampling & Transport	Clear & Suppy	
7. Sampling Plan & Method used	NA String	

Report No.: MSKGL/ED/2023-24/005632

Sample No.: MSKGUED/2023-24/03/00074

#### RESULT

Si No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	Emving craim	1S-5182 (Part 25)	400 24 HR.	15.8
2	Carbon Monoxode (CO)	mg/m3	IS 5182 (Pari 10) (O)	2 8HR.	0.59
3	Nitrogen Dioxide (NO2)	micro gm/m3.	IS: 5182 (Part 6) (O)	80 24 HR.	22.6
4	Ozorw (O3)	micro gm/m3	IS 5182 (Part 9)	180 T HR.	BDL(DL-20.0)
5	Particulate Matter (<10um)	micro gn/m3	IS: 5182 (Part 23)_(O)	100 24 HR	206
.6	Particulate Matter (<2.5cm)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HR	
7	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2) (O)	80 24 HR	99

cun

Report Verified By

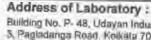
For Mitra S. K. Private Limited

Authorised Signatory

Haad Office: Stracts Carps (5th Flori), 748, A.J.C. Boss Road, Rehate - 700016. West Bernjal, Ind... Tat 191 33 40143000 / Z2950007 Fas: 191 33 22950000 Breat Info@mitreat.com Website: www.mitreat.com

Doc No.: MSK/GEN/19/07





Building No. P- 48, Udayan Industrial Estate, 5, Pagladanga Road, Kolkata 700015 West Bengal Tel : +91 7044036120 Email: udayanlab@mitrask.com





Scan for Portal

ULR: TC-895024000005974F

#### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AVPo. - 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:

26/03/2024 26/03/2024 - 03/04/2024

MSKPL/ED/2024-25/SW622W

MSKNB/ED/2023-24/03/2336A4

Permanent Facility

3000158017/058, Date - 16/09/2023

Chemical

03/04/2024

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 NA
Date of sampling	21/03/2024
5. Place of sampling	Near Project Office (BIMM)
5. Environmental conditions during sampling & Transport	1) Temperature : 19-31 deg C 2) Barometric Pressure: 712 mm of Ho 3) Pain (all
7. Sampling Plan & Method used	No. & Cold Chain Maintained IS:5182(P-11,12) & USEPA
3. Identification of the personnel performing sampling by MSK	Mukesh Highburu
9. Field Equipments Used	MSK/BBUFIELD/RDS-5

Report No.: MSKPL/ED/2024-25/SW622W

Sample No.: MSKNB/ED/2023-24/03/2336A4

#### RESULT

SI No.	Parameter	NOM	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-IQ 3.4: June	Not Specified	0.27
8	Nickel as Ni	ng/m3	LISEPA-IO 3.4. June	20 (Annual)	BDL(DL:5.0)

Opinion :

Limit as per CPCB notification, New Delin, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Reviewed By

Designation Eincultyn Chanus Authorized Signatory.

Designation : Lab in charge

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

This Test Report shall not be reproduced except in Aut, without the permission of Mitre & K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) prod. Water) shall be returned for 15 days from the date of issue of the Test Report. Portanable sample(s) after the reserved part of sample(s) for chemical analysis (Non - perishable sample(s) are the reserved part of sample(s) for chemical analysis (Ron - perishable sample(s) for our character of the reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Salid Miller State (Non - perishable sample(s) for the reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Salid Miller State (Non - perishable sample(s) Food, Sa

Head Office: Streets Centre (5th Ficer), 748, A.J.C. Bose Road, Kolkete -700016. Wed Berger, India. 121. 91.33.40143000 / 22650007 Fax: 91.33.22650009 Email: info@miratk.com Webser: www.mitraus.com



P.O. Barbil Dt Keonibar Orissa 758 035





#### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Jodis. Dist. - Keonjitar, Odisha - 758034 India Plin

## TEST REPORT

Report No. 1

Date:

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/005627 30/03/2024

M5KGL/ED/2023-24/03/00/173

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)	Bamebari Iron & Mr. Mines (BIMM)	
4. Date of sampling	21/03/2024	
5, Place of sampling	Near Project Office (BIMM)	
5. Environmental conditions during sampling & Transport	Clear & Surny	
7, Sampling Plan & Method used	NA NA	

Report No.: MSKGL/ED/2023-24/005627

Sample No.: MSKGL/ED/2023-24/03/00873

#### RESULT

analysis Result of Ambient Air							
SI No.	Parameter	UOM	Method	Limit	Result		
1	Americania (NH3)	micro gm/m3	IS-5182 (Part 25)	400 24 HR.	15.7		
2	Carbon Monoxede (CO)	Emigm	IS: 5182 (Part 10) (O)	2 8HR.	0,53		
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6)_(O)	80 24 HR	24.2		
4	Ozona (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR	BDL(DL:20.0)		
5	Particulate Matter (<10um)	micro gm/m3	(S: 5182 (Part 23) (O)	100 24 HR	222		
6	Particulate Matter (<2.5um)	micro gm/m3	(S 5182 (PT-24),2019 (O)	60 24 HR.	120		
2	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2)_(O)	80 24 HR.	7.9		

END.

Report Verified By

Head Office:

For Mitra S. K. Private Limited

**Authorised Signatory** 

Ghachi Conne (Sh Risor), 748, A.J.C. Bose Road, Kolesta - 700016, West Borook Insert 51, 33 40143000 / 22650007 Fax: 31.33 23450608 Email: 91/05[ministruction Website: www.jnirank.com

Address of Laboratory :

Building No. P- 48. Udayan Industrial Estate, 3. Pagladanga Road, Kulkata 700015 West Bangal

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





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MSKPL/ED/2024-25/FV122Z

26/03/2024 - 03/04/2024

MSKNB/ED/2023-24/03/TY36E9

ULR: TC-695024000005987F

Doc No MSKVGER/19/07

TESTING + INSPECTION

## Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

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

## TEST REPORT

Report No. 1

Date:

Sample No. !

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date : Discipline:

Permanent Facility

03/04/2024

26/03/2024

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 NA
4. Date of sampling	22/03/2024
5. Place of sampling	Near Back Filling Yard Barnebari (BIMM)
6. Environmental conditions during sampling & Transport	Temperature: 18-31 deg C 2) Barometric Pressure: 713 mm of Hg 3) Rain fall No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
6. Identification of the personnel performing sampling by MSK	Pratik Kr Mantri
9, Field Equipments Used	MSK/BBL/FIELD/RDS-17

Report No.: MSKPL/ED/2024-25/FV1222

Sample No.: MSKNB/ED/2023-24/03/TY36E9

#### RESULT

Chemical							
SI No.	Parameter	UOM	Method	Limit	Result		
3	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/DL42)		
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)		
A	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 5.4: June	Not Specified	0.13		
6	Nickel as NI	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BOL(DL:5.0)		

Opinion:

Limit as per CPCB notification, New Defni, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Revenued By

Designation

Executive Crem

Authorized Signatory

Signature

Designation

Lab in charge

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

This Test Report shall not be reproduced except in full, we not the persission of Mitre S.K. Private Limited.
The reserved part of sample(s) for chemical analysis (Non - perchable sample(s) Food, Water) shall be reterred by 15 days from the date of same of the Test Report.

Persisted sample(s) and persisted sample(s)

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Wester) shall be retired for 15 days as per CPCB galaxiere & (Air) I mode from the date of same of the Test Report. The reserved part of sample(s) for Microbiological analysis (Non-parishable sample(s) Food. Session Water, Sealed Tood) shall be retained for 15 days from the state of cause of the Test Report.

Head Office:

Sheath Centre (Sin Floor), 74B, A.J.C. Blass Floor), Kolksin – 700016, West Bengal, India. Tal.: 91 33 40143000 / 22650007 Fav.: 91 33 22650000 Email: info@mitrask.com Websile: www.misrek.com



P.O. Barbil Dt Keonihar Ortssa 758 035





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#### TEST REPORT

Reference No. & Date :

Name & Address of Customer:

Trito Steel Ltd.(MGM)\_Joda West

At/Fa, - Joda, Dist. - Keopinar, Odisha - 758034 India Pin

Report No. :

Sample No. 1

Date:

MSKGL/ED/2023-24/005631

30/03/2024

MSKGL/ED/2023-24/03/00880

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)	Barnobari Iron & Mr., Mines (BIMM)	
4. Date of sampling	22/03/2024	
5. Place of sampling	Back Filling Yard Barneburi (BIMM)	
6. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA NA	

Report No.: MSKGL/ED/2023-24/005631

Sample No.: MSKGL/ED/2023-24/03/00880

#### RESULT

Analysis Result of Ambient Air							
SI No.	Parameter	UOM	Method	Limit	Result		
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	14.8		
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (O)	2 8HR.	0.63		
3	Nitrogen Diaxide (NO2)	micro gm/m3	IS: 5182 (Part 6)_(O)	80 24 HR.	20.7		
4	Ozona (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	BDL(DL 20.0)		
ű	Particulate Matter (<10um)	micro gm/m3	(S: 5182 (Part 23) (O)	100 24 HR.	178		
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR.	94		
7	Sulphur Dioxide (SO2)	nicro gmim3	IS: 5182 (Part 2) (O)	80.24 HR.	<6.0		

\_\_\_ END \_\_\_

Report Verified By

Head Office:

For Mitra S. K. Private Limited

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Tel. +91.7044036120 Email: udayanlab@mitreek.com







Doc No: MSK/GEN/19/07

Scan for Portal

MSKPL/ED/2024-25/AWF229

ULR: TC-695024000005983F

### 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:

03/04/2024 MSKNB/ED/2023-24/03/9V36BP

26/03/2024

26/03/2024 - 03/04/2024

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	
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	22/03/2024
5. Place of sampling	Near Joribar Shorting Yard (BIMM)
6, Environmental conditions during sampling & Transport	1) Temperature :18-31 deg C 2) Barometric Pressure: 713 mm of Ha 3) Pain Fell
7. Sampling Plan & Method used	No & Cold Chain Maintained IS:5182(P-11,12) & USEPA
6. Identification of the pursonnel performing sampling by MSK	Pratik Kr Mantri
9. Field Equipments Used	MSK/BBL/FIELD/RDS-12

Report No.: MSKPL/ED/2024-25/AWF229

Sample No.: MSKNB/ED/2023-24/03/9V36BP

#### RESULT

Chemical					
SI 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/IC 3.4: June	Not Specified	0:16
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	21.4

Opinion:

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END -

Skovatura

Designation

Executive Charries

Authorized Signatory

The results relate only to the item(a) lested.

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The reserved part of sample(s) for charmoni enalysis (Non - perishable sample(s)) Food. William chall be religioned for 15 days from the sets of issue of the Test Report. Personable sample(s) shall be retained 2 days.

The reserved part of sample(s) for chemical analysis (55% Solid & Liquid Wisse) shall be remined for 15 days as per CPC6 guidaline & (Au) 1 month from the date of asset of the Teol Report.
The reserved part of sample(s) for all problems analysis (Non - peristrable sample(s) Food, Sealed Water Sealed food) shall be retained by 15 days from the date of asset of the Teol Report. Head Office:

(Freeds Centre (3th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bergal, India Tel. 91 33 40143000 / 22650007 Fax: 91 33 22650008 Enset in Fig. 2017/mills.com Website www.mitrests.com

Address of Branch:

P.O. Birthil Dt Keonjilar Orissa 758 035

Name & Address of Customer:

Tals Steel Ltd.(MGM)\_Joda West





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# TEST REPORT

Reference No. & Date :

Report No :

Sample No. :

MSKGL/ED/2023-24/005624

Date:

30/03/2024

At/Po. - Joda, Dist. - Keonjinar, Odisha - 758034. India Pin

MSKGL/ED/2023-24/03/00882

3000156017/056, Date - 15/09/2023

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

1. Group	AIR	
2. Description of sample	Ambient Air	
3. Unique Identification of sample(if any)	Barnebort Iron & Mn. Mines (BIMM)	
4. Date of sampling	22/03/2024	
5. Place of sampling	Near Joribar Shorting Yard (BIMM)	
5. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA NA	

Report No. . MSKGL/ED/2023-24/005624

Sample No. : MSKGL/ED/2023-24/03/00882

#### RESULT

nalysis Result of Ambient Air					
Parameter	UOM	Method	Limit	Result	
Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HB	16.3	
Carbon Monoxide (CO)	mg/m3	The state of the s	1	0,54	
Nitrogen Dioxide (NO2)	micro gm/m3			22.7	
Ozone (O3)	micro gm/m3	IS 5182 (Part 9)		BDL(DL.20.0)	
Particulate Matter (<10um)	micro gm/m3	IS. 5182 (Part 23) (O)	-	198	
Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)		84	
Sulphur Dioxide (SO2)	micro gm/m3			6.9	
	Parameter Ammonia (NH3) Carbon Monoxida (CO) Nitrogen Dioxide (NO2) Ozona (O3) Particulario Matter (<10um) Particulate Matter (<2.5um)	Parameter UOM Ammonia (NH3) micro gm/m3 Carbon Monoxida (CO) mg/m3 Nitrogen Dioxide (NO2) micro gm/m3 Ozono (O3) micro gm/m3 Particulare Matter (<10um) micro gm/m3 Particulare Matter (<2.5um) micro gm/m3	Parameter   UOM   Method	Parameter         UOM         Method         Limit           Ammonia (NH3)         micro gm/m3         IS 5182 (Part 25)         400 24 HR           Carbon Monoxida (CO)         mg/m3         IS: 5182 (Part 10)_(O)         2 8HR           Nitrogen Dioxide (NO2)         micro gm/m3         IS: 5182 (Part 6)_(O)         80 24 HR           Ozona (O3)         micro gm/m3         IS: 5182 (Part 9)         1/80 1 HR           Particulatio Matter (<10um)	

END .

Report Verified By

For Mitra S. K. Private Limited

Doc No.: MSK/GEN/19/07





Building No. P- 48, Udayan Industrial Estate, 3. Pagladanga Road, Kolkata 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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ULR: TC-595024000005982F

#### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

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

TEST REPORT

Report No. :

Date:

Sample No.:

03/04/2024

MSKNB/ED/2023-24/03/6A369Z 26/03/2024

Date of receipt of sample: Date(s) of performance:

26/03/2024 - 03/04/2024 Permanent Facility

Location of performance of Reference No. & Date :

3000158017/055, Data - 16/09/2023

MSKPL/ED/2024-25/TGZ22W

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 NA
Date of sampling	22/03/2024
5. Place of sampling	Near Joribar Weigh Bridge (BIMM)
5. Environmental conditions during sampling & Transport	1) Temperature :16-31 deg C 2) Barometric Pressure: 713 mm of Ho 3) Rain fall
. Sampling Plan & Method used	No & Cold Chain Maintained IS:5182(P-11,12) & USEPA
3. Identification of the personnel performing sampling by MSK	Pratik Kr Mantri
9. Field Equipments Used	MSK/BBL/FIELD/RDS-11

Report No.: MSKPL/ED/2024-25/TGZ22W

Sample No.: MSKNB/ED/2023-24/03/8A369Z

### RESULT

Chemical					
SI No.	Parameter	NOM	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	JS 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	micra gm/m3	USEPA-IO 3.4: June	Not Specified	0.33
6	Nickel as NI	ng/m3	USEPA-IO 5.4, June	20 (Annual)	9.3

Opinion:

Limit as per CPCB notification, New Delhi. 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Reviewed By

Designeson

Executive Chamile

Authorized Signatory

Lab In charge

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

This Test Report shall not be reproduced except in fut, without the parallesson of Mara 6 N. Private Limits.

The reserved part of sample(s) for chemical analysis (Non - pointhetic sample(s) Food, Water) shall be retained for 15 days from the date of lastes of the Test Report. Periodeble sample(s) and the reserved part of sample of the Test Report. Periodeble sample(s) and the reserved part of sample of the Test Report. Periodeble sample(s) and the reserved part of sample of the Test Report.

The reserved part of sample(s) for chance a seyee (Non-perhaps should wave of the Test Report.

The reserved part of sample(s) for chance is resigned (Non-perhaps sample(s) Food, Saided Weller, Sassed (not) should be retained for 15 days from the third of sample(s) for Allorobiological analysis (Non-perhaps sample(s) Food, Saided Weller, Sassed (not) should be retained for 15 days from the time of several field.

Head Office: directs (201 Floor), 748, A.J.C. Bose Road, Kokata: -700016, West Beingel, India Tel. 97 39 40143000 / 20650007 Fax: 91 30 20550008

Email: a formation, con Whosho www.mitrank.com

Address of Branch:

P.O. Berbii Dt Keonihar Orissa 758 035





## Name & Address of Customer:

Tata Steel Ltd. (MGM)\_Jodn West

Al/Pa. - Joda Dist - Keorijhar, Odlaha - 758034 India Pin

# TEST REPORT

Report No. :

Date:

MSKGL/ED/2023-24/005534

30/03/2024

Sample No.:

MSKGL/ED/2023-24/03/00881

Reference No. & Date :

3000156017/056, Date - 15/09/2023

We hereby certify that the following sample Drawn by us has be

1. Group	AIR	
Z. Description of sample	Ambient Air	
3. Unique Identification of sample(If any)	Barneburi Iron & Mn. Mines (BIMM)	
4. Date of sampling	22/03/2024	
5. Place of sampling	Near Joribar Weigh Bridge (BIMM)	
6. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA NA	

Report No.: MSKGUED/2023-24/005634

Sample No.: MSKGL/ED/2023-24/03/00881

#### RESULT

SI No.	Parameter	UOM	Method	Limit	0
1	Ammonia (NH3).	micro gm/m3	IS 5182 (Part 25)	10.00	Result
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (O)	400 24 HR.	16.2
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6) (O)	2 8HR.	D.55
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	30 24 HR.	21.4
5	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	160 / HR.	BDL(DL:20.0)
6	Particulate Matter (<2.5um)	micro gm/m3		100 24 HR.	207
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 (PT-24),2019_(0)	60 24 HR.	130
	1000	L unran Bunus	IS: 5182 (Part 2)_(O)	80 24 HR.	0.6

END

Report Verified By

For Mitra S. K. Private Limited

**Authorised Signatory** 

Head Office:

Street's Centre (Sn-Fisker) 746, A.J.C. Bose Roset Roman - (1007)5 What Harried Janes Tel. / 61 23 40143000 / 22980007 Fax : 61 33 22950000 Email: Infathminance con Wedsite: www.tnihadi.com

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Fapiadanga Road, Kolkata 700015 West Bengal

Tel +91 7044036120 Email: udayanlab@mitrask.com





Dac No: MSKIGEN/1907

TESTING . (Napection



ULR: TC-895024000005981F

## Name & Address of Customer:

Tate Steel Ltd.(MGM)\_Jods West

AVPo. - 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/2024-25/16C22H

03/04/2024

MSKNB/ED/2023-24/03/0L36FC

26/03/2024

26/03/2024 - 03/04/2024

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:

Group	
2. Description of sample	Atmospheric Pollution
Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA 22/03/2024
5. Place of sampling	
6. Environmental conditions during sampling & Transport	Near Project Office (BIMM)  1) Temperature :18-31 dag C 2) Barometric Pressure: 713 mm of Hg 3) Rain fall.
7. Sampling Plan & Method used	TID & Cold Shain Maintained
Identification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA
9. Field Equipments Used	Pratili Kr Mantri MSK/BBL/FIELD/RDS-5

Report No.:

MSKPL/ED/2024-25/16C22H

Sample No.: MSKNB/ED/2023-24/03/01/36FC

#### RESULT

SI No. Parameter		Parameter UOM Method	Limit		
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June		Result
2	Benzene	micro gm/m3	IS 5182 (Part 11)	6 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	5 (Annual)	BDL(DL42
à	Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June	1 (Annual)	BDL(DL 0.5)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June	1 (24 Hours)	0.02
6	Nickel as Ni	ng/m3		Not Specified	0.20
pinion			USEPA-IO 3.4, June	20 (Annual)	BDL(DL5.0

Limit as per CPCB notification. New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END ---

Reviewed By

Designation

Executive Chrimina

Authorized Signatory

Signature

Designation Lab in charge

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The Test Report shall not be reproduced except in full, without the permission of Milra S.K. Private Landed.
The reserved part of complete for chemical analysis (Non-pertanded summittee) Food, Water) shall be referred for 15 days from the date of issue of the Test Report.

Perialization samples in the Test Report.

The reserved part of sample(s) for thermical analysis (Boil, Solid & Liquid Wome) shall be retained for 15 days as per CPCB graduate & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - pointrable sample(s) Food, Sealed Weller, Sealed Weller, Sealed Food) shall be relaised for 15 days from the class of saus of the Test Report. Head Office:

Shrach Cartre (50) Fiser), 748, A.J.C. Bose Road, Koloss - 700016, West Bangel, India Tel. 31 33-401-43000 / 22650007 Fax - 91 33 22590006 Emilion - Gagnisrass com Website - Www.milions.com

#### Address of Branch:

P.O. Berbil Dt Koonihar Orissa 758 035





Scan for Portal

#### Name & Address of Customer:

Tala Steel Ltd.(MGM). Joda West

At/Po. - Jorla, Dist. - Koonjhor, Odisha - 758034 tudio Pin

# TEST REPORT

Reference No. & Date :

Report No. :

Sample No.:

Date :

MSKGL/ED/2023-24/005626

30/03/2024

-1-700

M6KGL/ED/2023-24/03/00079

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	1701
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Berneberi Iron & Mrt. Mines (BIMM)
5. Place of sampling	22/03/2024
6. Environmental conditions during sampling & Transport	Near Project Office (BIMM)
7. Sampling Plan & Method used	Clear & Sunny
The state of medical about	NA .

Report No.: MSKGUED/2023-24/005626

Sample No.: MSKGL/ED/2023-24/03/00879

#### RESULT

SI No.	Parameter	UOM	Marked		
	A CONTRACTOR		Method	Limit	Result
-	Ammonia (NH3)	micro gn/m3	IS 5182 (Part 25)	400' 24 HR.	15.2
2	Garbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (O)	2 8HR.	_
3	Nitrogen Diaxide (NO2)	micro gm/m3	IS: 5182 (Part 6) (O)	80 24 HR.	0.51
4	Ozone (O3)	micro gm/m2	IS 5182 (Part 9)		23,6
5	Particulate Matter (<10um)	Enling grolet		160 1 HR.	BDL(DL:20,0)
6	Particulate Matter (<2.5um)		(S: 5182 (Part 23)_(O)	100 24 HR.	218
v .		micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR.	104
	Sulphur Dioxide (SO2)	micro gm/m3	(S: 5182 (Part 2)_(O)	80 24 HP.	8.1

-- END ---

Report Verified By

For Mitra S. K. Private Limited

Address of Laboratory:

Building No. P. 48, Udayan Industrial Estate. 3. Pagladanga Road, Kolkata 700015 West Bengal Tel, +91 7044035120

Email udayanlab@mitrask.com







ULR: TC-695024000004686F

DOC NO MSKYGEN/19/07

#### Name & Address of Customer:

Tate 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/2023-24/515176

20/03/2024

MSKNB/ED/2023-24/03/LL1460

11/03/2024

11/03/2024 - 20/03/2024

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 NA
4. Date of sampling	09/03/2024
5. Place of sampling	Jaroli High School
6. Environmental conditions during sampling & Transport	Temperature :15-32 deg C 2) Barometric Pressure: 713 mm of Hg 3) Rain fall No & Cold Chain Maintained
7. Sampling Plan & Method used	IS-5182(P-11,12) & USEPA
B. Identification of the personnel performing sampling by MSK	Pratik Mantri
9. Field Equipments Used	MSK/BBL/FIELD/RDS-14

Report No.: MSKPL/ED/2023-24/515176

Sample No.: MSKNB/ED/2023-24/03/L1 1460

## RESULT

hemical						
SI No.	Parameter	UOM	Method	Limit	Result	
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL1.0)	
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:0.6)	
4	Lead (as Pb )	micro gm/in3	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 (Armual)	BDL(DL:5.0)	

Oplnion:

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

a Dani Dr. Devoltarn Baher

Designation

Tecchnical in Charge

Signisland

Dr. Devotter, Bary

Designation Technical In Charge

The results relate only to the itsen(a) lasted

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This reserved part of sample(s) for chemical analysis (Non - porisheties sample(s) Food. Water) shall be retained for 15 days from the onto of Insue of the Test Report. Parabable sample(s) shall be retained if days. The reserved part of sample(s) for chemical analysis (Non - perisheble simple(s) Food. Souled Water Reserved part of sample(s) for the food at least of source of the Test Report.

The reserved part of sample(s) for chemical analysis (Non - perisheble sample(s) Food. Souled Water Reserved for 15 days from the date of source of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - perisheble sample(s) Food. Souled Water Reserved for 15 days from the date of source of the Test Report.

Shriichi Genire (5th Floor), 748, A.J.C. Bost Road, Kolluta - 700016, West Bengel, India Tel., 91 33 40143000 / 22650007 Flox: 91 23 22650008 Head Office:

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

Address of Branch:

P.O. Barbil Dt Keonjnar Orisaa 758 035





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Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Diot. - Keunjhar, Odistex - 758034 India Pin

TEST REPORT

Report No. :

MSKGL/ED/2023-24/005419 21/03/2024

Date : Sample No. :

MSKGL/ED/2023-24/03/00340

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 medical

1. Group	AIR
2. Description of sample	
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Barnabari Iron & Mn. Mitnes (BIMM)
5. Place of sampling	09/03/2024
	Jaroli High School
5. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA NA

Report No.: MSKGL/ED/2023-24/005419

Sample No.: MSKGL/ED/2023-24/03/00340

#### RESULT

SI No.	Parameter	HOM	Method	Limit	I 20 11
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)		Result
2	Carbon Monoxode (CO)	mg/m3	IS: 5182 (Part 10) (O)	400 24 HR.	BDL(DL 10.0
3	Nitrogen Dioxide (NO2)	micro gm/m3	/S: 5182 (Part 6) (O)	2 BHR.	0.31
4	Ozone (O3)	Em/mp oroim	IS 5182 (Part 9)	80 24 HR.	15.9
5	Particulate Malter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	180 THR.	BDL(DL:20:0)
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)	100 24 HR.	153
7	Sulphur Diaxide (SO2)	micro gm/m3	IS: 5182 (Part 2)_(O)	60 24 HR 80 24 HR	BDL(DL-6,0)

-END-

Report Verified By

For Mitra S. K. Private Limited

Eso-

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bungal Tel .. +91 7044038120 Email udayanlab@m#rask.com







DOC NO. MSKIGEN/19/07

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MSKPL/ED/2023-24/U1517P

MSKNB/ED/2023-24/03/38145F

ULR: TC-695024000004585F

## Name & Address of Customer:

Tata Steet 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:

11/03/2024 11/03/2024 - 20/03/2024

20/03/2024

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	Atmospheric Pollution
2. Description of sample	
3. Unique identification of sample(if any)	Ambient Air NA
4. Date of sampling	09/03/2024
5. Place of sampling	Jajang High School
6. Environmental conditions during sampling & Transport	1) Temperature 15-32 deg C 2) Barametric Pressure 713 mm of the 20 Cut of the
7. Sampling Plan & Method used	No s. Cold Chain Maintained
i. Identification of the personnel performing sampling by MSE	IS:5162(P-11,12) & USEPA Pratik Mantri
Field Equipments Used	MSK/BBL/FIELD/RDS-9

Report No.: MSKPL/ED/2023-24/U1517P

Sample No.: MSKNB/ED/2023-24/03/38145F

## RESULT

Annual) BDL(DL:1.0) Annual) BDL(DL:1.0)
Annual) BDL(DL:1.0)
555(55,110)
Annual) BDL(DL:0.5)
( Hours) BDL(DL:0.01
Specified 0.10
×

Limit as per CPCB nollification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END ---

Reviewed By

Signature

be Banusy Dr. Devottam Bank

Designation

Tecchnical In Charge

Authorized Signatory

Signature

Dr. Davodam Banadi

Designation

Tecchnical in Charge

made (se

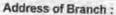
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The reservoir and top or reproduced success or our, person are permanent or many accurate permanent of the reservoir of the time of the Test Report, Perlament sumple(s) Food, Whiter) shall be retained for 15 days from the date of issue of the Test Report, Perlament sumple(s) writing the many of the date of issue of the Test Report.

The reserved part of semple(s) for chemical analysis (Bot, Solid & Liquid Warls) shall be retained for 15 days as per CPCB guidaline & (Air). I month from the date of issue of the Teat Report. The reserved part of semple(s) for Microbiological analysis (Non - perishable earopis(s) Food. Sessed food) shall be reserved for 15 days from the date of issue of the Teat Report.

Structs Centre (Sin Picor), 746, A.J.C. Bleen Read, Koksto -700016, West Berryal, Incis. Tel.: 91 33 40143000 / 22650007 Fax: 91 33 22650000 Erroll Info@mitroil.com Weballe, www.mitroil.com Head Office:



P.O. Barbil Dt Keenjaar Orissa 758 035





## Name & Address of Customer 1

Tata Stool Ltd.(MGM)\_Joda West

At/Po. - Joda, Dest. - Keonjhar, Odishu - 758034 India Pin

## TEST REPORT

Report No.:

Date:

Reference No. & Date :

Sample No. :

MSKGL/ED/2023-24/005418 21/03/2024

MSKGL/ED/2023-24/03/00339

3000156017/056, Date - 15/09/2023

We hereby cartify that the following sample Drawn by us has been analyzed with the following

1. Group	AIR
2. Description of sample	
3. Unique Identification of sample(if any)	Arribient Air
4. Date of sampling	Barnebarr Iron & Mr. Mines (BIMM)
5. Place of sampling	09/03/2024
6 Environmental constitution to a	Jajang High School
6. Environmental conditions during sampling & Transport	Clear & Sunny
Sampling Plan & Method used	NA NA

Report No.: MSKGUED/2023-24/805416

Sample No.: MSKGL/ED/2023-24/03/00338

#### RESULT

SI No.	Parameter	NOM	Method	Limit	1
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Pari 25)	-	Result
2	Carbon Monoidde (CO)	mg/m3		400 24 HR	BDL(DL:10.)
3	Nitrogen Diaxido (NO2)		IS: 5162 (Part 10)_(O)	2 BHR.	0,28
a	Ozone (03)	micro gm/m3	IS: 5182 (Part 6) (O)	80.24 HR.	15.2
5		micro gm/m3	IS 5182 (Part 9)	180 1 HR.	BOL(DL:20:0
6	Particulate Motter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	100 24 HR	167
D-	Particulate Matter (<2.5um)	Em/mg oraim	IS 5162 (PT-24),2019_(O)	60 24 HR.	101
7	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2)_(O)	80 24 HR	BDL(DL:5.0)

END

Report Verified By

For Mitra S. K. Private Limited

**Authorised Signatory** 

Santhi Come (Str Feer), 748, A.J.C. Sene Hold, Motions - 200016. West Sangel, emplei ( 81 23 40143000 / 22050007 Fee: 31 33 22650000-Email ( integrational com Woodle ( www.mitpul.com Head Office:

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagledanga Road, Kolketa 700015 Wast Bengal

Tel.: +91 7044036120

Email: udayaniab@mitrask.com







Scan for Portal

ULR: TC-695024000005988F

Doc No.: MBK/GEN/19/07

# Name & Address of Customer:

Tata Steel Ltd (MGM) Joda West

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

TEST REPORT Report No. :

Date:

Sample No. 7

Date of receipt of sample:

Date(s) of performance:

Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2024-25/KW9229

03/04/2024

MSKNB/ED/2023-24/03/8G3692

26/03/2024

26/03/2024 - 03/04/2024

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 NA
4. Date of sampling	23/03/2024
5. Place of sampling	Barnebari SSVM School
6. Environmental conditions during sampling & Transport	1) Temperature :19-33 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall No & Cold Chain Maintained
7. Sampling Plan & Method used	15:6182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Dhambrudhar Das
9. Field Equipments Used	MSK/BBL/FIELD/RDS-13

Report No.: MSKPL/ED/2024-25/KW9229

Sample No.: MSKNB/ED/2023-24/03/8G3592

#### RESULT

SI No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-10 3.4, June	6 (Annual)	BDL(DL:1.0)
2	Banzane	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	Manganesa 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

END -

Tinviewed By

Designation .

Executive Chemia

Authorized Signature

Lab in charc

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

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The reserved part of sample's) for chemical analysis (Non - perishable sample(s) Focal Water) shall be retained for 15 quys from the date of (sous of the Test Record, Perishable sample(s) shall be relatived 7 days from the date of issue of the Test Report.

The reserved part of sumple(s) for thirmical analysis (Soi., Solid & Liquid Waste) shall be returned for 15 days as per CPCS quadeline & (Ari.) I miscen from the dote of issue of the Test Report.
The reserved part of sumple(s) for Microbiological analysis (Non - perishable sample(s) Food, Sasted Water, Sealed local) shall be reserved for 15 days from the dote of issue of the Test Report.

Shristri Centru (Sin Fiscr), 74B, A.J.C. Bossi Road, Kokata - 700016, West Blengel, India Tel - 91 33 40143000 / 20650007 Fps: 91 20 22650008 Enset, info@mitrank.com Websiter www.mitrank.com



P.O. Bertel Dt Keonjitzer Orissa 758 035





Scan for Portal

## TEST REPORT

Name & Address of Customer: Report No.:

AUPo. - Joda Dist. - Keonjhar, Odisha - 758034 India Pin

Tala Steel Ltd.(MGM), Joda West

Date:

Sample No. 1

Reference No. & Date:

MSKGL/ED/2023-24/005630

30/03/2024

MSKGL/ED/2023-24/03/00887

3000156017/056, Date - 15/09/2023

We hereby carrify that the following sample Drawn by us has been analyzed with

Environmental conditions during sampling & Transport     Sampling Plan & Method used	NA Suony
5. Place of sampling	Barriebari SSVM School
4. Date of sampling	23/03/2024
Unique identification of sample(if any)	Barneball Iron & Mn. Mines (BIMM)
2. Description of sample	Ambient Air
1. Group	AIR

Report No.: MSKGL/ED/2023-24/005630

Sample No.: MSKGL/ED/2023-24/03/00887

#### RESULT

Analysis i	nalysis Result of Ambient Air						
SI No.	Parameter	UOM	Method	Limit	Result		
1	Ammonia (NH3)	micro gm/m3	1S 5182 (Part 25)	400 24 HR.	BDL(DL:10.)		
2	Carbon Monoxide (CO)	Em/gm	IS: 5182 (Part 10) (O)	2 8HR.	0.59		
3	Nitrogen Dioxide (NO2)	micro gm/m3	(S: 5182 (Part 6) (O)	80 24 HR	18,1		
4	Ozone (O3)	micro gm/m3	IS-5182 (Part 9)	180 1 HR.	BDL(DL:20.0)		
5	Particulate Mister (<10cm)	micro gm/m3	(S: 5162 (Part 23), (O)	100 24 HFL	221		
6	Particulate Matter (<2,5um)	mioro gni/m3	IS 5182 (PT-24),2019 (O)	60 24 HR.	124		
7	Sulphur Dioxide (SQ2)	micro gm/m3	IS: 5182 (Part 2) (O)	80.24 HR.	BDL/DL:6.0)		

END

Report Verified By

For Mitra S. K. Private Limited

DOM: MERCIENTARY



Building No. P. 45: Udayan industrial Estate 3. Pagladanga Roust Kelkata 700015 West Bengal

Tel: #91.7044036120 Emair udayanlab@mtrask.com





Scan for Portal

MSKPLED/2024 25 KV152V

MSKNB/ED/2023-24/03/VL494H

ULR: TC-695024000006285F

## Name & Address of Customer:

Tala Stoci Lfd (MGM)\_Joda West

AUPo - Joda Cist - Keonihar Odisha - 758034 India

# TEST REPORT

Report No. :

Date:

Sample No. 1

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

01/04/2024

66/04/2024

01/04/2024 - 05/04/2024

Parmanent Facility

3000156017/056, Date - 16/09/2023

Chemical

We nereby 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 NA	
I. Date of sampling	30/03/2024	
5. Place of sampling	Near Back Filling Yard Barneban (BIMM)	
Environmental conditions during sampling & Transport	1) Temperature 20-35 deg C 2) Barometric Pressure 113 mm of Hg Iti Ram	
Sampling Plan & Method used	No & Cold Chain Maintained IS 5182(P-11,12) & USEPA	
s. Identification of the personnel performing sampling by MSK 3. Field Equipments Used	Dhambrudhar Das MSK/BBUFIELD/RDS-17	

Report No.: MSKPL/ED/2024-25/KV152V

Sample No.: MSKNE/ED/2023-24/03/VL494H

#### RESULT

Chemical					
Parameter	UOM	Method	Limit	Result	
Arteric as (As)	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BOLIDL 1 0	
Benzehe	Inicro gmim3.	IS 5182 (Part 11)		BDUDL 4 2)	
Benzola)Pyrene	ng/m3	IS 5182 (Part 12)		BDL(DL 0.5)	
Lead (as Pb.)	(micro gm/m3			BOLIDL 0 01	
Manganese as Mn	micro gm/m3				
Nickel as Ni	ng/m3			0.10 BDU(D(-4.6)	
	Artenic as (As) Benzene Benzela/Pyrene Lead (as Pb.) Manganese as Mn	Arsenic as (As) ng/m3 Benzene Inicro gm/m3 Benzera/Pyrene ng/m3 Lead (as Pb.) Inicro gm/m3 Manganese as Mn micro gm/m3	Arsenic as (As) ng/m3 USEPA-IO 3.4, June Benzene Inicro gm/m3 IS 5182 (Part 11) Benzela/Pyrene ng/m3 IS 5182 (Part 12) Lead (as Pb.) Inicro gm/m3 USEPA-IO 3.4, June Manganese as Mn Inicro gm/m3 USEPA-IO 3.4, June	Arsenic as (As) ng/m3 USEPA-IO 3.4, June 6 (Annual) Benzene (nicro gm/m3 IS 5182 (Part 11) 5 (Annual) Benzela(Pyrene ng/m3 IS 5182 (Part 12) 1 (Annual) Lead (as Pb.) (nicro gm/m3 USEPA-IO 3.4 June 1 (24 Hours) Manganese as Mn (nicro gm/m3 USEPA-IO 3.4 June Not Specified	

Opinion:

Limit as per CPCB notification, New Delfo, 18th November 2009, for Ambient air quality

Statement of Conformity

- END -----

Reviewed By

Mix Plat Gargury Executive Chemiat Authorited Signatory

Signature

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The interpol part of samples (for their side gray to (Soid & Equal Waster than to recover) for 15 days on per CECE government (Ar. ) more from the recover details from the fact that of their feet has on The recovery part of samples (or Monocological energies (Non. ) periodole security from Sound Sound from the strength of their first than of their first flags of their flags of t

Head Office: Diversificate (file Floor), 748, AZ C. Rose Rose (ANABA - / 000 file West Bengel India File St 33 40143000 (Zastood? Floor 91.33 2204000); Email artisignations com Website, www.mitraek.com

Address of Branch:

P.O. Barbil Dt Keonihar Orissa 758 035





Scan for Portal

Name & Address of Customer:

Tata Steel LM (MGM)\_Joda Wast

AVPo. - Joda, Dist. - Keonijiur, Odaha - 758034. India Plin

TEST REPORT

Reference No. & Date :

Report No. :

Date ; Sample No. :

03/04/2024

MSKGL/ED/2023-24/03/01181

MSKGL/ED/2024-25/000023

3000156017/056, Date - 15/09/2023

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

Group     Description of sample	AIR
3. Unique (dentification of sample(if any)	Ambient Air
4. Date of sampling	Barnebart Iron & Mn. Mines (BIMM)
5. Place of sampling	30/03/2024
5. Environmental conditions during sampling & Transport	Near Back Filling Yard Barnebari (BIMM)
. Sampling Plan & Method used	Clear & Sunny
The second second	NA NA

Report No.: MSKGL/ED/2024-25/000023

Sample No.: MSKGL/ED/2023-24/03/01181

#### RESULT

SI No.	Parameter	HOM	Markey		-
1	Ammonia (NH3)		Method	Limit	Result
2	Carbon Monoxide (CO)	micra gm/m3	IS 5162 (Part 25)	400 24 HR.	14.7
3		mg/m3	IS: 5182 (Part 10)_(O)	2 8HR.	0.51
1	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 5) (O)	80 24 HR	
4.	Dzone (O3)	micro gm/m3	IS 5182 (Part 9)		21.3
5	Porticulate Matter (<10um)	Em/mo oraim	IS: 5182 (Part 23) (O)	180 1 HR	BDL(DL:20,0
6	Particulate Matter (<2.5um)	micro grovm3		100 24 HR	198
7	Sulphur Dioxide (SO2)		IS 5182 (PT-24);2019_(O)	80 24 HR.	90
	1302)	micro gm/m3	IS: 5182 (Part 2)_(O)	80.24 HR.	7.8

\_\_\_ END \_\_\_

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Head Office: Siracts Cerate (Ser Floor), 748; A.J.C. Bote Road, Krissas - 70001a. West Burgs, India. 74: 91.33.40143000 / 22650007 Fax: 91.33.2225000iii Emili Molgarines com Wistasia - www.mitrasia.com

#### Address of Laboratory :

Building No. P. 48. Udayan Industrial Estate 3 Pagladanga Road, Kelkala 700015 West Bengal Tel. +91 T044035120 Email: udayanlab@mtrask.com







ULR: TC-695024000006281F

DOWN: MUDGENISHT

#### Name & Address of Customer:

Tata Steel Ltd (MGM)\_Jode West

At/Po - Joda, Dist - Keon)har Odisha - 150034 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:

MSKPUED/2024-25/1RH52C

06/04/2024

MSKNB/ED/2023 24/07/A94962

01/04/2024

01/D4/2024 - DUD4/2024

Permanent Facility

3000158017/056 Date : 16/09/2022

Chemical

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

1. Group	Atmospheric Pollubon
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA .
Date of sampling	30/03/2024
5. Place of sampling	Near Jonbar Shorting Yard (BIMM)
6. Environmental conditions during sampling & Transport	Temperature 20-35 deg C 2) Barometric Pressure 713 mm of Hg 3) Rain fal No & Cold Chein Maintained
7. Sampling Plan & Method used	IS 5182(P-11 12) & USEPA
8. Identification of the personnel performing sampling by MSK 9. Field Equipments Used	Onembrucher Das MSWBBUFIELD/ROS-12

Report No. : MSKPL/ED/2024-25/1RH52C

Sample No.: MSKNB/ED/2023-24/03/A949E2

#### RESULT

Chemical					
SI No.	Parameter	UOM	Method	Limit	Result
1	Arsemo as (As)	ng/m3	USEPA-IO 3.4, June	E (Annual)	BDL(DL:1.0)
2	Benzene	micro gro/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL 4.2)
ä	Benzo(a)Pytene	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)	BOL(OL 0.01)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3 4 June	Not Spected	0.10
5	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

-- END ----

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The reserved part of the manual for Microbiological environments of the formular blood brained Warrel Sound board of the Microbiological environment from Support.
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Head Office: Styam Ceres (fmif our) TAB, A J C. Buse Road, Molegia - T30016, West Blergia - India, 51:33 40140000 r2250000 Fax: 51:33 22450006 Ethal, Vfo@mbrask.com Webste, www.meriak.com

Address of Branch:

P.O. Barbil Dt Keonijhur Orissa 758 035

Name & Address of Customer:

AMPo, - Jode, Dist - Knorther, Odishe - 758034 Inde Pin

Tain Steel Lid (MGM) Jodin West





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## TEST REPORT

Report No.

MSKGL/ED/2024-25/000027

Date:

03/04/2024

Sample No.:

MSKGL/ED/2023-24/03/01177

Reference No. & Date :

3000156017/056, Dato - 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
Unique Identification of sample(if arry)	Bamebari Iron & Mri. Mines (BIMM)
4. Date of sampling	30/03/2024
5. Place of sampling	Near Joribar Shorting Yard (BIMM)
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA NA

Report No.: MSKGL/ED/2024-25/000027

Sample No.: MSKGL/ED/2023-24/03/01177

#### RESULT

SI No.	Parameter	NOM	Method	Limit	Result
1	Ammonia (NH3)	.micro gro/m3	IS 5182 (Part 25)	400 24 HR.	16.2
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (O)	2 BHR.	0.55
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6)_(O)	80 24 HR	23.5
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	BOL(DL 20.0)
5	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	100 24 HR.	
В	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HRL	104
7	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2) (O)	80 24 HR	82

\_\_\_ END \_\_\_

Report Verified By

For Mitra S. K. Private Limited



Building No. P. 48, Lidayan Industrial Estate. 3. Pagladanga Road. Kokabi 700015 West Birngs1 Tel: +91 7044036120 Email udayanlab@mil/ask.com







ULR: TC-695024000006280F

INC. MOROGRAPHICS

#### Name & Address of Customer |

Tata Steel Ltd (MGM) Joda West

AbPo - Joda Dist: - Kelonjitar Odlaha - 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/2024-25/00E52D

06/04/2024

MSKNB/ED/2023-24/03/7X4952

01/04/2024

01/04/2024 - 06/04/2024

Permanent Facility

3000155017/055, Date - 16/09/2023

Chemical

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

1. Group	Atmospheric Poliution
2. Description of sample	Ambient Air
Unique Identification of sample(if any)	NA NA
4. Date of sampling	30/03/2024
5. Place of sampling	Near Joribar Weigh Bridge (BIMM)
5. Environmental conditions during sampling & Transport	<ol> <li>Temporature 20-35 deg C 2) Barometric Pressure T13 mm of Hg 3; Rain fall No 5 Cold Chain Maintained</li> </ol>
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/ROS-11

Report No.: MSKPL/ED/2024-25/00E520

Sample No. / MSKNB/ED/2023-24/03/7K495Z

#### RESULT

Chemical					
SI No.	Parameter	NOM	Method	Limit	Result
4	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annuar)	BOL(01:10)
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL 4.2)
3	Benzo a)Pyrene	Emign	IS 5182 (Part 12)	f (Annual)	BDL(DL 0.5)
4	Lead (as Pb.)	micro gm/m3	USEPA40 3.4, June	1 (24 Hours)	0.04
5	Manganese as Mr	micro gm/m3	USEPA-IO 3 4 June	Not Specified	0.30
6	Nickel as No	ng m3	USEPANO 3.4, June	20 (Annual)	8.1

Opinion :

Limit as per CPCB notification. New Deihi. 18th November 2009, for Antibient air quality.

Statement of Conformity

--- END ----

Reviewed By

Authorized Signatory

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Head Office: Evacry Committee 1 AR A / C Rose Head Work as TUCHs Went things in the 19 33 40143000 (2015000) Fax: 91.30 22150000 Enail info@mittalk.com Webstle www.intresk.com

Address of Branch:

P.O. Barbil Dt Keonjhar Orlusa 759 035

Name & Address of Customer:

At/Po. - Jodn. Dist. - Keonjinar, Odisher - 758034 India Pin

Tata Steel Ltd.(MGM) Jode West





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## TEST REPORT

Report No. :

MSKGL/ED/2024-25/000029

Date :

03/04/2024

Sample No. :

MSKGL/ED/2023-24/03/01176

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)	Barnebari Iron & Mn. Mines (BIMM)	
4. Date of sampling	30/03/2024	
5. Place of sampling	Near Joribar Weigh Bridge (BIMM)	
6. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA State of	

Report No.: MSKGL/ED/2024-25/000029

Sample No.: MSKGL/ED/2023-24/03/01176

#### RESULT

nalysis	analysis Result of Ambient Air						
SI No.	Parameter	UOM	Method	Limit	Disc. II		
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	Result		
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (O)		15.9		
3	Nitrogen Dioxide (NO2)	micra am/m3	IS: 5182 (Part 6) (O)	2 8HR.	0,52		
4	Ozone (O3)	micro gm/m3	IS 5162 (Part 9)	80 24 HR.	22.6		
5	Particulate Matter (<10um)	miaro gm/m3	IS: 5182 (Part 23)_(O)	180 T HR.	BDL(0L:20.0)		
Đ.	Particulate Matter (<2.5um)	micra gm/m3	IS-5182 (PT-24),2019 (O)	100 24 HR.	214		
7	Sulphur Dioxide (SO2)	micro gm/m3	I5: 5182 (Part 2) (O)	60 24 HR.	104		
			marchine () direct (O)	80 24 HR	8.0		

---- END ---

Report Verified By

Head Office:



For Mitra S. K. Private Limited

Address of Branch:

P.O. Barbil Dt Keonfree Drissa 758 035





Scan for Portal

### Name & Address of Customer:

Tata Stool Ltd.(MGM) Joda West

AVPo. - Jode, Dist. - Reonjhar, Odistre - 758034 India Pin

### TEST REPORT

Report No. :

Sample No. :

MSKGL/ED/2024-25/000026 Date ;

03/04/2024

MSKGL/FD/2023-24/03/81175

Reference No. & Date : 3000156017/056, Date - 15/09/2023

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

1. Group	AIR	_
2. Description of sample	Ambient Air	
3. Unique Identification of sample(if any)	Barnebari Iron & Mr. Mines (BIMM)	
4. Date of sampling	30/03/2024	_
5. Place of sampling	Near Project Office (BIMM)	_
5. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA NA	

Report No.: MSKGL/ED/2024-25/000026

Sample No.: MSKGL/ED/2023-24/03/01175

#### RESULT

analysis Result of Ambient Air					
SI No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micra gm/m3	IS 5182 (Part 25)	400 24 HR.	15.8
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (O)	2 8HR.	0.54
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6) (O)	80 24 HR.	23.4
4	Ozone (O3)	тісго дт/т3	IS 51/12 (Part 9)	180 1 HR.	B0L(DL:20.0)
5	Perticulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	100 24 HR.	221
Б	Parliculate Matter (<2.5um)	micro gm/m3	IS 5162 (PT-24),2019 (O)	60:24 HR.	107
7	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2) (O)	80 24 HR.	8.1

FND.

Report Verified By

For Mitra S. K. Private Limited

#### Address of Laboratory:

Building No. P. 48, Udayan Industrial Exists: 3. Pagladanga Road. Kolkata 700015 West Bengal

Tei . +01 7044038120 Email: udayanlab@mitrask.com





Scan for Portal

ULR: TC-695024000006278F

#### Name & Address of Customer:

Tata Steet Ltd (MGM)\_Joda West

At/Po Joda Dol Keenjhar Odaha - 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/2024-75/DKJ52L

06/04/2024

MSKNB/ED/2023-24/03/T2494A

01/04/2024

01/04/2024 - 06/04/2024

Permanent Facility

3000156017/056, Date - 16/09/2003

Chemical

We haveby certify that the following sample Drawn by us his been analyzed with the following results.

1, Group	Atmospheric Pollution
2. Description of sample	Ambient Air
Unique Identification of sample(if any)	NA.
4. Date of sampling	29/03/2024
5. Place of sampling	Near Back Filing Yard Barneban (BIMM)
5. Environmental conditions during sampling & Transport	Temperature 20-36 deg C 2) Barometric Pressure 713 mm of Hg 3) Rain fal No & Cold Chain Maintained
7 Sampling Plan & Method used	18 5182(P-11 12) & USEPA
8. Identification of the personnel performing sampling by MSK	Laim Ke Nasi
9. Field Equipments Used	MSK/BBL/FIELD/RDS-17

Report No.: MSKPL/ED/7024-25/DKJ52L

Sample No.: MSKNB/ED/2023-24/03/TZ494A

#### RESULT

SI No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3 4, June	6 (Annual)	BDL(DL1.0)
2	Berzene	micro gmim3	IS 5182 (Part 11)	5 (Annual)	BDL(DL 4.2)
3	Senzola Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL 0.5)
4	Lead (as Pb )	micro gm/m3	USEPA-JO 3.4. June	1 (24 Hours)	BDL(DL 0 01)
5	Manganese as Mn	micro gmim3	USEPA-IO 3.4: June	Not Specified	0.10
6	Nicket as Ni	ng/m3	USEPA-IO 3 4, June	20 (Annual)	BDL(DL:50)

t as per CPCB not fication. New Delhi 18th November 2009: for Ambient air quality

Statement of Conformity NA

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Designation

Authorized Signature

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Streets Eache (Sin Finer, T48, A.D.C. Book Road streets: 700016; West Brings; Inche Tel., St. 37 40140001; 27450007 Fax: St. 30 22500000; Final: info@mitiak.com Website: www.ortrask.com

Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





Scan for Portal

Name & Address of Customer:

Tata Steel Ltd.(MGM) Jodu West

Al/Po. - Jinda, Dist. - Keenihat, Odisha - 758034 India Pin

TEST REPORT

Reference No. & Date :

Report No. :

Date:

Sample No. ;

03/04/2024

MSKGL/ED/2023-24/03/01174

MSKGL/ED/2024-25/000025

3000156017/056, Date - 15/09/2023

We hereby certify that the following sample Drawn by us has

1. Group	AIR
2. Description of sample	1577
L Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Barnebari Iron & Mn. Mines (BIMM)
	29/03/2024
5. Place of sampling	Near Back Filling Yard Barnetian (BIMM)
B. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	
	NA:

Report No.: MSKGL/ED/2024-25/000025

Sample No. : MSKGL/ED/2023-24/03/01174

#### RESULT

SI No.	Parameter	UOM	Method	1	1
1	Ammonia (NH3)	micro gm/m3		Limit	Result
2	Carbon Monoxide (CO)		IS 5182 (Part 25)	400 24 HR.	14.8
20		mg/m3	IS. 5182 (Part 10) (O)	2 8HR.	0.56
-	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6)_(0)	80 24 HR	
-	Ozone (O3)	micro gnvm3	IS 5182 (Part 9)		21.5
5	Particulate Matter (<10um)	micra pm/m3	(S: 5182 (Part 23): (O)	180.1 HR.	BOL(DL:20.0)
6	Particulate Matter (<2.5um)	micro gm/m3		100 24 HR.	191
7	Sutonur Diojade (SO2)		IS 5182 (PT-24),2019 (O)	60 24 HR	93
	(5.52)	micro gm/m3	IS: 5182 (Part 2) (O)	80 24 HR.	7.2

Report Verified By

Head Office:

For Mitra S. K. Private Limited

**Authorised Signatory** 

Shatch Come (36) Recr. 749, A.J.C. Boss Road, Keloss - 700016, West Bossel Tris. 191 33 40143000 / 22000007 Fax: 91 33 22000000 Enail: 97000000000 Com Website: www.mitpak.com

#### Address of Laboratory:

Building No. Pr 48, Lidayan Industrial Estate 3: Pagladanga Road, Kolkata 700015 West Bengal Tet +91 7044036120 Email: udayanlab@mitrask.com







ULR: TC-695024000006274F

MSKPt/ED/2024-25/F6/A520

MSKNB/ED/2023-24/03/ES492A

#### Name & Address of Customer :

Tata Steel Ltd (MGM)\_Joda West

At/Fo - Jode Clet - Keonjhar, Odieta - Tt8034 India

## TEST REPORT

Report No. 1 Date:

Sample No.:

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

01/04/2024 - 06/04/2024 Permanent Facility

00/04/2024

01/04/2024

3000156017/056 Date - 16/09/2021

Chemical

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

Atmospheric Pollution		
Ambient Ar		
NA .		
29/03/2024		
Near Joribar Shorting Yard (BIMM)		
Temperature 20:35 deg C 2/ Baremetric Pressure: 713 mm of rtg 3) Ruin tal     No 6 Cold Chain Maintained		
IS 5182(P-11 12) & USEPA		
Latin Kr Naik		
MSK/BBL/FIELD/RDS-12		

Report No.: MSKPLED/2024/25/F6W52Q

Sample No.: MSKNB/ED/2023-24/03/ES452A

#### RESULT

Chemical						
SI No.	Parameter	UOM	Method	Limit	Result	
1	Arsenic as (As)	ng-m3	USEPA-IO 3.4 June	6 (Annual)	BDL(DL1.0)	
2	Benzene	micro gm/m3	IS 5162 (Part 11)	5 (Annual)	BDL(OL 42)	
3	Benzo(a)Pyrene	ng/m3	(S 5182 (Part 12)	( (Annual)	BOLIDEDS	
4	Lead (as Ph.)	micro cmim3	USEPA-IO 3.4. June	1 (24 Hours)	BDL(DL 0.01)	
5	Murganese as Mo	тиста дтат3	USEPA-10 3.4. June	Not Specified	013	
0	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 as quality.

Statement of Conformity

-- END ----

Signature

Mr. Pail Ganguy

Name Designation

Executive Chemist

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Dream Cente (Mr. Frant 148 A.) C. Rose Alex Kowas - 7,0016, Whit Bergut India Ter. 31 32 431433401 (2213000) Fax. 31 37 (2215000) Ernal Info@mitisk.com Wester www.mitisk.com

Address of Branch:

P.O. Barbii Dt Keonjbar Orissa 758 035





Scan for Portal

Name & Address of Gustomer:

Tata Steel Ltd.(MGM) Joda West

Al/Po. - Joda. Dist - Keonjher, Odishe - 758034. India Pin

TEST REPORT

Report No. : Date:

MSKGL/ED/2024-25/000020 03/04/2024

Sample No. 1

MSKGL/ED/2023-24/03/01/170

Reference No. & Date :

3000156017/056, Date - 15/09/2023

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

1. Group 2. Description of sample	AIR
3. Unique Identification of sample(if any)	Ambient Ai/
4. Date of sampling	Barnebari fron & Mr. Mines (BIMM)
5. Place of sampling	29/03/2024
5. Environmental conditions during sampling & Transport	Near Joribar Shorting Yard (BIMM)
7. Sampling Plan & Method used	Clear & Sunny
Print of method used	NA NA

Report No.: MSKGL/ED/2024-25/000020

Sample No.: MSKGL/ED/2023-24/03/01170

### RESULT

SI No.	Parameter	UOM	*****	1	
1 Ammonia (NH3)		Method	Limit	Result	
2	Carbon Monaxide (CO)	micro gm/m3	IS-5182 (Part/25)	400 24 HR	15.6
3		mg/m3	IS: 5182 (Part 18)_(O)	2 BHR	
2	Nitrogen Dioxide (NO2)	micra gm/m3	(S: 5182 (Part 6) (O)	80 24 HR	11.56
5	Ozano (O3)	micro gm/m3	IS 5182 (Part 9)		23.1
3	Particulate Matter (<10um)	imicro gm/m3	IS: 5182 (Part 23) (O)	180 1 HR.	BDL(DL-20.0)
6	Particulate Matter (<2.5um)	Inicro gm/m3	IS 5182 (PT-24),2019 (O)	100 24 HR	209
T	Sulphur Dioxide (SO2)	micro gm/m3		60 24 HR.	100
		T miles grants	IS: 5182 (Part 2)_(0)	80 24 HR.	7.9

END.

Report Verified By

For Mitra S. K. Private Limited

Address of Laboratory:

Building No. P. 49, Lidayan Industrial Estate 3, Pagledanga Road, Kolkata 700015 Wost Bengal Tel +91 7044036126 Email udayanlab@mitrask.com





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Scan for Portal

ULR: TC-695024000006273F

#### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Jode West

AliPix - Joda, Clist - Keomhar Odisha - 758034 India

TEST REPORT

Report No. 1 Date:

Sample No.:

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2024-25/5GG52T

06/04/2024

MSKNB/ED/2023-24/03/18495D

01/04/2024

01/04/2024 - 06/04/2024

Permanent Facility

3000156017/056 Date | 16/09/2021

Chemical

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

1. Group	Atmospheric Pollution	
2. Description of sample	Ambert Av	
3. Unique Identification of sample(if any)	NA NA	
Date of sampling	29/03/2024	
5. Place of sampling	Near Jonbar Weigh Bridge (BIMM)	
Environmental conditions during sampling & Transport	1) Temperature 20-35 dag C 2) Baromatric Pressure 713 mm of He 31 R.	
Sampling Plan & Method used	No & Cold Chain Maintained IS 5182(P-11 12) & USEPA	
Identification of the personnel performing sampling by MSK	Lalin Kr Naik	
7. Field Equipments Used	MSK/BBL/FIELD/RDS-11	

Report No. ; MSKPL/BD/2024-25/5GG521

Sample No.: MSKN8/ED/2023/24/03/18496D

#### RESULT

SI No. Parameter HOM						
Parameter	UOM	Method	Limit	Result		
Arsonic as (As)	ng/m3	USEPA-ID 3.4. June	6 (Annual)	BDL(DL 1.0)		
Benzene	micro gm/m3	15 5182 (Part 11)		BOLIDE 4 21		
Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)				
Lead (as Pb.)	micro gm/m3	USEPA-IO 3 4. June		BDL(DL 0.5)		
Manganese as Mn	micro gravm3	The second secon		0.02		
Nickel as Ni	ng/m3			037		
	Benzene Benzo(a)Pyrene Leiid (as Pb.) Manganese as Mn Nockel as Ni	Arsenic as (As) ng/m3  Senzene micro gm/m3  Benzo(a)Pyrene ng/m3  Lead (as Pb.) micro gm/m3  Manganese as Mn micro gm/m3	Arsonic as (As)  Arsonic as (As)  Emizene  micro gm/m3  IS 5182 (Part 11)  Benzo(a)Pyrene  ng/m3  IS 5182 (Part 12)  Lead (as Pb)  micro gm/m3  USEPA-IO 3.4, June  Manganese as Mn  micro gm/m3  USEPA-IO 3.4, June  Nockel as Ni  ng/m3  USEPA-IO 3.4 June	Arsonic as (As)		

as per CPCB notification. New Delhi. 16th November 2009, for Ambient air quality

Statement of Conformity

- END -----

Sgneare

Executive Chemist

Signature

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Head Office: 5-Years Cemer (Sin Phans, 74) A J C. Beser Roug, Estudio 1990 N. West Burger India Tel. 97 30 4014 3000 / 20450007 Fax: 91 39 72586000 Email: 970@minask.com Website: www.himask.pom

## Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





Scan for Portal

# Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

AVPo. - Joda, Dist. - Keonjhar, Odlaba - 758034 Innia Pin

# TEST REPORT

Reference No. & Date :

Report No. :

Sample No. 1

Date :

MSKGL/ED/2024-25/000028

03/04/2024

03/04/2

MSKGL/ED/2023-24/03/01169

3000156017/056, Date - 15/09/2023

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

Group     Description of sample	AIR
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Barnebari Iron & Mr. Mines (BIMM)
5. Place of sampling	29/03/2024
Environmental conditions during sampling & Transport	Near Joribar Weigh Bridge (BIMM)
. Sampling Plan & Method used	Clear & Sunny
Print & metriod used	NA .

Report No.: MSKGUED/2024-25/000028

Sample No.: MSKGL/ED/2023-24/03/01168

#### RESULT

SI No.	Parameter	UOM	Method	1	-
1	Ammonia (NH3)	micro gm/m3	2027/100	Limit	Result
2	Carbon Monorade (CO)		IS 5182 (Part 25)	400 24 HR.	18/1
3	Nitrogen Dioxide (NO2)	mg/m3	IS: 5182 (Part 10) (O)	2 BHR.	
4		thicra gm/m3	IS: 5182 (Part 8) (O)	80 24 HR.	0.58
-	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	4.7.7	22.1
5	Particulate Matter (<10um)	(micro gm/m3	IS: 5182 (Part 23) (O)	180 1 HR.	BDL(DL 20.0)
ŏ	Particulate Metter (<2.5um)	micro gm/m3		100 24 HR.	211
7	Sulpriur Digoide (SÖ2)		IS 5182 (PT-24),2019_(O)	60 24 HR.	103
	1002/	micro gm/m3	IS: 5182 (Part 2)_(O)	B0 24 HR.	8.2

END -

Report Verified By

For Mitra S, K. Private Limited

Authorised Signatory

Head Office:

Grenchi Carton (Sin Pkort, 748, A.J.C. Boar Rose, Sukson - Zuhtris, West Berent, Miss. Tet.: 91:33 40140000 | 2550007 Fax: 31:33 2205000 Ermal: 93:01-94498 com Websin: Www.missak.com

Die Ni MSkiggly lam





Bunding No 35- 46, Udayan Industrial Estate 3 Pagladange flood, Kokata 700015 West Bengal Tel +91.7044036125 Email: udayantati@mitrasx.com





Scan for Portal

ULR: TC-695024000006272F

## Name & Address of Customer

Fala Steel Ltd (MGM)\_Joda West

AVPo - Joda Dist - Keonyluk Odeha - 758034 India

## TEST REPORT

Report No.

Date:

Sample No.:

Date of receipt of sample: Date(s) of performance:

Location of performance of

Discipline:

Reference No. & Date :

01/84/2024 - 06/04/2024 Permanent Faculty

MSKPL/ED/2024-25/SBY52A

MSKNB/ED/2023-24/03/17490E

3000156017/056, Date 16:09/2023

06/04/2024

01/04/2024

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
Unique Identification of sample(if any)	1.11.11.11.11.11.11.11.11.11.11.11.11.1
4. Date of sampling	NA NA
5. Place of sampling	29.03/2024
-	Near Project Office (BIMM)
6. Environmental conditions during sampling & Transport	1) Temporature 20-35 deg C 2) Barometric Pressure 713 mm of Hg 3) Ruin fait
7. Sampling Plan & Method used	110 & Gold Chain Maintained
	IS 5182(P-11 12) 6 USEPA
6. Identification of the personnel performing sampling by MSK 9. Fleid Equipments Used	Lutter Ke Nank
2. Field Equipments Used	MSK/BBL/FIELD/RDS-6

Report No.: MSKPL/ED/2024-75/58Y52A

Sample No.: M5KNB/ED/2023/24/03/17450E

#### RESULT

SI No.	Parameter	UOM	Method	Limit	7
1	Arsenic as (As)	nam3	USEPA-IO 3.4, June		Result
2	Benzene	micro am/m3		6 (Annual)	30L/DL 1/0/
3	Benzola)Pyrene		IS 5182 (Part 11)	5 (Annual)	BOLIDL 4:21
4	Load (as Pb )	ng/m3	IS 5182 (Part 12)	5 (Annual)	90L(DL 0.5)
		micro gm/m3	USEPA-IO 3 4. June	1 (74 Hours)	BDL/DL 0.01
5	Manganese as Mn	micro gm/m3	USEPA-JO 3 4 June	Not Specified	
6	Nickel as Ni	Em/ph	USEPA-IO 3.4 Junie		0.24
pinion:		The second secon	s. 18th November 2009, for Amt	20 (Annual)	BDLIDL5

Statement of Conformity

NA

----- END -----

Reviewed By

Sonaire

Name

Desgrator

Executive Chargos

Authorized Signatory

Signature

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Page 1 of 1 Head Office: Dreny Certil (for Fase) NB ALC Dure Road Kiskpe - 1000 West Bergie Was To 94 23 60140000 (20000007 Fas. 91 30 20100000 Email: offic@mtrest.com Website: were minask (sen.

Address of Branch:

P.O. Barbii Dt Koonjhar Onssa 758 035





Scan for Portal

Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

Al/Po. - Joda Dini. - Keonihar, Odisha - 758034. Imfia Pin

TEST REPORT

Report No. :

MSKGL/ED/2024-25/000017 03/04/2024

Sample No.

Date:

OUI SHEUE

Reference No. & Date :

MSKGL/ED/2023-24/03/01168

3000156017/058, 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	
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Bamebari Iron & Mn. Mines (BIMM)
5. Place of sampling	29/03/2024
6. Environmental conditions dust	Near Project Office (BIMM)
Environmental conditions during sampling & Transport     Sampling Plan & Method used	Clear & Sunny
Company Field a method used	NA NA

Report No.: MSKGL/ED/2024-25/000017

Sample No.: MSKGL/ED/2023-24/03/01168

#### RESULT

SI No.	December	The same of			
A MO.	Parameter	NOM	Method	Limit	0
1	Ammonie (NH3)	Emving oraim	IS 51(l2 (Pari 25)	1000	Result
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10)_(O)	400 24 HR.	15.6
3	Nitrogen Dioxide (NO2)	micro gm/m3		2 BHR.	0.56
4	Ozene (O3)		IS: 5182 (Part 6) (O)	80 24 HR	22.9
5	Particulate Matter (<10um)	micro gni/m3	IS 5182 (Part 9)	180 1 HR.	BDL(DL:20.0
6		micro gm/m3	IS: 5182 (Part 23)_(O)	100 24 HR	224
7	Particulate Matter (<2.5om)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HR	
1	Sulphur Dioxide (SO2)	micro-gm/m3	(S: 5182 (Part 2) (O)	80 24 HR.	108

\_\_\_ END \_\_\_

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Head Office:

Sec. 3) Co. 89 (SN Feet), 748, A.L.O. Boxe Road, Kokuzz = 700016. Wept Bernell, Incl. 31 33 4014/0007 22650007 Fax: 91 33 22450000 Faxed - Infa@erin wisk com Wijchelle - www.instrack.com

Address of Branch:

P.O. Berbil Dt Koonjhier Onssa 758 035





Scan for Portal

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 :

02/04/2024

MSKGL/ED/2023-24/03/0088B

MSKGL/ED/2024-25/000002

3000156017/056, Date - 15/09/2023

We hereby certify that the following sample Drawn by us has been unalized with the following sample

1. Group	Direction of the control of the cont
2. Description of sample	AIR
3. Unique Identification of sample(if any)	Fugilive Air
4. Date of sampling	Barnebari Iron & Mr. Mines (BIMM)
5. Place of sampling	23/03/2024
6. Environmental conditions during	Jonbar Weigh Bridge
5. Environmental conditions during sampling & Transport 7. Sampling Plan & Method used	Clear & Sumv
- company rian a method used	NA NA

Report No.: MSKGL/ED/2024-25/000002

Sample No.: MSKGL/ED/2023-24/03/00888

#### RESULT

hemical					
Parameter	UOM	Method	-	-	
Nitrogen Dioxides (as NO2)	micro om/m3	STATE OF THE PARTY	Limit	Resul	
PM10/RPM				23,1	
PM2.5	micro am/m3			259	
				125	
		(S 5182: Part 23:2006 (Reaff: 2012)_(0)		259	
		IS 5182: Part.2 (O)		8,1	
Suspended Particulate Matter (SPM)	micro gm/m3	IS 5182: Part4:1999 (Reaff.2014) (O)		476	
	Parameter Nitrogen Dioxides (as NO2) PM10/RPM PM2.5	Parameter UOM  Nitrogen Dioxides (as NO2) micro gm/m3  PM10/RPM micro gm/m3  PM2.5 micro gm/m3  Respirable Suspended Particulate Matter (RSPM) Sulphur Dioxide (as SO2) micro gm/m3	Parameter   UOM   Method	Parameter   UOM   Method   Limit	

----- END -----

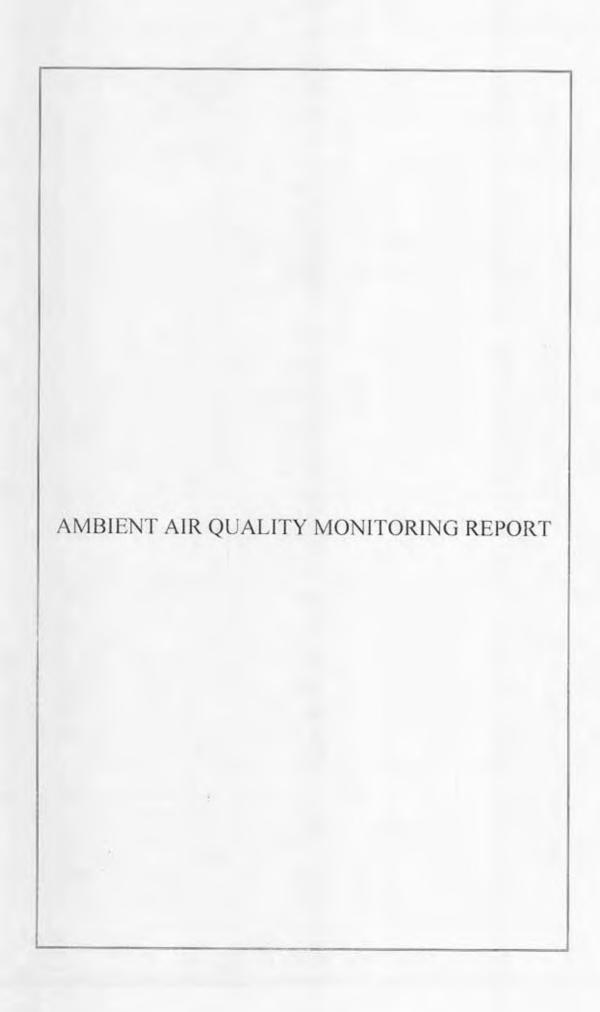
Report Verified By

Head Office:

For Mitra S. K. Private Limited

**Authorised Signatory** 

Second Centra (3th Flace), 788, A.J.C. Brate Print, Kickens - 700010, West Bengal, Italia. Tel., 31 33-40340500 (22850007 Flax: 91.35 22850000 Email (Info@missel.com Websits ) www.mitras.com



Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

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

West Bengal

Tel.: +91.7044036120

Email: udayanlab@mitrask.com

Tata Steel Ltd.(MGM)\_Joda West





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ULR: TC-695024000003065F

Doc No.: MSK/CEN/19/07

TESTING # INSPECTION

## TEST REPORT

Report No. :

Discipline:

Date:

MSKPL/ED/2023-24/J1311B

27/02/2024

Sample No.: Date of receipt of sample: MSKNB/ED/2023-24/02/V81D0Q

Date(s) of performance:

15/02/2024

Location of performance of

15/02/2024 - 27/02/2024 Permanent Facility

Reference No. & Date :

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	12/02/2024		
5. Place of sampling	Near Back Filling Yard Bamebari		
6. Environmental conditions during sampling & Transport	Temperature :13-26 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	Lalin Naik, Dhambrudher Das		
9. Field Equipments Used	MSK/BBL/FIELD/RDS-13		

Report No. : MSKPL/ED/2023-24/J13118 Sample No.: MSKNB/ED/2023-24/02/V91D00

#### RESULT

Chemical						
SI 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	0.16	
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

Designation Executive Chemist Authorized Signatory

Lab In charry

The results relate only to the item(s) tested

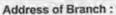
This Test Report shall not be reproduced except in full, without the permission of Minu S.K. Private Limited.
The reserved part of sample(s) for chemical snallysis (Non - pershable sample(s) Food. Water) shall be retained for 15 days from the date of issue of the Test Report. Penshable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soc. Solid & Liquid Wasse) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Teel Report.
The reserved part of sample(s) for Microbiological analysis (Non - pershable sample(s) Food. Seated Water, Seated tood) shall be retained for 15 days from the date of issue of the Test Report.

Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kollutta - 700015, West Bengal, Insta Head Office:

Tel.: 91.33.40143000 / 22650007 Fail: 91.33.22650008 Email: Info@mitrask.com Website; www.mitrask.com

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



P.O. Barbil Dt Keonjhar Orissa 758 035

Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West





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#### TEST REPORT

Report No. :

MSKGL/ED/2023-24/004931

Date:

22/02/2024

Sample No. :

MSKGL/ED/2023-24/02/00499

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)	Bamebari Iron & Mn. Mines.
4. Date of sampling	12/02/2024
5. Place of sampling	Near Back Filling Yard Barnebari
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA.

Report No.: MSKGL/ED/2023-24/004931

Sample No.: MSKGL/ED/2023-24/02/00499

#### RESULT

analysis Result of Ambient Air					
SI No.	Parameter	MOU	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	17.6
9	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (O)	2 8HR.	0.71
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6)_(O)	80 24 HR.	18,6
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	<20.0
5	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23)_(O)	100 24 HR.	221
B	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HR.	107
7	Sulphur Diaxide (SO2)	micro gm/m3	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 7044036120

Email: udayanlab@mitrask.com







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ULR: TC-695024000003061F

Doc No.: MSK/GEN/19/07

## TEST REPORT

Name & Address of Customer: Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonihar, 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/S13112

27/02/2024

MSKNB/ED/2023-24/02/D11CBA

15/02/2024

15/02/2024 - 27/02/2024

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	Almospheric Pollution	
2. Description of sample	Ambient Air	
3. Unique Identification of sample(if any)	NA NA	
4. Date of sampling	12/02/2024	
5. Place of sampling	Near Shorting Yard BIMM	
6. Environmental conditions during sampling & Transport	<ol> <li>Temperature: 13-26 deg C 2) Barometric Pressure: 706 mm of Hg 3) Rain fa No &amp; Cold Chain Maintained</li> </ol>	
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA	
8. Identification of the personnel performing sampling by MSK	Lalin Naik, Dhambrudhar Das	
9. Field Equipments Used	MSK/BBL/FIELD/RDS-12	

Report No.: MSKPL/ED/2023-24/S13112

Sample No.: MSKNB/ED/2023-24/02/D11GBA

#### RESULT

Chemical					
SI No.	Parameter	NOM	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	0.57
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 2009, for Ambient air quality

Statement of Conformity

END.

Ms. Pieli Garquiy

Designation

Executive Chemist

Authorized Signatory

Designation

The results relate only to the Aero(a) leated.
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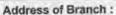
The reserved part of sample(s) for chemical analysis (Non - penshable sample(s) Food, Water) shall be retained for 16 days from the date of issue of the Test Report. Pershable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Waste) shell be retained for 15 days as per CPC8 quideline & (Air) 1 morth from the date of issue of the Teel Report.
The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food. Scaled Waster, Scaled (seef) shall be retained for 15 days from the date of issue of the Teel Report.

Head Office:

Styrachi Centre (5th Picor), 748. A.J.C. Bose Road, Kokata - 700016, West Bengal, India. Tel. : 91.33.40143000 / 22650007 Fax : 91.33.22650008 Email : info@mitrasi.com Wisbaile : www.mitrask.com

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



P.O. Barbil Dt Keonjhar Orissa 758 035

Name & Address of Customer:

Tata Steel Ltd, (MGM) Joda West





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### TEST REPORT

Sample No.:

Report No. :

Date:

MSKGL/ED/2023-24/004930

22/02/2024

MSKGL/ED/2023-24/02/00495

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)	Barnebari Iron & Mn. Mines
4. Date of sampling	12/02/2024
5. Place of sampling	Near Shorting Yard BIMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA .

Report No.: MSKGL/ED/2023-24/004930

Sample No.: MSKGL/ED/2023-24/02/00495

#### RESULT

Analysis Result of Ambient Air					
SI No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	17.6
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10)_(O)	2 8HR.	0.52
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6)_(O)	80 24 HR.	25.4
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180.1 HR.	<20.0
5	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23)_(O)	100 24 HR.	115
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR.	55
7	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2)_(O)	80 24 HR.	7.2

\_\_\_ END \_\_

Report Verified By

For Mitra S. K. Private Limited

**Authorised Signatory** 

Stracti Centre (5th Floor), 746, A.J.C., Bose Road, Kolkson - 700018, West Besigni, India. Tol.: 91 33 40143000 / 27250007 Fps: 91 33 27250008 Email : lologgrafrask.com Webetle / www.mtratk.com

Doc No. MSK/GEN/19/07





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









Scan for Portal ULR: TC-695024000003060F

## 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/S1311S

27/02/2024

MSKNB/ED/2023-24/02/9F1D1R

15/02/2024

15/02/2024 - 27/02/2024

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:

Group	
2. Description of sample	Atmospheric Pollution
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA NA
5. Place of sampling	12/02/2024
	Near Weight Bridge BIMM
8. Environmental conditions during sampling & Transport	1) Temperature :13-26 deg C 2) Barometric Programs 205
7. Sampling Plan & Method used	
Identification of the nemerical section	IS:5182(P-11,12) & USEPA
I. Identification of the personnel performing sampling by MSK I. Field Equipments Used	Lalin Naik, Dhambrudhar Das
r voio Equipments used	MSK/BBL/FIELD/RDS-11

Report No.: MSKPL/ED/2023-24/S1311S

Sample No.: MSKNB/ED/2023-24/02/9F1D1R

### RESULT

Chemical					
SI No.	Parameter	NOM	Method	1 may	1
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	Limit	Result
2	Benzene			6 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
4		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)	
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June	F 44 1 3 77 77 77 77 77 77 77 77 77 77 77 77 7	0.03
6	Nickel as Ni	ng/m3		Not Specified	0.50
pinion:	Limit as nes CDC		USEPA-IO 3.4. June	20 (Annual)	9.7

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END -

Reviewed By

Nerros Designation

Executive Commit

Authorized Signiston

Signature

Lists in charge

The results related control of second second in full, wethout the permission of Mitra S.K. Private Limited.
This Test Report shall not be reproduced except in full, wethout the permission of Mitra S.K. Private Limited.
The reserved part of samplets, for chemical analysis (Non-perial basis) Food, Wester) shall be mittained for 15 days from the date of issue of the Test Report. Periahable sample(s) shall be mittained 2 days from the date of issue of the Test Report.

The reserved part of samplets for the Report.

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

Head Office: Shrachs Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India. Tel: 91 33 40143000 / 22850007 Fax: 91 33 22650008 Email: info@mitreak.com Website: www.mitrask.com

#### Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





#### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

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

#### TEST REPORT

Reference No. & Date :

Report No. :

MSKGL/ED/2023-24/004928 Date: 22/02/2024

Sample No.:

MSKGL/ED/2023-24/02/00494

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)	Barnebari Iron & Mr. Mines	
4. Date of sampling	12/02/2024	
5. Place of sampling	Near Weight Bridge BIMM	
6. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA NA	

Report No.: MSKGL/ED/2023-24/004928

Sample No.: MSKGL/ED/2023-24/02/00494

#### RESULT

analysis Result of Ambient Air					
SI No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR	12.7
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (O)	2 BHR.	0.58
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.	<20.0
5	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23)_(O)	100 24 HR.	128
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR.	78
1	Sulphur Diaxide (SO2)	micro gm/m3	IS: 5182 (Part 2) (O)	80 24 HR.	7.5

END -

Report Verified By

Head Office:

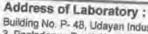


For Mitra S. K. Private Limited

Authorised Signatory

Doc No: MEXIGEN/19/07





Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Tel.: +91 7044038120

Email udayanlab@mitrask.com







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ULR: TC-695024000003059F

## Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Pa. - 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/E13115

27/02/2024

MSKNB/ED/2023-24/02/1H1CD7

15/02/2024

15/02/2024 - 27/02/2024

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	
2. Description of sample	Atmospheric Pollution
3. Unique Identification of sample(if any)	Amblent Air
1. Date of sampling	NA NA
5, Place of sampling	12/02/2024
5. Environmental conditions during sampling & Transport	Near Project Office BIMM  1) Temperature :13-26 deg C.2) Barometric Pressure: 706 mm of Hg 3) Rain fall No & Cold Chain Mainteined
. Sampling Plan & Method used	No & Cold Chain Maintained  IS:5182(P-11,12) & USEPA
. Identification of the personnel performing sampling by MSK . Field Equipments Used	Lalin Naik, Dhambrudhar Das
	MSK/BBL/FIELD/RDS-5

Report No. : MSKPL/ED/2023-24/E13115

Sample No.: MSKNB/ED/2023-24/02/1H1CD7

#### RESULT

SI No.	Parameter		1		
Latemeter	UOM	Method	Limit	D	
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June		Result
2	Benzene	micro gm/m3		6 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL 4.2)
4	Lead (as Pb.)	and the state of t	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01
8		micro gm/m3	USEPA-IO 3.4: June	Not Specified	
pinlon:	Nickel as Ni	ng/m3	USEPA-IO 3.4, June I, 18th November 2009, for Amb	20 / 6	0.30 BDL(DL:5.0)

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Rithinest By

Signature

Designation

Authorized Signatory

Lab in charge

he results raiste only to the item(s) tested

he results rainte only to the itsen(s) tested
his Test Report shall not be inspredues accept in fall, wetwout the permission of Mira S.K. Private Limited.
his Test Report shall not be inspredued accept in fall, wetwout the permission of Mira S.K. Private Limited.
he reserved part of sample(s) for chemical analysis (Non - parishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report.
he reserved part of sample(s) for chemical analysis (Son, Sond & Liquid Water) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.
he reserved part of sample(s) for Microbiological analysis (Non - panishable sample(s) Food, Sondor Water, Sondor food) shall be retained for 15 days from the date of issue of the Test Report.

Shrachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kollutin - 700015, West Bengal, India. Tol.: 91:30:40143000 / 22650007 Fax: 91:33 22650006 Email: Info@milreak.com Wobsite: www.mitrask.com

Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





Sens for Portal

#### Name & Address of Customer:

Tota Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

## TEST REPORT

Report No. :

Date :

Sample No.:

Reference No. & Date :

MSKGL/ED/2023-24/004934

22/02/2024

MSKGL/ED/2023-24/02/00493

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)	Barriebani Iron & Mn. Mines	
4. Date of sampling	12/02/2024	
5. Place of sampling	Near Project Office BIMM	
6. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA NA	

Report No.: MSKGL/ED/2023-24/004934

Sample No.: MSKGL/ED/2023-24/02/00493

#### RESULT

SI No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	-
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (O)	2 8HR.	14.8
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6)_(O)	80 24 HR	0,46
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR	22.3
5	Particulate Matter (<10um)	micro ym/m3	IS: 5182 (Part 23)_(O)		<20.0
В	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019_(0)	100 24 HR.	207
7	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2) (O)	60 24 HR. 80 24 HR	7.8

\_\_\_END \_\_\_

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Head Office: 59kmbs Contro (9th Floor), 74B, A.J.C. Hose Road, Kolkass - 700016, West Bergal, India Tel. 91.33 40143000 / 22550007 Fax : 91.33 22550001 Fanal : Info@mitrask.com Websile : www.infask.com

#### Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Name & Address of Customer:

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

Tel.: +91 7044038120

Email: udayanlab@mitrask.com

Tala Steel Ltd.(MGM)\_Joda West







Scan for Portal

ULR: TC-695024000003066F

Doc No.: MSKUGEN/19/07

TESTING . INSPECTION

#### TEST REPORT

Report No.:

Date:

MSKPL/ED/2023-24/U1311D

27/02/2024

Sample No.:

Discipline:

MSKNB/ED/2023-24/02/741F3C

Date of receipt of sample:

15/02/2024

Date(s) of performance:

15/02/2024 - 27/02/2024

Location of performance of

Permanent Facility

Reference No. & Date:

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	13/02/2024		
5. Place of sampling	Near Project Office BIMM		
6. Environmental conditions during sampling & Transport	<ol> <li>Temperature :16-29 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall No &amp; Cold Chain Maintained</li> </ol>		
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA		
8. Identification of the personnel performing sampling by MSK	Akash Kr. Setty Pratick Kr. Mantri		
9. Field Equipments Used	MSK/BBL/FIELD/FDS-5		

MSKPL/ED/2023-24/U1311D Report No.:

Sample No.: MSKNB/ED/2023-24/02/741F3C

#### RESULT

Chemical							
SI No.	Parameter	HOM	Method	Limit	Result		
4	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	Berizo(a)Pyrene	Em/gn	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	0.16		
6	Nickel as NI	Em/gn	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

Ms. Pinii Gangury

Designation

Executive Chamies

Authorized Signatory

Eab in charg

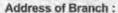
The results relate only to the item(s) tested.

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The reserved part of sample(s) for chemical analysis (Non - peristrable sample(s) Food. Water) shall be retained to 15 days from the date of page of the Test Report. Peristrable sample(s) shall be retained 2 days. from the date of issue of the Test Report.
The reserved part of sample(s) for chemical enelysis (Soil, Solid & Lepid Weste) shall be retained for 15 days as per CPCB quideline & (Air) 1 month from the date of issue of the Test Report.

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

Strach Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Burgal, India. Tel: 91 33 40143000 / 22650007 Fex: 91 33 22650008

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



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Scan for Portal

MSKGL/ED/2023-24/004923

#### Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West

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

#### **TEST REPORT**

Report No.:

Date : 22/02/2024

Sample No.: MSKGL/ED/2023-24/02/00500

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)	Barnebari Iron & Mn. Mines
4. Date of sampling	13/02/2024
5. Place of sampling	Near Project Office BIMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA NA

Report No.: MSKGL/ED/2023-24/004923

Sample No.: MSKGL/ED/2023-24/02/00500

#### RESULT

analysis Result of Ambient Air						
SI No.	Parameter	MON	Method	Limit	Result	
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	15.2	
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10)_(O)	2 8HR.	0.42	
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6)_(O)	80 24 HR.	21.4	
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	<20.0	
5	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23)_(O)	100 24 HR.	218	
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR.	107	
7	Sulphur Dioxide (SO2)	micro gm/m3	(S: 5182 (Part 2)_(O)	80 24 HR.	8.2	

\_\_\_\_ END \_\_\_

Report Verified By

For Mitra S. K. Private Limited

**Authorised Signatory** 

Sampli Centre (5th Floor), 748, A.J.C. Bose Road, Kolkula - 700016, West Simpli, India, Tol.: 91:33-40143000 / 22650007 Fax: 91:33.22650008 Fmail: 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







Scan for Portal ULR: TC-695024000003067F

DOC NO: MSKYGEN/19/07

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/2023-24/113116

27/02/2024

MSKNB/ED/2023-24/02/8H1EFT

15/02/2024

15/02/2024 - 27/02/2024

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

Group	
2. Description of sample	Atmospheric Pollution
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA NA
5. Place of sampling	13/02/2024
	Near Weight Bridge BIMM
6. Environmental conditions during sampling & Transport	1) Temperature : 18-29 deg C 2) Barometric Pressure: 712 mm -114-23 C-1-15
7. Sampling Plan & Method used	1.62 of Cold Scient Matrialned
3. Identification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA
9. Field Equipments Used	Akash Kr. Setty Pratick Kr. Mantri
er i isia cipinenta osed	MSK/BBL/FIELD/ROS-11

Report No. : MSKPL/ED/2023-24/113116

NA

Sample No.: MSKNB/ED/2023-24/02/8H1EFT

#### RESULT

Chemical					_
SI No.	Parameter	UOM	Method	Limit	1
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June		Result
2	Benzene	micro gm/m3		6 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene		IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
		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)	0.06
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June		
6	Nickel as Ni	ng/m3		Not Specified	0.46
pinlon :			USEPA-IO 3.4, June	20 (Annual)	11.1

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Royseast By

Desgration

Authorized Signatory:

Signature

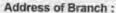
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The reserved part of sample(s) for charmoni analysis (Non - pertahable sample(s) Food, Wasar) shall be retained for \$5 days from the date of issue of the Test Report. Perishable sample(s) shall be retained 2 days from the date of issue of the Test Report.

The reserved part of sample(s) for crismical analysis (Soil Solid & Liquid Waste) shall be retained for 15 days as per CPCB quideline & (Air) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) her Microbiological analysis (Non - perishable sample(s) Food, Sasted Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report. Shracia Ceraire (Sin Floor), 748, A.J.C. Bose Road, Kollette -700016, West Bengal, India Tel. 191 33:40143000 / 22650007 Fax: 91 33:22650008 Email: info@mirask.com Website: www.ml/sak.com Head Office:

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



P.O. Barbil Dt Keonjhar Orissa 758 035

Teta Steel Ltd.(MGM) Joda West





Soun for Portal

#### TEST REPORT

Name & Address of Customer: Report No. :

eport No.: MSKGL/ED/2023-24/004936 ate: 22/02/2024

Date :

MSKGL/ED/2023-24/02/00501

Reference No. & Date :

Sample No. :

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)	Barnebari Iron & Mn. Mines	
4. Date of sampling	13/02/2024	
5. Place of sampling	Near Weight Bridge BIMM	
6. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA NA	

Report No.: MSKGL/ED/2023-24/004936

Sample No.: MSKGL/ED/2023-24/02/00501

#### RESULT

analysis Result of Ambient Air					
SI No.	Parameter	HOM	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	15.9
2	Carbon Monoxide (CO)	mg/m3	IS; 5182 (Part 10) (O)	2 BHR.	0.47
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6): (O)	80 24 HR.	20.7
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	<20.0
.5	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	100 24 HRL	158
8	Particulate Matter (<2,5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR.	78
7	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2) (O)	80 24 HR.	7.5

\_\_\_ END \_\_\_

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Head Office: Shunchi Centre (5th Floor), 748, A.J.C. Boxe Road, Kolkilla - 700016, West Berngal, India.
Tel., 91 33 40143000 / 22650007 Fax: 91 33 22450008
Email: Info@mitmak.com Widelie: www.mitmak.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







ULR: TC-695024000003068F

Doc No.: MSK/GEN/18/07

#### 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/2023-24/51311F

27/02/2024

MSKNB/ED/2023-24/02/B81F14

15/02/2024

15/02/2024 - 27/02/2024

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	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA NA
4. Date of sampling	13/02/2024
5. Place of sampling	Near Shorting Yard BIMM
6. Environmental conditions during sampling & Transport	1) Temperature :16-29 deg C 2) Barometric Pressure: 712 mm of Ha 3) Pain fall
7. Sampling Plan & Method used	No & Cold Chain Maintained IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Akash Kr. Setty Pratick Kr. Mantri
9. Field Equipments Used	MSK/BBU/FIELD/FDS-12

Report No. : MSKPL/ED/2023-24/51311F

Sample No.: MSKNB/ED/2023-24/02/881F14

### RESULT

Chemical						
SI No.	Parameter	MON	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	0.13	
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:

Designation

**Executive Chemist** 

Authorized Signatory

Signature

Lab in charge

The results relate only to the tiem(s) trested.

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The reserved part of sample(s) for chemical enalysis (Non - ponetable sample(s) Food. Water) shall be retained for 15 days from the date of issue of the Test Report. Penshable sample(s) shall be retained 2 days.

The date of issue of the Test Report.

The reserved part of sample(s) for chemical ensuys (Soit, Soid & 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 - penahebis sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Tel.: 91 33 40143000 / 22650007 Fax: 91 33 22650008 Ernal: Info@mitrast.com Website: www.mitrast.com

Address of Branch:

P.O. Barbii Dt Keonjhar Orissa 758 035





Scan for Portal

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

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

TEST REPORT

Report No. :

Date:

MSKGL/ED/2023-24/004924

22/02/2024

Sample No. : MSKGL/ED/2023-24/02/00502

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	
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Barriebari Iron & Mn. Mines
5. Place of sampling	13/02/2024
	Near Shorting Yard BIMM
6. Environmental conditions during sampling & Transport 7. Sampling Plan & Method used	Clear & Surany
Company Pain & Method used	NA .

Report No.: MSKGL/ED/2023-24/004924

Sample No.: MSKGL/ED/2023-24/02/00502

#### RESULT

SI No.	B	T			
O, 140.	Parameter	HOW	Method	Limit	
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)		Result
2	Carbon Monazide (CO)	mg/m3		400 24 HR	18.1
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 10)_(O)	2 8HR.	0.61
4.	Ozone (O3)	micro gm/m3	IS: 5182 (Part 6)_(O)	80 24 HR.	26.3
5	Particulate Matter (<10um)		IS-5182 (Part 9)	180 1 HR.	<20.0
6	Particulate Matter (<2.5um)	micro gm/m3	IS: 5182 (Part 23)_(0)	100 24 HR,	106
7		micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR.	53
1	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2) (O)	80 24 HR.	7,8

\_\_\_ END \_\_\_

Report Verified By

Head Office:

For Mitra S. K. Private Limited

Authorised Signatory

Structu Centre (Stin Floor), 748, A.J.C. Bose Roed, Koluste - 700016. West Bengat, India. 191 33 40143000 / 32460007 Flax : 91 33 20160000. Errali info@infoak.com Wetelle : www.ratrask.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







Scan for Portal

ULR: TC-695024000003072F

Dac No MSKIGEN/19/07

### 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/J1312J

27/02/2024

MSKNB/ED/2023-24/02/Q41F0H

15/02/2024

15/02/2024 - 27/02/2024

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	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA.
4. Date of sampling	13/02/2024
5. Place of sampling	Near Back Filling Yard Barnebari
6. Environmental conditions during sampling & Transport	Temperature :16-29 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
il. Identification of the personnel performing sampling by MSK	Akash Kr. Setty Pratick Kr. Mantri
9. Field Equipments Used	MSK/BBL/FIELD/FDS-13

Report No.: MSKPL/ED/2023-24/J1312J

Sample No.: MSKNB/ED/2023-24/02/Q41F0H

#### RESULT

hemical						
SI 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 Dethi, 18th November 2009, for Ambient air quality

Statement of Conformity

END

Reviewed By:

Signature

Mr. Plat Ganguly

Designation

Executive Chemius

**Authorized Signatory** 

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

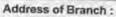
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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Pershable sample(s) shall be retained 2 days

The reserved part of sample(s) for chemical analysis (Soil, Soild & Liquid Wissie) stats be retained for 15 days as per CPUB guideline & (Air) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non - pershable sample(s) Food, Sasled Wester, Sosied food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Strachi Centre (5th Floor), 748, A.J.C. Bose Road, Knikata -700016, West Bengal, India Tell : 91 33:40143000 / 22650007 Fax : 91 33 22650008 Email : Info@mirrask.com Website : www.mitrask.com



P.O. Barbil Dt Keonjhar Orissa 758 035





Scan for Portal

## Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

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

### TEST REPORT

Reference No. & Date :

Report No. :

MSKGL/ED/2023-24/004933

Date : Sample No. :

22/02/2024

MSKGL/ED/2023-24/02/00506

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)	Bameban Iron & Mn. Mines	
4. Date of sampling	13/02/2024	
5. Place of sampling	Near Back Filling Yard Bameban	
6. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA Starty	

Report No.: MSKGL/ED/2023-24/004933

Sample No.: MSKGL/ED/2023-24/02/00506

#### RESULT

SI No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (O)		18:1
3	Nitrogen Dioxide (NO2)	тисто ати/т3	IS: 5182 (Part 6) (O)	2 8HR.	0,68
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	80 24 HR.	17.4
5	Particulate Matter (<10um)	micro gnvm3		180 1 HR.	<20.0
6	Particulate Matter (<2.5um)	micro gm/m3	IS: 5182 (Part 23)_(O)	100 24 HR	210
7	Sulphur Dioxide (SO2)		IS 5182 (PT-24),2019_(O)	60 24 HR.	101
-		micro gm/m3	IS: 5182 (Part 2)_(O)	80 24 HP.	6.6

\_\_\_ END \_\_\_

Report Verified By

Head Office:

For Mitra S. K. Private Limited

**Authorised Signatory** 

Shrachi Cerere (Bin Floor), 74B, A.J.C. Bose Rood, Kolkuta - 700010, West Bernak India. Tel. 91 32 401430301 / 22650007 Fax: 91 33 22550000 Email: info@intresk.com Wobete: www.mitrask.com

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Roed, Kolkata 700015

Name & Address of Customer:

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

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com

Tata Sleel Lld.(MGM)\_Joda West



TEST REPORT





Scan for Portal

ULR: TC-695024000003198F

Report No. t.

Date:

MSKPL/ED/2023-24/P13A9Y

02/03/2024

Sample No.:

Discipline:

MSKNB/ED/2023-24/02/YA36EE

22/02/2024

Date of receipt of sample: Date(s) of performance:

22/02/2024 - 02/03/2024

Location of performance of

Permanent Facility

Reference No. & Date:

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	19/02/2024		
5. Place of sampling	Near Back Filling Yard-BIMM		
6. Environmental conditions during sampling & Transport	<ol> <li>Temperature :19-30 deg C 2) Barometric Pressure: 703 mm of Hg 3) Rain fall No &amp; Cold Chain Maintained</li> </ol>		
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/RDS-13		

Report No.: MSKPL/ED/2023-24/P13A9Y

Sample No.: MSKNB/ED/2023-24/02/YA36EE

#### RESULT

Chemical Control of the Control of t					
SI 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 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

- END ---

Or. Devottem Baneness

Designation Technical in charge

Authorized Sign

Dr. Devottom Banerjee

Designation

Technical in charge

The results reliate only to the film(s) tested.

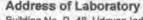
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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained 2 days from the date of issue of the Test Report.

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 (Soi, Soild & Liquid Weste) 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 engines (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Doc No. M5K/GEN/19/07



#### Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035

Name & Address of Customer:

Tala Steel Lld.(MGM)\_Joda West





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#### TEST REPORT

Report No. :

MSKGL/ED/2023-24/004956

Date :

26/02/2024

AVPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin Sample No. :

MSKGL/ED/2023-24/02/00882

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)	Barnebari Iron & Mn. Mines	
4. Date of sampling	19/02/2024	
5, Place of sampling	Near Back Filling Yard-BIMM	
6. Environmental conditions during sampling & Transport	Clear & Sunny	
7, Sampling Plan & Method used	NA .	

Report No.: MSKGL/ED/2023-24/004956

Sample No.: MSKGL/ED/2023-24/02/00882

#### RESULT

nalysis Result of Ambient Air					
SI No.	Parameter	UOM	Method	Limit	Result
1	Animonie (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	18.3
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10)_(O)	2 8HR.	0.69
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	<20.0
5	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	100 24 HR.	149
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR	72
7	Sulphur Digode (SO2)	micro gm/m3	IS: 5182 (Part 2) (O)	80 24 HR	7.2

END -

Report Verified By

For Mitra S. K. Private Limited

**Authorised Signatory** 

Head Office: Straigh Centre (6th Floor), 748, A.J.C. Soler Road, Kolkum - 706016, West Bengal India Tel. 91 33 40143000 (22650007 Fax: 91 33 22650008 Email: progressinsk.com Website: www.mstask.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





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ULR: TC-695024000003193F

Doc No: MSKIGEN/19/07

TESTING . INSPECTION

#### 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. :

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/313A9V

02/03/2024

MSKNB/ED/2023-24/02/FW371C

22/02/2024

22/02/2024 - 02/03/2024

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	Almospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA NA
4. Date of sampling	19/02/2024
5. Place of sampling	Near Weigh Bridge-BIMM
6, Environmental conditions during sampling & Transport	1) Temperature :18-27 deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain fall :
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/RDS-11

Report No.: MSKPL/ED/2023-24/313A9V

Sample No.: MSKNB/ED/2023-24/02/FW371C

#### RESULT

Chemical Che						
SI 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 (Pari 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)	18.32	

Opinion:

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END .

Reviewed By:

Signalure

Dr. Dovottem Banerjee

Designation : Technical in charge

Authorized Signatory

Dr. Dovottam Barwyee

Terrincal in charge

The results relate only to the item(s) insted

This Test Report shall not be reproduced except in full, without the permession of Mara S.K. Private Limited.

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

The reserved part of sample(s) for chamical analysis (Soil, Soild & Liquid Wasse) shall be recarred for 15 days as per CPCB guidaline & (Air) 1 month from the date of issue of the Test Report. The reserved part of sample(s) for Microbiological analysis (Non - pershable sample(s) Food, Sealed Wasse, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Structs Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkate - 700015, West Bangal, India Tel: 91 33 40143000 / 22650007 Fax: 91 33 22650008 Email: Info@mitrask.com Website: www.mitrask.com

Address of Branch:

P.O. Barbil Dt Keonjihar Orissa 758 035





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Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

TEST REPORT

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/004952

26/02/2024

MSKGL/ED/2023-24/02/00877

3000156017, Date - 28/09/2023

We hareby cartify 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)	2.77	
4. Date of sampling	Barnebari Iron & Mr. Mines	
5. Place of sampling	19/02/2024	
	Near Weigh Bridge-BIMM	
6. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA NA	

Report No.: MSKGL/ED/2023-24/004952

Sample No.: MSKGL/ED/2023-24/02/00877

#### RESULT

SI No.	Parameter	UOM	Method	I ton	1 2 5
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	Limit	Result
2	Carbon Monoxide (CO)	mg/m3		400 24 HRL	13.4
3	Nitrogen Dioxide (NO2)		IS: 5182 (Part 10)_(O)	2 8HR.	0,57
4	Ozone (O3)	micro grn/m3	IS: 5182 (Part 6)_(O)	80 24 HR.	20.2
5	Particulate Matter (<10um)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	<20.0
В		micro gm/m3	IS: 5182 (Part 23)_(O)	100 24 HR.	222
2	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR.	105
1	Sulphur Dioxide (SO2)	micro gm/m3	(S: 5182 (Part 2) (O)	80 24 HR.	7.5

---- END ----

Report Verified By

**Head Office:** 

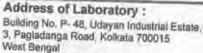
For Mitra S. K. Private Limited

Authorised Signatory

Shada Centre (5th Fkny), 74B, A.J.C. Buse Road, Kolkata - 700016, West Berngal, India. Tel.; 91:33-40143000 / 25650007 Fax: 91:33 25650006 Email ; info@mtrask.com Websits | www.mbrask.com

Doc No.: MSK/GEN/19/07





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





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MSKPL/ED/2023-24/A13A9P

22/02/2024 - 02/03/2024

MSKNB/ED/2023-24/02/GK36DG

ULR: TC-695024000003194F

#### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AVPo. - 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:

Permanent Facility

02/03/2024

22/02/2024

3000156017/056, Date - 16/09/2023

Chemical

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

Group	
2. Description of sample	Atmospheric Poliution
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA salanassi
5. Place of sampling	19/02/2024
5. Environmental conditions during sampling & Transport	Near Shorting Yard-BIMM  1) Temperature :18-27 deg C 2) Barometric Pressure: 714 mm of Hg 3) Rain fall
. Sampling Plan & Method used	No. & Cold Chain Maintained IS:5182(P-11,12) & USEPA
I. Identification of the personnel performing sampling by MSK	Pratik Kumar Mantri
P. Field Equipments Used	MSK/BBL/FIELD/RDS-9

Report No.: MSKPL/ED/2023-24/A13A9P

Sample No.: MSKNB/ED/2023-24/02/GK38DG

#### RESULT

Chemical					
SI No.	Parameter	UOM	Method	Limit	F words
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June		Result
2	Benzene	micro gm/m3	IS 5182 (Part 11)	6 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	5 (Annual)	BDL(DL:4.2)
4	Lead (as Pb )	micro gm/m3		1 (Annual)	BDL(DL:0.5)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
6	Nickel as Ni		USEPA-IO 3,4: June	Not Specified	0.13
pinlon:		ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END.

Roviewed By

Dr. Devottim Bankry

Designation Technical In charge Authorized Sign

Signature

Name

Designation

Technical in charge

The results relate only to the mim(s) tested.
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The reserved part of sample(s) for chemical analysis (Non - pershable isosphe(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Pershable sample(s) shall be retained 2 days

The reserved part of sample(s) for cremical analysis (non - peranade semple(s) hour, vieter) and the retained for 15 days into the date of insue or the rest Report. For sense sample(s) shall be retained for 15 days as per CPCB guideline 3 (Air) 1 month from the date of issue of the Test Report. The reserved part of sample(s) for Microbiological analysis (Non - pershabite sample(s) Food, Seeled Water, Seeled food) shall be retained for 15 days from the date of issue of the Test Report.

Shraichi Centre (5th Fisor), 748, A.J.C. Base Road, Kolketa -700015, West Bengel, India Tal. 91 33 40143000 / 22650007 Fax : 91 33 22650008 Head Office:

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

Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





Scan for Portal

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Pa. - Joda, Dist. - Keanjhar, Odasha - 758034 India Pin

TEST REPORT

Report No.:

MSKGL/ED/2023-24/004958 Date: 26/02/2024

Sample No. :

MSKGL/ED/2023-24/02/00878

Reference No. & Date :

3000156017, Date - 28/09/2023

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

Group     Description of sample	AIR
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Barnebari Iron & Mn. Mines 19/02/2024
5. Place of sampling 6. Environmental conditions during sampling & Transport	Near Shorting Yard-BIMM
7. Sampling Plan & Method used	Clear & Sunny
	NA NA

Report No.: MSKGL/ED/2023-24/004958

Sample No.: MSKGL/ED/2023-24/02/00878

#### RESULT

Si No.	Parameter	UOM	M-th-d	-	-
1	Ammonia (NH3)		Method	Limit	Result
2	Carbon Monoxide (CO)	micro gm/m3	1S 5182 (Part 25)	400 24 HR.	12.8
3		mg/m3	IS: 5182 (Part 10) (O)	2 8HR.	
4	Nitrogen Dioxide (NO2)	Emicro gm/m3	IS: 5182 (Part 6) (O)	80 24 HR.	0.58
-	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)		23.7
5	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	180 1 HR.	<20.0
6	Particulate Matter (<2.5um)	micro gm/m3		100 24 HR.	135
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HR.	65
	1,13	mica girinci	IS: 5182 (Part 2)_(O)	80 24 HR.	7.4

END

Report Verified By

For Mitra S. K. Private Limited

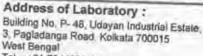
Authorised Signatory

Head Office:

Shrachi Centre (de Fiorr), 74B, A.J.C. Bone Roed, Kolkuss – 700018, West Bernal, India: Tel. /91/33-40143000./ 2265x007 Fax. 91/33 22550000 Email: info@mitrask.com Webaite: www.resnal.com

Doc No: MSK/GEN/19/07





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





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ULR: TC-695024000003192F

### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AVPo. - 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:

22/02/2024 - 02/03/2024 Permanent Facility

MSKPL/ED/2023-24/S13A9Z

MSKNB/ED/2023-24/02/59370E

3000156017/056, Date - 16/09/2023

Chemical

02/03/2024

22/02/2024

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

Group  1. Group	
2. Description of sample	Atmospheric Pollution
3. Unique identification of sample(if any)	Ambient Air
4. Date of sampling	NA NA
5. Place of sampling	19/02/2024
	Near Project Office-BIMM
5. Environmental conditions during sampling & Transport	1) Temperature: 19-30 deg C 2) Baramatria Programa 700
. Sampling Plan & Method used	
Identification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA
. Field Equipments Used	Pratik Kumar Mantri
	MSK/BBL/FIELD/RDS-5

Report No.: MSKPL/ED/2023-24/S13A9Z

Sample No.: MSKNB/ED/2023-24/02/59370E

#### RESULT

Chemical					
SI No.	Parameter	UOM	Method	11-0	1
1	Arsenic as (As)	ng/m3	1300	Limit	Result
2	Benzene		USEPA-IO 3.4, June	6 (Annual)	BDL(DL-1.0)
3	Benzo(a)Pyrene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
4		ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
5	Lead (as Pb )	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
-	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June	Not Specified	
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June		0.24
pinion:	Limit as per CPC	B notification New Della	1. 18th November 2009, for Amt	20 (Annual)	BDL(DL:5.0)

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END -

PERVIOWING BY

Dr. Devottem Benevie

Designation Technical in charge Authorized Signat

Dr. Devottem Banerjee

Designation

Technical in charge

The results retalls only to the temp(s) tested.

The Test Report shall not be respected except in full, without the permission of Mitre 8.K. Privets Limited.

The reserved part of sample(s) for chemical enalysis (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 enalysis (Soil, Soild & Liquid Wester) shall be retained for 15 days from the date of issue of the Test Report.

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

Page 4. 444 Head Office: Shrachi Contre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700015, West Bengal, India: Tel. 91 33 40143000 / 22650007 Fax: 91 33 22650008.
Email: srfo@mitrask.com Webside: www.mitrask.com

Address of Branch:

P.O. Barbii Dt Keonjhar Orissa 758 035





Scan for Portal

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

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

TEST REPORT

Report No. :

MSKGL/ED/2023-24/004957 Date: 26/02/2024

Sample No. :

MSKGL/ED/2023-24/02/00876

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 2. Description of sample	AIR
Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Barnebari Iron & Mr. Mines
5. Place of sampling	19/02/2024
6. Environmental conditions during sampling & Transport	Near Project Office-BIMM
7. Sampling Plan & Method used	Clear & Sunny
and the state of t	NA NA

Report No.: MSKGL/ED/2023-24/004957

Sample No.: MSKGL/ED/2023-24/02/00876

#### RESULT

SI No.	Parameter	UOM	1202.03		
1	Ammonia (NH3)		Method	Limit	Result
2	Carbon Monoxide (CO)	micro gm/m3	IS 5182 (Part 25)	400 24 HR	-
3	Nitrogen Dioxide (NO2)	mg/m3	IS: 5182 (Part 10) (O)	2 BHR.	15.1
4		micro gm/m3	IS: 5182 (Part 6)_(O)	80 24 HR.	0.51
5	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	22,0
6	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)		<20.0
7	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)	100 24 HR.	224
(	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2) (O)	60 24 HR.	109
			— END —	80 24 HR	8.1

END

Report Verified By

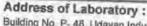
For Mitra S. K. Private Limited

**Authorised Signatory** 

Head Office: Shruchi Cenne (58) Floor), 748, A.J.C. Bose Roud, Kellons - 700016. West Bengat, India. Tel., 91 33-40143000 i zzresooo? Fine: 91 33-23550000. Email: Indagrafinast.com Website: www.antrask.com

Doc No. MSK/GEN/19/07





Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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ULR: TC-695024000003199F

#### 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/H13A9R Date: 02/03/2024

Sample No. : MSKNB/ED/2023-24/02/AX372T

Date of receipt of sample: 22/02/2024 Date(s) of performance: 22/02/2024 - 02/03/2024

Location of performance of Permanent Facility Reference No. & Date : 3000156017/056, Date - 16/09/2023

Discipline: Chemical

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

Group		
2. Description of sample	Almospheric Pollution	
3. Unique Identification of sample(if any)	Ambient Air	
4. Date of sampling	NA .	
5. Place of sampling	20/02/2024	
	Near Project Office-BIMM	
6. Environmental conditions during sampling & Transport	1) Temperature :18-30 deg C 2) Barometric Processor 202 mm of the 21 5 10 10 10 10 10 10 10 10 10 10 10 10 10	
7. Sampling Plan & Method used	THE SECOND COURT MAINTAINED	
I. Identification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA	
9. Field Equipments Used	Pranab Sethi	
err rens Edmininents Oadd	MSK/BBL/FIELD/RDS-5	

Report No.: MSKPL/ED/2023-24/H13A9R

Sample No.: MSKNB/ED/2023-24/02/AX372T

#### RESULT

Parameter	UOM	Method	( finish	1
Arsenic as (As)	ng/m3			Result
Benzene				BDL(DL:1.0)
Benzo(a)Pyrene			5 (Annual)	BDL(DL:4,2)
			1 (Annual)	BDL(DL:0.5)
The state of the s			1 (24 Hours)	0.03
	micro gm/m3	USEPA-IO 3.4: June	Not Specified	0.20
	ng/m3	USEPA-IO 3.4, June	20 (Annual)	7,35
	Arsenic as (As) Benzene Benzo(a)Pyrene Lead (as Pb ) Manganese as Mn Nickel as Ni	Arsenic as (As) ng/m3  Benzene micro gm/m3  Benzo(a)Pyrene ng/m3  Lead (as Pb ) micro gm/m3  Manganese as Mn micro gm/m3  Nickel as Ni ng/m3	Arsenic as (As) ng/m3 USEPA-IO 3.4, June  Benzene micro gm/m3 IS 5182 (Part 11)  Benzo(a)Pyrene ng/m3 IS 5182 (Part 12)  Lead (as Pb ) micro gm/m3 USEPA-IO 3.4, June  Manganese as Mn micro gm/m3 USEPA-IO 3.4; June	Arsenic as (As) ng/m3 USEPA-IO 3.4, June 5 (Annual)  Benzene micro gm/m3 IS 5182 (Part 11) 5 (Annual)  Benzo(a)Pyrene ng/m3 IS 5182 (Part 12) 1 (Annual)  Lead (as Pb ) micro gm/m3 USEPA-IO 3.4, June 1 (24 Hours)  Manganese as Mn micro gm/m3 USEPA-IO 3.4: June Not Specified  Nickel as Ni ng/m3 USEPA-IO 3.4, June 20 (Annual)

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END .

Reviewed By

Styresture

Dr. Devottato Biane

Technical in charge

Authorized Signatory

Signature

Name

Dr. Devottem Barnetic

Désignation .

Technical to charge

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

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The reserved part of sample(s) for chemical analysis (Nor - pershable sample(s) Food. Water) aball be retained for 15 days from the date of lesse of the Test Report. Pershable sample(s) shall be retained 2 days from the date of lesses of the Test Report.

The reserved part of sample(s) for chamical analysis (Soil, Soild & Liquid Weste) areal be recained for 15 days as per CPCB guideline & (Air) I moral from the date of issue of the Test Report. The reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Sealed Weller, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Straigh Centra (Sin Floor), 748, A.J.C. Bose Road Kolinia - 700018, West Bergel, India. Tel. 91:33:40143000 / 22650007 Fax: 91:33:2050008

Email Info@mitrask.com Website | www.mitrask.com

Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035

Name & Address of Customer :

At/Po. - Jode, Dist. - Keonjhar, Odisha - 758034 India Pin

Tata Steel Ltd.(MGM)\_Joda West





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### TEST REPORT

Report No. :

MSKGL/ED/2023-24/004959

Date:

27/02/2024

Sample No.:

MSKGL/ED/2023-24/02/00895

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
Unique Identification of sample(if any)	Barnebari Iron & Mn. Mines
4, Date of sampling	20/02/2024
5. Place of sampling	Near Project Office-BIMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA Santy

Report No.: MSKGL/ED/2023-24/004959

Sample No.: MSKGL/ED/2023-24/02/00895

#### RESULT

en l						
SI No.	Parameter	NOM	Method	Limit	Result	
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	15.6	
2	Arsenic (As)	ng/m3	TPM/MSK/ENV(AP)/01/15_(D)	6 ANNUAL	NA.	
3	Benzene (C8H6)	micro gm/m3	IS: 5182 (Part 11)_(O)	5 ANNUAL	NA.	
4	Berizo(a)Pyrene (BaP)	ng/m3	IS: 5182 (Part 12)_(O)	1 ANNUAL	NA.	
5	Carbon Monovide (CO)	rug/m3	IS: 5182 (Part 10) (O)	2 8HR.	0.49	
6	Lead (Pb)	micro gm/m3	EPA -103.2 June, 1999_(0)	1 24 HR	NA NA	
7	Nickel (Ni)	ng/m3	EPA-IO3.2 -June, 1999. (O)	20 ANNUAL	NA NA	
8	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6)_(O)	80 24 HR	22.7	
9	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR	<20.0	
10	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	100 24 HR.		
11	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HR.	221	
12	Sulphur Dioxide (SO2)	micro gm/m3	1S: 5182 (Part 2)_(O)	80 24 HR.	106	

---- 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





Doc No.: MSKIGEN/19/07

TESTING . INSPECTION



MSKPL/ED/2023-24/C13A9Q

MSKNB/ED/2023-24/02/LJ36FH

22/02/2024 - 02/03/2024

Permanent Facility

ULR: TC-695024000003200F

Tata Steel Ltd.(MGM)\_Joda West

Name & Address of Customer:

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:

3000156017/056, Date - 16/09/2023

Chemical

02/03/2024

22/02/2024

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 NA
4. Date of sampling	20/02/2024
5. Place of sampling	Near Weigh Bridge-BIMM
6. Environmental conditions during sampling & Transport	1) Temperature :18-29 deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain fall.
7. Sampling Plan & Method used	No & Cold Chain Maintained IS:5182(P-11,12) & USEPA
3. Identification of the personnel performing sampling by MSK	Pranab Sethi
9. Field Equipments Used	MSK/BBU/FIELD/RDS-11

Report No.: MSKPL/ED/2023-24/C13A9Q

Sample No.: MSKNB/ED/2023-24/02/LJ36FH

#### RESULT

Chemical						
SI No.	Parameter	HOM	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	0.23	
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	26.52	

Opinion:

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Reviewed By:

Signature

Dr. Devottom Baneries

Designation Technical tricharge

Dr. Devottom Barwner

Technical in charge

The results relate only to the item(s) (select
This Test Report shall not be reproduced except in full, without the permission of Mitte S.K. Private Limited:
The reserved part of sample(s) for chariful snallyels (Non - perishable sample(s) Food, Water) shall be retained to: 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 chariful snallyels (Non - perishable sample(s) shall be retained to: 15 days from the date of issue of the Test Report.

The reserved part of sample(s) for chariful snallyels (Non - perishable sample(s) shall be retained to: 15 days from the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil & Liquid Water) shall be recurred 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 food; shall be retained for 15 days from the date of issue of the Test Report.

Strecht Centre (5th Floor), 748, A.I.C. Bose Road, Kolkata = 700018, Wasii Benget, India Tel.: 91 33 40143000 / 22650007 Fax : 91 33 22650008
Email: info@mansk.com Website: www.mitresk.com Head Office:

#### Address of Branch:

P.O. Barbil Di Kuoninar Orissa 758 035





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### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonilhar, Odisha - 758034 India Pin

### **TEST REPORT**

Report No. :

Date:

MSKGL/ED/2023-24/004965

27/02/2024

Sample No.:

MSKGL/ED/2023-24/02/00896

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)	Bernebari Iron & Mn. Mines
4. Date of sampling	20/02/2024
5. Place of sampling	Near Weigh Bridge-BIMM
6. Environmental conditions during sampling & Transport	
7. Sampling Plan & Method used	Clear & Sunny

Report No.: MSKGL/ED/2023-24/004965

Sample No.: MSKGL/ED/2023-24/02/00896

#### RESULT

SI No.	Parameter	MOM	Method	Limit	
1	Ammonia (NH3)	micro gm/m3			Result
2	Arsenic (As)	ng/m3	IS 5182 (Part 25)	400 24 HR.	14.2
3	Benzene (C6H6)		TPM/MSK/ENV(AP)/01/15 (O)	B ANNUAL	NA.
4		micro gn/m3	IS: 5182 (Part 11) (O)	5 ANNUAL	NA:
	Benzo(a)Pyrene (BaP)	ng/m3	IS: 5182 (Part 12)_(O)	1 ANNUAL	NA:
5	Carbon Monoside (CO)	mg/m3	IS: 5182 (Part 10) (O)	2 8HR.	0.49
6	Lead (Pb)	micro gm/m3	EPA -lO3.2 June, 1999 (O)	1 24 HR	NA NA
7	Nickel (Ni)	ng/m3	EPA-103.2 -June, 1999 (O)	20 ANNUAL	HA
8	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6) (O)	80 24 HR.	19.6
9	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR	
10	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	0.000	<20.0
11	Particulate Matter (<2.5um)	micro gm/m3		100 24 HR.	174
12	Sulphur Dioxide (SO2)		IS 5182 (PT-24),2019 (O)	60 24 HR.	82
	college planta (SOE)	micro gni/m3	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@mitrask.com







ULR: TC-695024000003205F

Doc No. MSK/GEN/19/07

TESTING \* INSPECTION

#### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

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

TEST REPORT

Report No. :

MSKPL/ED/2023-24/W13A96 Date: 02/03/2024

Sample No. :

Date of receipt of sample:

Date(s) of performance:

Location of performance of Reference No. & Date:

Discipline:

Permanent Facility

22/02/2024

3000156017/056, Date - 16/09/2023

MSKNB/ED/2023-24/02/Z736E6

22/02/2024 - 02/03/2024

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 NA
4. Date of sampling	20/02/2024
5. Place of sampling	Near Back Filling Yard-BIMM
6. Environmental conditions during sampling & Transport	1) Temperature :18-29 deg C 2) Barometric Pressure: 703 mm of He 3) Pain foll
7. Sampling Plan & Method used	No & Cold Chain Maintained IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pranab Sethi
9. Field Equipments Used	MSK/BBL/FIELD/RDS-13

Report No.: MSKPL/ED/2023-24/W13A96

Sample No.: MSKNB/ED/2023-24/02/Z736E6

#### RESULT

Chemical					
Parameter	NOM	Method	Limit	Result	
Arsenic as (As)	ng/m3	USEPA-IO 3.4, June		BDL(DL:1.0)	
Benzene	micro gm/m3	IS 5182 (Part 11)		BDL(DL:4.2)	
Benzo(a)Pyrane	ng/m3	IS 5182 (Part 12)		BDL(DL:0.5)	
Lead (as Pb )	micro gm/m3			BDL(DL:0.01)	
Manganese as Mn	micro gm/m3				
Nickel as Ni	ng/m3			0.10 BDL(DL:5.0)	
	Arsenic as (As) Benzene Benzo(a)Pyrana Lead (as Pb ) Manganese as Mn Nickel as Ni	Arsenic as (As) ng/m3 Benzene micro gm/m3 Benzo(a)Pyrane ng/m3 Lead (as Pb ) micro gm/m3 Manganese as Mn micro gm/m3 Nickel as Ni ng/m3	Arsenic as (As) ng/m3 USEPA-IO 3.4, June  Benzene micro gm/m3 IS 5182 (Part 11)  Benzo(a)Pyrene ng/m3 IS 5182 (Part 12)  Lead (as Pb) micro gm/m3 USEPA-IO 3.4, June  Manganese as Mn micro gm/m3 USEPA-IO 3.4: June  Nickel as Ni ng/m3 USEPA-IO 3.4, June	Arsenic as (As) ng/m3 USEPA-IO 3.4, June 6 (Annual)  Benzene micro gm/m3 IS 5182 (Part 11) 5 (Annual)  Benzo(a)Pyrene ng/m3 IS 5182 (Part 12) 1 (Annual)  Lead (as Pb) micro gm/m3 USEPA-IO 3.4, June 1 (24 Hours)  Manganese as Mn micro gm/m3 USEPA-IO 3.4: June Not Specified	

Opinion:

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Reviewed By

Designation Technical In charge Authorized Sign

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 enalysis (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 meanved part of sample(s) for chemical analysis (Soil, Soild & Liquid Wester) shall be retained for 15 days as per CPG8 guideline & (Air) 1 month from the sale 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.

Strachi Centre (5th Ploor), 748, A.J.C. Bose Road, Kolkalia -700016, West Bengal, India. Tel. :91 33 40143000 / 22650007 Fax: 91 33 22650008 Edwil: Info@mitrask.com Websile: www.nstrask.com Head Office:

Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





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## Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

### **TEST REPORT**

Report No. :

MSKGL/ED/2023-24/004960

Date: Sample No. :

27/02/2024 MSKGL/ED/2023-24/02/00901

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)	Barnebari Iron & Mn. Mines	
4. Date of sampling	20/02/2024	
5. Place of sampling		
6. Environmental conditions during sampling & Transport	Near Back Filling Vand-BIMM	
7. Sampling Plan & Method used	Clear & Sunny NA	

Report No.: MSKGL/ED/2023-24/004960

Sample No.: MSKGL/ED/2023-24/02/00901

#### RESULT

nalysis Result of Ambient Air						
Si No.	Parameter	NOM	Method	Limit	Result	
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	7.4	
2	Arsenic (As)	ng/m3	TPM/MSK/ENV(AP)/01/15 (0)	6 ANNUAL	17.8	
3	Benzene (C6H6)	micro gm/ma	IS: 5182 (Part 11) (O)	5 ANNUAL	NA.	
4	Berizo(a)Pyrone (BaP)	ng/m3	IS: 5182 (Part 12) (O)	1 ANNUAL	NA.	
5	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (O)	2 8HR	NA.	
6	Lead (Pb)	micro gm/m3	EPA -IO3,2 June, 1999 (O)	1 24 HR	0.67	
7	Nickel (Ni)	ng/m3	EPA-IO3.2 -June,1999 (O)	20 ANNUAL	NA NA	
8	Nitrogen Diaxide (NO2)	micro gm/m3	IS: 5182 (Part 6)_(O)	80 24 HR		
9	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	19.1	
10	Particulate Matter (<10um)	micro grn/m3	IS: 5182 (Part 23)_(O)	100 24 HR		
11	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR.	168	
12	Sulphur Dioxide (SO2)	micro gm/m3	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 7044036120

Email: udayanlab@mitrask.com





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MSKPL/ED/2023-24/R13A92

MSKNB/ED/2023-24/02/MK3714

ULR: TC-695024000003201F

Doc No.: MSKIGEN/19/07

## Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AVPo. - 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:

22/02/2024 22/02/2024 - 02/03/2024

02/03/2024

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	The second secon
2. Description of sample	Atmospheric Pollution
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA NA
5. Place of sampling	20/02/2024
	Near Shorting Yard-BIMM
5. Environmental conditions during sampling & Transport	1) Temperature : 19-29 deg C 2) Recometric Pressure: 700 711 012
, Sampling Plan & Method used	135 G Sona Codin Manna neo
I Identification of the association	IS:5182(P-11,12) & USEPA
3. Identification of the personnel performing sampling by MSK 3. Field Equipments Used	Pranab Sethi
- Field Equipments Used	MSK/BBL/FIELD/RDS-12

Report No.: MSKPL/ED/2023-24/R13A92

Sample No.: MSKNB/ED/2023-24/02/MK3714

#### RESULT

Chemical					
SI No.	Parameter	UOM	Method	Limit	1 87/
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June		Result
2	Benzene	The second second second	the second secon	6 (Annual)	BDL(DL-1.0)
3	Benzo(a)Pyrene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
	C. Landerson and C. Control	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL.0.5)
-	Lead (as Pb )	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June		BDL(DL:0.01)
6	Nickel as Ni	ng/m3		Not Specified	0.10
pinion:	Limit as per COC		USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END -

Reviewed By:

Signature

Dr. Devottem Blair

Technical in charge

Servetore

Technical in charge

The results relate only to the item(a) leated
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The resurved part of sample(s) for chamical positysis (Non - perishable sample(s) Food, Wester) 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 (Soil, Solid & Liquid Wasie) shall be retained for 15 days as per CPCS guideline & (Air) 1 month from the date of lesse of the Test Report.

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

Strechi Centre (5th Floor), 748, A.J.C. Bose Road, Kolkatu - 700016, West Bengal, India. Tel.: 91:33:40143000 / 22650007 Fax: 91:33:22950008 Email: wfo@mitrael.com Website: www.mitraels.com

#### Address of Branch:

P.O. Barbil Dt Keonitrar Orissa 758 035





Scan for Portal

### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

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

### **TEST REPORT**

Report No. :

Date:

MSKGL/ED/2023-24/004961

27/02/2024

Sample No. :

MSKGL/ED/2023-24/02/00897

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)	Barnebari tron & Mn. Mines	
4. Date of sampling	20/02/2024	
5. Place of sampling	Near Shorting Yard-BIMM	
5. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA NA	

Report No.: MSKGL/ED/2023-24/004961

Sample No.: MSKGL/ED/2023-24/02/00897

#### RESULT

SI No.	Parameter	Itmes	A CONTRACTOR OF THE PARTY OF TH		1
Di NO.	ratameter	MOU	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	12.2
2	Arsenic (As)	ng/m3	TPM/MSK/ENV(AP)/01/15_(O)	6 ANNUAL	NA
3	Benzene (C6H6)	micro gm/m3	IS: 5182 (Part 11)_(O)	5 ANNUAL	NA.
4	Benzo(a)Pyrene (BaP)	Em/gn	IS: 5182 (Part 12)_(O)	1 ANNUAL	NA.
5	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (O)	2 8HR.	0.52
6	Lead (Pb)	micro gm/m3	EPA-IO3.2 June, 1999 (O)	1 24 HR	NA
7	Nickel (Ni)	ng/m3	EPA-IO3,2 -June,1999_(O)	20 ANNUAL	NA.
8	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6) (O)	80 24 HR.	22.6
9	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	<20.0
10	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	100 24 HR.	108
11.	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR.	52
12	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2)_(0)	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, Pagladanga Road, Kolkata 700015 West Bengal

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







ULR: TC-695024000003537F

Doc No: MSKIGEN/19/07

#### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AVPo. - Joda, Dist. - Keorijhar, 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/G13C0S

06/03/2024

MSKNB/ED/2023-24/02/0B482P

29/02/2024

29/02/2024 - 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	
3. Unique Identification of sample(if any)	Ambient Air
Date of sampling	NA .
5. Place of sampling	26/02/2024
	Near Project Office BIMM
6. Environmental conditions during sampling & Transport	1) Temperature :19-35 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall
7. Sampling Plan & Method used	No a Cold Chain Maintained
I. Identification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA
). Field Equipments Used	Kshitish Kumar Mohanty
The additional Capa	MSK/BBL/FIELD/RDS-5

Report No.: MSKPL/ED/2023-24/G13C0S

Sample No.: MSKNB/ED/2023-24/02/0B482P

#### RESULT

Chemical					
SI No.	Parameter	UOM	Method	Limit	Provide Contract of the Contra
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June		Result
2	Benzene	micro gnv/m3	IS 5182 (Part 11)	6 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene	9		5 (Annual)	BDL(DL:4.2)
A .		ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
-	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	
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June		0.13
Opinion:	limit as not CDC		19th November 2000 4	20 (Annual)	BDL(DL:5.0)

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END.

Rayimend By

Signature

Neme

Designation

Technical in Charge

Authorized Signator

Dr. Devoltam Banerjee

Dasignation

Technical in Charge

The results retain only to the semis) tented
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The reserved part of sample(s) for chemical analysis (Non - pershable sample(s) Food, Weter) shall be retained for 15 days from the date of issue of the Test Report.
The reserved part of sample(s) for chemical analysis (Soil, Soild & Liquid Wester) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

Shrachi Centre (5th Floor), 748, A.J.C. Bose Road, Klakata - 700016, Wast Bengal, India. Tel.: 91 33 40145000 / 22650007 Fax: 91 33 22650006 Email: Info@mitrask.com Website: www.mitrask.com Head Office:

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

#### Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





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#### TEST REPORT

Name & Address of Customer: Report No.:

Tata Steel Ltd.(MGM) Joda West Date:

MSKGL/ED/2023-24/005011

Date: 05/03/2024

Sample No.: MSKGL/ED/2023-24/02/01151

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)	Barnebari Iron & Mn. Mines BIMM	
4. Date of sampling	26/02/2024	
5. Place of sampling	Near Project Office BIMM	
5. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA NA	

Report No.: MSKGL/ED/2023-24/005011

Sample No.: MSKGL/ED/2023-24/02/D1151

#### RESULT

SI No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	18.6
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10)_(O)	2 BHR.	0.57
3	Nitrogen Dioxide (NO2)	micro gn/m3	IS: 5182 (Part 6) (O)	80 24 HR	21.5
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.	215
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HR.	104
7	Sulphur Dioxide (SO2)	micro gm/m3	(S: 5182 (Part 2) (O)	80 24 HR.	7,5

---- END ----

Report Verified By

Head Office:



For Mitra S. K. Private Limited
Bhoudhary

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







ULR: TC-695024000003539F

Doc No. MSK/GEN/19/07

TESTING # INSPECTION

### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AVPo. - Joda, Dist. - Keonihar, 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/U13C1H

06/03/2024

MSKNB/ED/2023-24/02/3A4805

29/02/2024

29/02/2024 - 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	The state of the s
2. Description of sample	Atmospheric Pollution
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA NA
5. Place of sampling	26/02/2024
	Near Shorting Yard BIMM
3. Environmental conditions during sampling & Transport	1) Temperature :19-35 deg C 2) Recometric Description 743
. Sampling Plan & Method used	
Identification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA
P. Field Equipments Used	Kshitish Kumar Mohanty
- Andrews Good	MSK/BBL/FIELD/RDS-9

Report No. : MSKPL/ED/2023-24/U13C1H

Sample No.: MSKNB/ED/2023-24/02/3A4805

#### RESULT

Chemical			KESULI		
SI No.	Parameter	NOM	Method	4114	1
1	Arsenic as (As)	ng/m3		Limit	Result
2	Benzene		USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
4	Lead (as Pb )	ng/m3	IS 5182 (Part 12)	† (Annual)	BDL(DL:0.5)
5		micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
6	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June	Not Specified	
	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	0.13
pinion:	Limit as per CPC	B notification New Dath	I. 18th November 2009, for a me	zo (Annual)	BDL(DL:5.0)

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END

Reviewed By:

Signation Name

Designation

Dr. Devotiam Barverje

Technical In Charge

Authorized Signistory

Secretary

Designation -

Technical in Charge

The results retate only to the item(s) tested

The resture retire only to the except rested.
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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be returned for 15 days from the class of issue of the Test Report. Penshable sample(s) shall be externed 2 days from the class of issue of the Test Report.

The reserved part of sample(s) for chamical analysis (Soil, Solid & Liquid Whatle) shall be relatived for 15 days as per CPCB guideline & (Air) 1 month from the date of issue of the Test Report.

Head Office:

Streich Centre (5th Floor), 74B, A.J.C. Bote Road, Kolkata - 700016, West Bengal, India Tel. 91 33 40143000 / 23650007 Fas. 91 33 72650008 Email ; info@mitrask.com Website ; www.mitrask.com

Address of Branch ;

P.O. Barbil DI Keonjhar Orissa 758 035





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### Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

At/Po. - Joda, Dist. - Keonjhar, Odishu - 758034 India Pin

## **TEST REPORT**

Reference No. & Date :

Report No. :

Date:

MSKGL/ED/2023-24/005008

02/03/2024

Sample No. :

MSKGL/ED/2023-24/02/01153

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)	Bamebari Iron & Mn. Mines BIMM
4. Date of sampling	26/02/2024
5. Place of sampling	
5. Environmental conditions during sampling & Transport	Near Shorting Yard BIMM
7. Sampling Plan & Method used	Clear & Sunny
The first of manage pages	NA NA

Report No.: MSKGL/ED/2023-24/005008

Sample No.: MSKGL/ED/2023-24/02/01153

#### RESULT

SI No.	Parameter	UOM	44.46.1.2	1	_
4	A Company	OOM	Method	Limit	Result
0	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	15,0
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10) (O)	2 8HR.	
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6) (O)		0.54
4	Ozone (O3)	micro gm/m3		80 24 HR	18.7
5	Particulate Matter (<10um)		IS 5182 (Part 9)	180.1 HR.	BDL(DL:20.0)
6		micro gm/m3	IS: 5182 (Part 23)_(O)	100 24 HR.	215
2	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HR.	106
1	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2) (O)	80 24 HR	7.7

---- END ----

Report Verified By

**Head Officet** 

For Mitra S. K. Private Limited

Braudhary

Authorised Signatory

Strachi Cestre (Sti Floor), 749, A.J.C. Bose Roed, Kelkata - 700016, West Bengal, India. Tel.: 91:33 40143000 / 27650007 Pax: 91:33 22660000 Email: edolgretmak.com Website: www.mitrak.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





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ULR: TC-695024000003538F

Doc No. MSK/GEN/19/07

TESTING . INSPECTION

### Name & Address of Customer:

Tala Steel Ltd (MGM)\_Joda West

AVPo. - 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/2023-24/813C14

06/03/2024

MSKNB/ED/2023-24/02/0Y47DQ

29/02/2024

29/02/2024 - 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 Delta !
2. Description of sample	Atmospheric Pollution
Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA PONTO INC.
5. Place of sampling	26/02/2024
6. Environmental conditions during sampling & Transport	Near Weigh Bridge BIMM  1) Temperature :19-35 deg C 2) Barometric Pressure: 712 mm of Hg 3) Rain fall
7. Sampling Plan & Method used	No & Cold Chain Maintained IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Kshitish Kumar Mohanty
9. Field Equipments Used	MSK/BBL/FIELD/RDS-11

Report No.: MSKPL/ED/2023-24/813C14

Sample No.: MSKNB/ED/2023-24/02/0Y47DQ

### RESULT

Chemical					
SI No.	Parameter	UOM	Method	Limit	Permit
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June		Result
2	Benzene	micro gm/m3	IS 5182 (Part 11)	6 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene	na/m3	IS 5182 (Part 12)	5 (Annual)	BDL(DL:4.2)
4	Lead (as Pb.)	micro gm/m3	USEPA-IO 3.4, June	1 (Annual)	BDL(DL:0.5)
5	Manganese as Mn	micra gm/m3	USEPA-IO 3.4; June	1 (24 Hours)	BDL(DL:0.01)
6	Nickel as Ni			Not Specified	0.37
Opinion :		ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Reviewed By:

Seprenture Name

Dr. Dilyottam Barrages

Designation Technical in Charge Authorized Signatory

Signature

Designation

Technical In Charge

The results retate only to the dam(s) tested.

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This reserved part of sample(s) for chemical analysis (Non - periotiable sample(s) Food. Water) shall be reliaised 2 days. Train the date of issue of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Soild & Liquid Wassio) shall be retained for 15 days as per CPCB guidaline & (Air) 1 month from the date of issue of the Test Report.

Head Office:

Shrachi Carpre (Str. Floor), 748, A.J.C. Bose Road, Kolkera - 700015, West Bengol, India Fel. 91 33 40143000 / 22650007 Fax: 91 33 22550006 Email: Info@mitrask.com Website: www.mitrask.com

Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

TEST REPORT

Report No. :

MSKGL/ED/2023-24/005010 Date: 05/03/2024

Sample No.:

MSKGL/ED/2023-24/02/01152

Reference No. & Date :

3000156017/056, Date - 15/09/2023

We hereby cartify that the following sample Drawn by us has been analyzed with the fo

1. Group	AIR
2. Description of sample	
3. Unique Identification of sample(If any)	Ambient Air
4. Date of sampling	Barnebari Iron & Mr. Mines (BIMM)
5. Place of sampling	26/02/2024
6. Environmental conditions duty	Near Weigh Bridge BIMM
Environmental conditions during sampling & Transport     Sampling Plan & Method used	Clear & Sunny
rian a method used	NA.

Report No.: MSKGL/ED/2023-24/005010

Sample No.: MSKGL/ED/2023-24/02/01152

#### RESULT

SI No.	Parameter	UOM	44.4	1	-
1	Ammonia (NH3)		Method	Limit	Result
2	Carbon Monoxide (CO)	micro gm/m3	IS 5182 (Parl 25)	400 24 HR.	16.0
3		mg/m3	IS: 5182 (Part 10)_(O)	2 8HR	0.45
4	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6) (O)	80 24 HR.	
-	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)		17.2
5	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	180 1 HR.	BDL(DL:20.0
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	100 24 HR.	206
7	Sulphur Dioxide (SO2)	micro gm/m3		60 24 HR.	102
		T weeks Briston	IS: 5182 (Part 2)_(O)	80 24 HR.	7.1

END -

Report Verified By

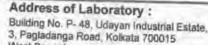
Head Office:

For Mitra S. K. Private Limited ( Shawothans **Authorised Signatory** 

Strachs Centre (bth Fkmz), 74B, A.J.C. Bose Rose, Kokata - 700016, West B. — it tribs Tel : 91.33-401430007/2260007 Fax: 91.33 22650006 Email : eduginezaşk.com Wutsito : www.mitrask.com

DOCNO MSKIGEN/19/07





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





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ULR: TC-695024000003543F

## 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:

29/02/2024 29/02/2024 - 06/03/2024

MSKPL/ED/2023-24/Q13C1R

MSKNB/ED/2023-24/02/SB47EY

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

06/03/2024

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

1. Group	
2. Description of sample	Atmospheric Pollution
Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA NA
5. Place of sampling	26/02/2024
	Near Back Filling Yard Barnebari
6. Environmental conditions during sampling & Transport	1) Temperature: 19-35 deg C 2) Barometric Pressure: 742 mm - 111-31 mm
7. Sampling Plan & Method used	TOO O COMBIN MAINTAINED
I. Identification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA
9. Field Equipments Used	Kshitish Kumar Mohanty
	MSK/BBL/FIELD/RDS-13

Report No.: MSKPL/ED/2023-24/Q13C1R

Sample No.: MSKNB/ED/2023-24/02/SB47EY

#### RESULT

Chemical					
SI No.	Parameter	UOM	Method	Limit	1
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June		Result
2	Benzene			6 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4,2)
		ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
-	Lead (as Pb )	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	The second secon
5	Manganese as Mn	mícro gm/m3	USEPA-IO 3.4: June		BDL(DL:0.01)
6	Nickel as Ni	ng/m3		Not Specified	0.10
Opinion:	(imit as net CDC		USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Limit as per CPCB notification, New Delhi. 18th November 2009, for Ambient air quality

Statement of Conformity NA

END -

PERVIPWING BY

Signature

2 Ban Dr. Devottam Banerje

Technical in Charge

Authorized Sign

Or. Devottom Banerjes

Technical in Charge

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The reserved part of sample(s) for chanscal analysis (Soil, Solid & Liquid Wests) shall be returned for 15 days as per CPC8 guideline & (Air) 1 month from the date of issue of the Test Report.

Head Office:

Shrachi Centre (Stil Floor), 74B, A.J.C. Bose Road, Kofkata -700016, West Bengal, India. Tel. 91 33 40143000 / 22650007 Pax: 91 33 22650008 Email Info@mitrask.com Website: www.mitrask.com

Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

TEST REPORT

Reference No. & Date :

Report No. :

Date:

Sample No.:

MSKGL/ED/2023-24/005006

02/03/2024

MSKGL/ED/2023-24/02/01157

3000156017/056, Dale - 15/09/2023

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

1. Group	AIR
2. Description of sample	
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Barnebari Iron & Mn. Mines BIMM
5. Place of sampling	26/02/2024
	Near Back Filling Yard Barnebari
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA NA

Report No.: MSKGL/ED/2023-24/005006

Sample No.: MSKGL/ED/2023-24/02/01157

#### RESULT

SI No.	Parameter	UOM	Method		
1:	Ammonia (NH3)	micro gm/m3		Limit	Result
2	Carbon Monoxide (CO)		IS 5182 (Part 25)	400 24 HR.	12.7
13		mg/m3	IS: 5182 (Part 10)_(O)	2 8HR.	0.51
4	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6)_(O)	80 24 HPL	20.9
-	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	
D	Particulate Matter (<10um)	micra gm/m3	IS: 5182 (Part 23)_(O)		BDL(DL:20.0)
6	Particulate Matter (<2.5um)	micro gm/m3		100 24 HR.	179
7	Sulphur Dioxide (SO2)		(S 5182 (PT-24),2019 (O)	60 24 HR.	89
	Colpital Dioxide (SOZ)	micra gm/m3	(S: 5182 (Part 2) (O)	80 24 HR.	7.5

END

Report Verified By

Head Office:

For Mitra S. K. Private Limited ashandhang Authorised Signatory

Shouth Centre (5th Floor), 74B, A.J.C. Bose Road, Kolista - 760016, West Bengal, India Tel.: 91 33 40143000 / 22650007 Fax - 91 33 22650009 Email: artisginalmak.com/Website: www.mitrask.com

Doc No.: MSK/GEN/19/07





Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

West Bengal

Tel.: +91 7044036120

Email: udayanlab@mitrask.com





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ULR: TC-695024000003545F

## 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/2023-24/713C1Z

06/03/2024

MSKNB/ED/2023-24/02/7M4924

29/02/2024

29/02/2024 - 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:

Group  1. Group	The state of the s
2. Description of sample	Atmospheric Pollution
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA NA
5. Place of sampling	27/02/2024
	Near Weigh Bridge BIMM
5. Environmental conditions during sampling & Transport	1) Temperature: 17-29 deg C 2) Barometric Dec
. Sampling Plan & Method used	No & Cold Chain Maintained
Identification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA
. Field Equipments Used	Pratik Kumar Mantri
	MSK/BBL/FIELD/RDS-11

Report No.: MSKPUED/2023-24/713C1Z

Sample No.: MSKNB/ED/2023-24/02/7M4924

#### RESULT

Chemical			RESULT		
Si No.	Parameter	NOM	Method	15.7	
1	Arsenic as (As)	ng/m3	0.000	Limit	Result
2	Benzene	The state of the s	USEPA-IO 3,4, June	6 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
4	Lead (as Pb.)	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
6	Nickel as NI	micro gm/m3	USEPA-IO 3.4: June	Not Specified	0.10
pinion:		B notification Naw Date	USEPA-IO 3.4, June	20./4	BDL(DL:5.0)

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END

Technical in Charge

Authorized Signatory

Designation Technical in Charge

tile results relate only to the flemi(s) tested.

Test Report and not be reproduced except in suit, we nout the permission of Mitra S.K. Private Limited, in results related by a first results and suit of the Test Report. Permission analysis (Non--permission analysis (Non--permission analysis (Non--permission analysis (Non--permission analysis (Non--permission analysis) for chemical analysis (Sos, Solid & Liquid Weste) shall be retained for 15 days as per CPCB quideline 5 (Air) 1 mores from the date of issue of the Test Report.

Test Report.

Test Report.

Strach Centre (Sir Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India Tel: 91:33:40143000 / 22650007 Pax: 91:33:22650008 Email: infa@mitrask.com Wabsac: www.mitrask.com

so results relate only to the fam(s) tested.

## Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





Scan for Portal

# Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po, - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

# TEST REPORT

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/005017

05/03/2024

MSKGL/ED/2023-24/02/01159

3000156017/056, Date - 15/09/2023

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

Group     Bescription of sample	AIR
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Barnebari Iron & Mn. Mines BIMM
5, Place of sampling	27/02/2024
6. Environmental conditions during sampling & Transport	Near Weigh Bridge BIMM
7. Sampling Plan & Method used	Clear & Sunny
and the same of th	NA NA

Report No.: MSKGL/ED/2023-24/005017

Sample No. ; MSKGL/ED/2023-24/02/01159

#### RESULT

SI No.	Parameter	NOM	M 12. 12	-	
1	Ammonia (NH3)		Method	Limit	Result
2	Carbon Monoxide (CO)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	
3		mg/m3	IS: 5182 (Part 10) (O)	2 8HR,	15.4
	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6) (O)		0.39
*	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	80 24 HR	23.0
5	Particulate Matter (<10um)	micro gm/m3	(S: 5182 (Part 23) (O)	180 1 HR.	BDL(DL:20.0
6	Particulate Matter (<2.5um)	micro gm/m3		100 24 HR.	189
7	Sulphur Dioxide (SO2)		IS 5182 (PT-24),2019_(O)	60 24 HR.	83
		micro gm/m3	IS: 5182 (Part 2)_(0)	80 24 HR	6.4

---- END ----

Report Verified By (18 6

For Mitra S. K. Private Limited
Blandhay

Authorised Signatory

Head Office:

Structil Centry (Sin Plazz), 748, A.J.C. Bose Road, Kolkata - 700016. West Hengal, India Tel. (91.33.45143000) 22550007 Fax: 91.33.22550009. Cmall Info@pstrask.com Wattatle: 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







DOC NO: MSK/GEN/19/07

TESTING & INSPECTION

Scan for Portal

ULR: TC-695024000003550F

#### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AVPo. - 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/R13C13

06/03/2024

MSKNB/ED/2023-24/02/XL4939

29/02/2024

29/02/2024 - 06/03/2024

Permanent Facility

3000156017/056, Date - 15/09/2023

Chemical

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

1. Group	The state of the s
2. Description of sample	Atmospheric Pollution
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA NA
5. Place of sampling	27/02/2024
	Near Back Filling Yard Barnebari
6. Environmental conditions during sampling & Transport	1) Temperature :14-28 deg C 2) Barometric Pressure: 713 mm of Hg 3) Rain fall
7. Sampling Plan & Method used	No & Cold Chain Maintained
Identification of the second	IS:5182(P-11,12) & USEPA
Identification of the personnel performing sampling by MSK     Field Equipments Used	Pratik Kumar Mantri
er iens Equipments used	MSK/BBL/FIELD/RDS-13

Report No.: MSKPL/ED/2023-24/R13C13

Sample No.: MSKNB/ED/2023-24/02/XL4939

#### RESULT

Chemical					
SI No.	Parameter	UOM	Method	Main	
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	Limit	Result
2	Benzene	12.00 (1.00 (		6 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
2		ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
-	Lead (as Pb )	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June		BDL(DL:0.01)
6	Nickel as NI	ng/m3		Not Specified	0.10
pinion:	limit as per COC		USEPA-IO 3.4, June	20 (Annual)	BDL(DL 5.0)

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

- END -

Reviewed By:

Signature

Niene Designation

Technical in Charge

Authorized Signatory.

Strature

Dr. Deyottum Barwy

Designation

Technical in Charge

The results relate only to the dam(s) healed.
This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.

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

The reserved part of sample(s) for chamboal enalysis (Soil, Soild & Liquid Waste) shall be interest for 15 days as per CPCB guideline & (Ae) 1 month from the date of issue of the Test Report. The reserved part of sample(s) for Microbiological analysis (Non - penalysis) Food, Snated Water, Seeled food) shall be retained for 15 days from the date of issue of the Test Report.

Shraichi Centre (5th Floor), 74B, A.J.C. Bose Roset, Kolkular -700016, West Bengol, India. Tel. 91 33 40143000 / 22650007 Fax: 91 33 22650008

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

Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





Scan for Portal

# Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odesha - 758034 India Pin

# TEST REPORT

Reference No. & Date :

Report No. :

Sample No.:

Date :

MSKGL/ED/2023-24/005007

02/03/2024

04100F2024

MSKGL/ED/2023-24/02/01164

3000156017/056, Date - 15/09/2023

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

1. Group	AIR AIR
2. Description of sample	
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Barnebari Iron & Mn. Mines BIMM
5. Place of sampling	27/02/2024
6. Environmental conditions duri	Near Back Filling Yard Barnebari
5. Environmental conditions during sampling & Transport 7. Sampling Plan & Method used	Clear & Sunny
- Sampling Fill & Method Used	NA.

Report No.: MSKGL/ED/2023-24/005007

Sample No.: MSKGL/ED/2023-24/02/01164

#### RESULT

SI No.	Parameter	UOM	****	1	-
1	Ammonia (NH3)		Method	Limit	Result
2		micro gm/m3	IS 5182 (Part 25)	400 24 HR	13.2
3	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10)_(O)	2 8HR.	
	Nitrogen Dioxide (NO2)	micro gm/m3	(S: 5182 (Part 6)_(O)		0.55
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	80 24 HR.	19.0
5	Particulate Matter (<10um)	micro gm/m3		180 1 HR.	BDL(DL:20.0)
6	Particulate Matter (<2.5um)		IS: 5182 (Part 23)_(O)	100 24 HR.	169
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HR.	80
	anyma Cooking (SOS)	micro gm/m3	IS: 5182 (Part 2) (O)	80 24 HR	6,9

---END-

Report Verified By

Head Office:



For Mitra S. K. Private Limited Whandhang

Authorised Signatory

DOC NO.: MSK/GEN/19/07





Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

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

Name & Address of Customer:

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

Tata Steel Ltd.(MGM)\_Joda West



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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/K13C1U

ULR: TC-595024000003546F

06/03/2024

MSKNB/ED/2023-24/02/C0490V

29/02/2024

29/02/2024 - 06/03/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

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

2. Description of sample	Atmospheric Pollution	
3. Unique Identification of sample(if any)	Ambient Air	
4. Date of sampling	NA NA	
5. Place of sampling	27/02/2024	
6. Environmental conditions during sampling & Transport	Near Shorting Yard BIMM  1) Temperature: 19-29 dea C 2) Personal III	
. Sampling Plan & Method used	Temperature : 19-29 deg C 2) Barometric Pressure: 707 mm of Hg 3) Rain No & Cold Chain Maintained     IS:5182(P-11,12) & USEPA	
I. Identification of the personnel performing sampling by MSK  I. Field Equipments Used	Pratik Kumar Mantn MSK/BBL/FIELD/RDS-12	

Report No.: MSKPL/ED/2023-24/K13C1U

Sample No.: MSKNB/ED/2023-24/02/C0490V

#### RESULT

SI No.	Parameter	UOM	*****		
1	Arsenic as (As)		Method	Limit	Result
2	Benzene	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	The second second
4		ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:4.2)
5	Lead (as Pb )	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.5)
6	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June	Not Specified	BDL(DL-0.01)
	Nickel as Ni	ng/m3	USEPAJO 3 4 June	PR CA	0.20
pinion :			USEPA-IO 3.4, June i, 18th November 2009, for Amb	PR CA	BDL(DL:5

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Technical in Charge

Authorized Signatory

Dr. Devottam Banerjee

Technical in Charge

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In Test Report shall not be reproduced except in full, without the permission of Miles S.K. Private Limited.

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In Test Report Pertainable sample(s) for chemical analysis (Non - pershable sample(s) Food, Water) shall be retained for 15 days from the case of the Test Report. Pertainable sample(s) shall be retained 2 days.

in the date of issue of the Test Report. in reserved part of sample(s) for chemical energy (Soit, Soila & Liquid Weste) shall be retained for 15 days as per CPCB guideline 5 (Air) 1 month from the date of issue of the Test Report, as reserved part of sample(s) for Microbiological enarysis (Non - perishable sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report. ead Office: Shraichi Ceptre (5th Floor), 748, A.J.C. Bose Road, Kofitata - 700016, West Bengal, India Tel: 91.33.40143000 / 22650007 Fax: 91.33.22650008 Email: info@mitrank.com Webste; lever.mitrask.com

Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





Scan for Portal

Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odísha - 758034. India Pín

TEST REPORT

Reference No. & Date :

Report No. :

Date:

05/03/2024

Sample No. :

MSKGL/ED/2023-24/02/01160

MSKGL/ED/2023-24/005013

3000156017/056, Date - 15/09/2023

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

2. Description of sample	AIR
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Barnebari Iron & Mn. Mines BIMM
5. Place of sampling	27/02/2024
6. Environmental conditions during sampling & Transport	Near Shorting Yard BIMM
7. Sampling Plan & Method used	Clear & Sunny
Trained many	NA NA

Report No.: MSKGL/ED/2023-24/005013

Sample No.: MSKGL/ED/2023-24/02/01160

#### RESULT

SI Na.	Parameter	UOM		_	
1	Ammonia (NH3)		Method	Limit	Result
2	Carbon Monoxide (CO)	micro gm/m3	1S 5182 (Part 25)	400 24 HR.	
3	Nitrogen Dioxide (NO2)	mg/m3	15: 5182 (Part 10)_(O)	2 8HR	19.6
4		micro gm/m3	IS: 5182 (Part 6) (O)	80 24 HR.	0.48
5	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)		23,1
-	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	180 1 HR.	BDL(DL:20.0)
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	100 24 HR.	196
7	Sulphur Dioxide (SO2)	micro gm/m3		60 24 HR	94
		The Same	IS: 5182 (Part 2) (O)	80 24 HR.	7.8

----END ----

Report Verified By

For Mitra S. K. Private Limited

Blandhang 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







DOI: No.: MSK/GEN/19/07

TESTING . INSPECTION

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ULR: TC-695024000003544F

# Name & Address of Customer:

Tala 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/X13C1U

06/03/2024

MSKNB/ED/2023-24/02/1K48EQ

29/02/2024

29/02/2024 - 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		
2. Description of sample	Atmospheric Pollution	
3. Unique Identification of sample(if any)	Ambient Air	
Date of sampling	NA NA	
5. Place of sampling	27/02/2024	
. Environmental conditions during sampling & Transport	Near Project Office BIMM  1) Temperature :14-28 dec C 2) Provincial	
Sampling Plan & Method used	1) Temperature :14-28 deg C 2) Barometric Pressure: 713 mm of Hg 3) Rain fall No & Cold Chain Maintained	
Identification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA	
Field Equipments Used	Pratik Kumar Mantri	
T. P. Salvinia and H.	MSK/BBL/FIELD/RDS-5	

Report No.: MSKPL/ED/2023-24/X13C1U

Sample No.: MSKNB/ED/2023-24/02/1K48EQ

#### RESULT

Chemical			KESOLI		
SI No.	Parameter	HOM	Method		-
1	Arsenic as (As)	-		Limit	Result
2	Benzene	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
3		micro gm/m3	IS 5182 (Part 11)	5 (Annual)	
4	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:4.2)
	Lead (as Pb )	micro gm/m3	USEPA-IO 3.4, June		BDL(DL:0.5)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June	1 (24 Hours)	BDL(DL:0.01)
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	Not Specified	0.13
pinion:	Limit as per CPC		1, 18th November 2009, for Amt	20 (Annual)	BDL(DL:5.0)

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END-

Reviewed By:

Signature

Dr. Devottem Bane

Technical In Charge

Authorized Signatory

Dr. Divuttam Banenec Tectvacal in Charge

te results relate only to the term(s) tested:
six Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
six maserved part of sample(s) for chargical analysis (Non - parishable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Peristiable sample(s) shall be retained 2 days
an the date of issue of the Test Report.

as massived part of sample(s) for chamical enalysis (Soil, Solid & Liquid Wester) shall be retained for 15 days as per CPCB guideline & (Air) if month from the clare of same of the Test Report, is reserved part of sample(s) for Microbiological analysis (Non - perishable sample(s) Food, Solided Water, Sealed food) shall be retained for 15 days from the clare of issue of the Test Report.

Shriichi Cerère (5th Floor), 748, A.J.C. Bose Road, Kolkets -700016, West Bengal, India. Tell : 91 33-40143000 / 32650007 Fax : 91 33 32650008 Email : #00@ml/rask.com Website : www.mitrask.com



Address of Branch:

P.O. Barbii Dt Keonjhar Orissa 758 035



## TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No.:

Date:

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/005012

05/03/2024

MSKGL/ED/2023-24/02/01158

3000156017/056, Date - 15/09/2023

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

ve heruby centry that the tollowing some areas of	AIR
1. Group	Ambient Air
2. Description of sample	Barnebari Iron & Mn. Mines BIMM
3, Unique Identification of sample(if any)	27/02/2024
4. Date of sampling	Near Project Office BIMM
5. Place of sampling	Clear & Sunny
6. Environmental conditions during sampling & Transport	
7. Sampling Plan & Method used	NA .

Report No.: MSKGL/ED/2023-24/005012

Sample No.: MSKGL/ED/2023-24/02/01158

#### RESULT

nalysis F	nalysis Result of Ambient Air					
SI No.	Parameter	LIOM	Method	Limit	Result	
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	14.7	
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10)_(O)	2 BHR.	0.42	
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6)_(O)	80 24 HR.	19.4	
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)_(O)	100 24 HR.	203	
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR.	95	
7	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2)_(O)	80 24 HR.	7.2	

- END

Report Verified By



For Mitra S. K. Private Limited ( Bhoudhay

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





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ULR: TC-695024000003575F

Dioc No MSK/GEN/19/07

TESTING . INSPEDTIO

# TEST REPORT

Report No.: Name & Address of Customer: Date: Tata Steel Ltd (MGM)\_Joda West

Sample No. :

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/D13C1M

06/03/2024

MSKNB/ED/2023-24/03/2U613P

02/03/2024

02/03/2024 - 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:

Ve hereby certify that the following sample are the system of	Atmospheric Pollution
1. Group	Ambient Air
2. Description of sample	NA .
3. Unique Identification of sample(if any)	28/02/2024
4. Date of sampling	Mary Resident Office Plants
5. Place of sampling	Near Project Office Shifted     The Project Office Shifte
6. Environmental conditions during sampling & Transport	No & Cold Chain Maintained
	IS:5182(P-11,12) & USEPA
7. Sampling Plan & Method used	Pranab Sethy, Pratik Mantri, Akash Sethy
8. Identification of the personnel performing sampling by MSK	MSK/BBL/FIELD/RDS-5
9. Field Equipments Used	7000

Report No.: MSKPL/ED/2023-24/D13C1M

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

Sample No.: MSKNB/ED/2023-24/03/2U613P

### RESULT

Chemical					
SI No.	Parameter	UOM	Method	Limit	Result
31 140.	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
1		micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
2	Benzene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
3	Benzo(a)Pyrene		USEPA-IO 3.4, June	1 (24 Hours)	0.02
4	Lead (as Pb )	micro gm/m3	USEPA-IO 3.4: June	Not Specified	0.13
5	Manganese as Mn	micro gm/m3			BDL(DL:5.0)
8	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	DDL(DLD.D.D

Opinion:

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

NA Statement of Conformity

- END -

Revewed By

Signature

Dr. Devottem Banery Name Technical In Charge Dangration

Authorized Signatory

Dr. Devottem Benen

Technical In Charge

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

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The reserved part of sample(s) for chamical example(s) shall be retained for 15 days from the dilet of issue of the Test Report. Penahable 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 Wasse) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of eause of the Test Report.
The reserved part of sample(s) for chemical analysis (Non - peristable sample(s) Food. Sealed Water, Sealed food) shall be retained for 15 days from the date of eause of the Test Report.

Head Office: Email: info@mirask.com Website: www.mirask.com

Strach Cerks (5th Floor), 748, A.J.C. Bose Road, Kolkets -700016, Wast Bengal, India. Tel: 91 33 40143000 / 22650007 Fax: 91 33 23650008



Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035



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# Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

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

## **TEST REPORT**

Report No.:

Sample No.:

Date:

MSKGL/ED/2023-24/005060

05/03/2024

MSKGL/ED/2023-24/03/00001

3000156017/056, Date - 15/09/2023

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

te nereby certify that the following sample Drawn by us nes been arms	AIR
1. Group	Ambient Air
2. Description of sample	Barnebari Iron & Mn Mines BIMM
3. Unique Identification of sample(if any)	28/02/2024
4. Date of sampling	Near Project Office BIMM
5. Place of sampling	Clear & Sunny
6. Environmental conditions during sampling & Transport	NA NA
7. Sampling Plan & Method used	1161

Reference No. & Date:

Report No.: MSKGL/ED/2023-24/005060

Sample No.: MSKGL/ED/2023-24/03/00001

#### RESULT

nalysis f	Result of Ambient Air				
SI No.	Parameter	HOM	Method	Limit	Result
SI NO.	(Treatment)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	16,7
1	Ammonia (NH3)	mo/m3	1S: 5182 (Part 10) (O)	2 8HR.	0.47
2	Carbon Monexide (CO)	micro gm/m3	IS: 5182 (Part 6)_(O)	80 24 HR.	21,3
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	BDL(DL:20,0
4	Ozone (O3) Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23) (O)	100 24 HR.	216
5	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR.	103
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

(Blaudhans Authorised Signatory

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer :

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

Tata Steel Ltd.(MGM)\_Joda West

West Bengal Tel. : +91 7044036120

Email: udayanlab@mitrask.com







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ULR: TC-695024000003576F

Doc No.: MSK/GEN/19/07

TESTING . INSPECTION

# 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/2023-24/513C1L

06/03/2024

MSKNB/ED/2023-24/03/ALQ126

02/03/2024

02/03/2024 - 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	28/02/2024		
5. Place of sampling	Near Weigh Bridge BIMM		
6. Environmental conditions during sampling & Transport	Temperature :17-21 deg C 2) Barometric Pressure: 706 mm of Hg 3) Rain f     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 Sethy, Pratik Mantri, Akash Sethy		
9. Field Equipments Used	MSK/BBL/FIELD/RDS-11		

Report No.: MSKPL/ED/2023-24/513C1L

Sample No.: MSKNB/ED/2023-24/03/ALQ126

#### RESULT

hemical					
SI No.	Parameter	UOM	Method	Limit	Result
4	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)
7	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
-	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June	Not Specified	0.37
5	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

END -

Reviewed By

Skyuture

Dr. Devottam Banery

Designation

Technical In Charge

Authorized Signatory

Dr. Devottam Baneges

Designation

Technical in Charge

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

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

Strachi Centre (5th Floor), 74B, A.J.C. Bose Road, Kolkata - 700016, West Bengel, India. Head Office: Tel. 91 33 40143000 / 22650007 Fax : 91 33 22650008 Email: info@mitrasic.com Website: www.mitrasic.com



Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035



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TEST REPORT

Name & Address of Customer : Report

Tata Steel Ltd.(MGM)\_Joda West

Al/Po. - Joda. Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

Sample No. :

Date:

MSKGL/ED/2023-24/005061

05/03/2024

MSKGL/ED/2023-24/03/00002

3000156017/056, Date - 15/09/2023

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

Ve hereby certify that the losowing sample Drawn by 52 miles	AIR
1, Group	Ambient Air
2. Description of sample	Barnebari Iron & Mn Mines BIMM
Unique Identification of sample(if any)	28/02/2024
4. Date of sampling	Neur Weigh Bridge BIMM
5. Place of sampling	Clear & Sunny
6. Environmental conditions during sampling & Transport	
7. Sampling Plan & Method used	NA NA

Reference No. & Date:

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

Sample No.: MSKGL/ED/2023-24/03/00002

#### RESULT

nalysis i	Result of Ambient Air			1	1
SI No.	Parameter	UOM	Method	Limit	Result
SI NO.	1 3 3 3 3 3	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	19.1
1	Ammonia (NH3)	mg/m3	(S: 5182 (Part 10) (O)	2 8HR.	0.43
2	Carbon Monoxide (CO)	micro gm/m3	IS: 5182 (Part 6) (O)	80 24 HR.	20,9
3	Nitrogen Dioxide (NO2)		IS 5182 (Part 9)	180 1 HR.	BDL(DL:20.0
4	Ozoné (O3)	micro gm/m3	IS: 5182 (Part 23), (O)	100 24 HR.	194
.5	Particulate Matter (<10um)	micro gm/m3		60 24 HR.	93
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	80 24 HR.	7.8
7	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2)_(0)	00 24 FM.	1,0

- END -

Report Verified By

For Mitra S. K. Private Limited

Authorised Signatory

Head Office:

Showth Centre (3th Flory), 74B, A.J.C. Base Root, Kritura - 700016, West Behook India. Tel. 191 33 40143006 / 2265007 Fax : 91 33 22650008 Email : who@mbrask.com Website : www.snitusk.com

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Tel.: +91 7044036120

Email: udayanlab@miltrask.com





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ULR: TC-695024000003577F

Disc No.: MSK/GEN/19/07

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/2023-24/113C1D

06/03/2024

MSKNB/ED/2023-24/03/DZMYFN

02/03/2024

02/03/2024 - 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	28/02/2024		
5. Place of sampling	Near Shorting Yard BIMM		
6. Environmental conditions during sampling & Transport	<ol> <li>Temperature: 17-31 deg C 2) Barometric Pressure: 706 mm of Hg 3) Rain fal No &amp; Cold Chain Maintained</li> </ol>		
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA		
8. Identification of the personnel performing sampling by MSK	Pranab Sethy, Pratik Mantri, Akash Sethy		
9. Field Equipments Used	MSK/BBL/FIELD/RDS-12		

Report No. : MSKPL/ED/2023-24/113C1D Sample No.: MSKNB/ED/2023-24/03/DZMYFN

#### RESULT

Chemical						
SI 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 gn/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	0.27	
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, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END -

Reviewed By:

Signature

Dr. Dayotam Baran

Technical in Charge

**Authorized Signatory** 

Signiture

~) 1Da Dr. Devoltum Banery

Technical in Charge

The results relate only to the tem(s) lested.

This Test Report shall not be reproduced except in full, without the permission of Mitre S.K. Private Limited.
This reserved part of sample(s) for charmical 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 Tust Report.
The reserved part of sample(s) for discussion of the Tust Report.
The reserved part of sample(s) for Microbiological analysis (Soil, Solid & Liquid Weste) shall be retained for 15 days as per CPCB guideline 8 (Air) 1 month from the date of issue of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non - perisheole sample(s) Food, Sealed Water, Sealed food) shall be retained for 15 days from the date of issue of the Test Report.

Head Office:

Shrachi Centre (5th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India Tal. ; 91 33 40143000 / 22650007 Fax : 91 33 22650006 Email: info@mitrask.com Wsballe: www.mitrask.com

Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035



# TEST REPORT

Report No.:

Date:

MSKGL/ED/2023-24/005067

Sample No.:

05/03/2024 MSKGL/ED/2023-24/03/00007

3000156017/056, Date - 15/09/2023

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

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

e hereby contity that the following sample Drawn by us has been enaly	AIR
Group	Ambioni Air
a detion of sample	Berneban Iron & Mn Mines. BIMM
b. Unique Identification of sample(if any)	28/02/2024
Date of sampling	Near Back Filling Yard Barnebari
	Clear & Sunny
5. Place of sampling 5. Environmental conditions during sampling & Transport	NA NA

Reference No. & Date :

Report No.: MSKGL/ED/2023-24/005067

Sample No.: MSKGL/ED/2023-24/03/00007

#### RESULT

nalueie R	tesult of Ambient Air		As Mad	Limit	Result
marysis		HOM	Method	400 24 HR.	12.9
SI No.	Parameter	micro gm/m3	IS 5182 (Part 25)	2 8HR.	0.50
1	Ammonia (NH3)	mg/m3	1S: 5182 (Part 10)_(O)	80 24 HR.	20.5
2	Carbon Monoxide (CO)	micro gm/m3	IS: 5182 (Part 6)_(O)	180 1 HR.	BDL(DL:20.0
3	Nitrogen Dioxide (NO2)		IS 5182 (Part 9)		174
4	Ozone (O3)	micro gm/m3	IS: 5182 (Part 23)_(O)	100 24 HR.	88
-	Particulate Matter (<10um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR.	
2	Particulate Matter (<2.5um)	micro gm/m3	IS: 5182 (Part 2) (O)	80 24 HR.	7.2
6 7	Sulphur Dioxide (SO2)	micro gm/m2	IS: 5182 (Part 2) (O)		

END -

Report Verified By

Head Office:



For Mitra S. K. Private Limited (Bhoudha 74

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







Scan for Portal

ULR: TC-695024000003588F

Doc No: MSKIGEN/19/07

## Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonihar, 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/V13C6L

06/03/2024

MSKNB/ED/2023-24/03/UTX127

02/03/2024

02/03/2024 - 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 Poliution		
2. Description of sample	Ambient alr		
3. Unique identification of sample(if any)	NA NA		
4. Date of sampling	29/02/2024		
5. Place of sampling	Near Back Filling Yard Barnebari		
6. Environmental conditions during sampling & Transport	<ol> <li>Temperature: 17-31 deg C 2) Barometric Pressure: 706 mm of Hg 3) Rain it No &amp; Cold Chain Maintained</li> </ol>		
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA		
8. Identification of the personnel performing sampling by MSK	Pranab Sethi, Akash Sethy Damabaru Dhar Dash		
9. Field Equipments Used	MSK/BBL/FIELD/RDS-13		

Report No.: MSKPL/ED/2023-24/V13C6L

Sample No.: MSKNB/ED/2023-24/03/UTX127

#### RESULT

Chemical Che					
Si No.	Parameter	NOM	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)
d	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	0.09
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 .

Designation Technical In Charge

Signature

Name

Dr. Devottam Baneri

Designation

Technical in Change

The results relate only to the item(s) tested

This Test Report shall not be reproduced except in full, worked the permission of Mitra S.K. Private Lumbed.
The reserved part of sample(s) for chemical analysis (Mon - parehable sample(s) Food. Water) shall be retained for 15 days from the date of issue of the Test Report. Perchable sample(s) shall be reserved part of sample(s) for chemical analysis (Mon - parehable sample(s) Food. Water) shall be retained for 15 days from the date of issue of the Test Report. Perchable sample(s) shall be reserved.

from the date of issue of the Test Report.

The reserved part of sample(s) for chambal analysis (Sois, Soid & Liquid Wasse) shall be retained for 15 cays se per CPC8 guideline & (Air) 1 mores from the case 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 case of issue of the Test Report.

Shruchi Centre (5th Floor), 748, A.J.C. Boss Road, Kolkata - 700016, West Bangal, India.

Tel. 91 33 40143000 / 22650007 Fax: 91 33 22650008 Emil : info@mtrask.com Website | www.mitrask.com



P.O. Barbil Dt Keonjhar Orissa 756 035





## 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/2023-24/005065

Date: 06/03/2024

Sample No.: MSKGL/ED/2023-24/03/00014

3000156017/056, Date - 15/09/2023 Reference No. & Date:

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)	Barnebari Iron & Mn Mines BIMM
4. Date of sampling	29/02/2024
5. Place of sampling	Near Back Filling Yard Bamebari
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA NA

Report No.: MSKGL/ED/2023-24/005065

Sample No.: MSKGL/ED/2023-24/03/00014

#### RESULT

Analysis Result of Ambient Air						
SI No.	Parameter	UOM	Method	Limit	Result	
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	12.7	
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.	21.0	
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.	178	
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR.	87	
7	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2)_(O)	80 24 HR.	7,9	

END -

Report Verified By



For Mitra S. K. Private Limited abRandhary

**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







ULR: TC-695024000003584F

Doc No.: MSK/GEN/19/07

TESTING + INSPECTION

TC-6950

#### 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:

02/03/2024 - 06/03/2024

MSKPL/ED/2023-24/A13C4X

MSKNB/ED/2023-24/03/ECD113

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

06/03/2024

02/03/2024

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	29/02/2024
5. Place of sampling	Near Shorting Yard BIMM
6. Environmental conditions during sampling & Transport	Temperature 17-31 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	Pranab Sethi, Akash Sethy, Damabaru Dhar Dash
9. Field Equipments Used	MSK/BBL/FIELD/RDS-12

MSKPL/ED/2023-24/A13C4X Report No.:

Sample No.: MSKNB/ED/2023-24/03/ECD113

#### RESULT

Chemical						
SI No.	Parameter	LIOM	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	0.04	
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

END

Technical In Charge

Authorized Signator

Dr. Devottem Barrerjee

Technical in Charge

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

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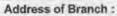
The reserved part of sample(s) for chemical enalysis (Non - pershable sample(s) Food, Water) shall be retained for 15 days from the date of issue of the Test Report. Pershable sample(s) shall be retained 2 days from the date of issue of the Test Report.

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

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

Shrischi Centre (5th Floor), 749, A.J.C. Bose Road, Kolista -700016, West Bengal, India. Tel.: 91 33 40143000 / 22650007 Fax: 91 33 22650008

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



P.O. Barbil DI Keonjhar Orissa 758 035





MSKGL/ED/2023-24/03/00010

#### **TEST REPORT**

Name & Address of Customer:

Tata Stenl Ltd.(MGM). Joda West

Al/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No.:

Sample No. :

MSKGL/ED/2023-24/005084

Date: 06/03/2024

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)	Barnebari Iron & Mn Mines BIMM
4. Date of sampling	29/02/2024
Place of sampling Near Shorting Yard BIMM	
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA .

Report No.: MSKGL/ED/2023-24/005064

Sample No.: MSKGL/ED/2023-24/03/00010

#### RESULT

Analysis Result of Ambient Air						
SI No.	Parameter	UOM	Method	Limit	Result	
1	Ammonia (NH3)	micro gm/m3	15 5182 (Part 25)	400 24 HR.	17.1	
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10)_(O)	2 8HR.	0.46	
3	Nitrogen Dioxide (NO2)	micro gm/m3	(S: 5182 (Part 6)_(O)	80 24 HR.	22.6	
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	BDL(DL:20.0)	
5	Particulate Matter (<10um)	micro gm/m3	(S: 5182 (Part 23)_(O)	100 24 HR.	200	
8	Particulate Matter (<2.5um)	micro gm/m3	IS 5162 (PT-24),2019_(O)	60 24 HR.	98	
7	Sulphur Dioxide (SO2)	micro gm/m3	IS: 5182 (Part 2)_(O)	80 24 HR.	7.7	

END

Report Verified By

For Mitra S. K. Private Limited (18 Roudhary

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







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ULR: TC-695024000003583F

Doc No.: MSK/GEN/19/07

TESTING . INSPECTION

## 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

Discipline:

Reference No. & Date :

02/03/2024 - 06/03/2024

MSKPL/ED/2023-24/913C4X

MSKNB/ED/2023-24/03/A4Z13Y

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

06/03/2024

02/03/2024

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 NA	
4. Date of sampling	29/02/2024	
5. Place of sampling	Near Weigh Bridge BIMM	
6. Environmental conditions during sampling & Transport	Temperature :19-30 deg C 2) Barometric Pressure: 713 mm of Hg 3) Rain fa No & Cold Chain Maintained	
7. Sampling Plan & Method used	JS:5182(P-11,12) & USEPA	
8. Identification of the personnel performing sampling by MSK	Pranab Sethi, Akash Sethy, Damabaru Dhar Dash	
9. Field Equipments Used	MSK/BBL/FIELD/RDS-11	

Report No.: MSKPL/ED/2023-24/913C4X

Sample No.: MSKNB/ED/2023-24/03/A4Z13Y

#### RESULT

Chemical						
SI No.	Parameter	MOM	Method	Limit	Result	
T	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	0.38	
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

END

Reviewed By

Signature

Designation

Technical in Charge

Authorized Signa

Dr. Devolten Banerio

Technical In Charge

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

The Test Report shall not be reproduced except in full, without the permission of Mikra S.K. Povate Limited.

The neserved part of sample(s) for chemical analysis (Non-pershable sample(s) Food, Water) shall be retained for 15 days from the date of sample (s) for chemical analysis (Non-pershable sample(s) Food, Water) shall be retained for 15 days from the date of sample (s) for chemical analysis (Non-pershable sample(s) Food, Water) shall be retained for 15 days from the date of sample (s) for chemical analysis (Non-pershable sample(s) Food, Water) shall be retained for 15 days from the date of sample (s) for chemical analysis (Non-pershable sample(s) Food, Water) shall be retained for 15 days from the date of sample (s) for chemical analysis (Non-pershable sample(s) Food, Water) shall be retained for 15 days from the date of sample (s) for chemical analysis (Non-pershable sample(s) Food, Water) shall be retained for 15 days from the date of sample (s) for chemical analysis (Non-pershable sample (s) Food, Water) shall be retained for 15 days from the date of sample (s) for chemical analysis (Non-pershable sample (s) Food, Water) shall be retained for 15 days from the date of sample (s) for chemical analysis (Non-pershable sample (s) Food, Water) shall be retained for 15 days from the date of sample (s) food (s) fo

The miserved part of sample(s) for chemical analysis (Soil, Soild & Liquid Waste) small be misered for 15 days as per CPCB guideline & (Air) I month from the date of issue of the Test Report.

The miserved part of sample(s) for chemical analysis (Soil, Soild & Liquid Waste) small be misered for 15 days as per CPCB guideline & (Air) I month from the date of issue of the Test Report.

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

Head Office:

Shrachi Cartre (5th Foor), 748, A.J.C. Bose Rnad, Kolkata - 700016, West Bengal, India Tel: 91 33 40143000 / 22650007 Fax: 91 33 22650008 Email: arto@mitrisk.com Website: www.mitrask.com

Address of Laboratory:

Building No. P- 46, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

West Bengal Tel.:+91 7044036120

Email: udayanlab@mitrask.com





MSKPL/ED/2023-24/Y13C41



ULR: TC-695024000003582F

Doc No. MSK/GEN/19/07

TESTING . INSPECTION

#### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

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

TEST REPORT

Report No.:

06/03/2024 Date:

MSKNB/ED/2023-24/03/92G2FK Sample No.: 02/03/2024 Date of receipt of sample:

Date(s) of performance: 02/03/2024 - 06/03/2024 Location of performance of

Permanent Facility Reference No. & Date: 3000156017/056, Date - 16/09/2023

Chemical Discipline:

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	29/02/2024		
5. Place of sampling	Near Project Office BIMM		
6. Environmental conditions during sampling & Transport	<ol> <li>Temperature :19-30 deg C 2) Barometric Pressure: 713 mm of Hg 3) Rain fa No &amp; Cold Chain Maintained</li> </ol>		
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA		
8. Identification of the personnel performing sampling by MSK	Pranab Sethi, Akash Sethy, Damabaru Dhar Dash		
9, Field Equipments Used	MSK/BBL/FIELD/RDS-5		

MSKPL/ED/2023-24/Y13C41 Report No.:

Sample No.: MSKNB/ED/2023-24/03/92G2FK

#### RESULT

Chemical						
Si 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

- END -

Designation

Technical In Charge

Authorized Stanution

Danny Dr. Devoltam Bankry

Technical in Charge

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

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

The reserved part of sample(s) for chemical analysis (Sos, Solid & Exped Wassis) shall be retained for 15 days as par CPCB guarantee a, (Arr) 1 mostly from the case of the Test Report.

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

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

NA



P.O. Barbii Dt Keonjhar Orissa 758 035

Name & Address of Customer:

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

Tata Steel Ltd (MGM) Joda West





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#### TEST REPORT

Report No. :

MSKGL/ED/2023-24/005066

Date:

06/03/2024

Sample No.:

MSKGL/ED/2023-24/03/00008

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)	Barnebari Iron & Mn Mines BIMM
4. Date of sampling	29/02/2024
Place of sampling Near Project Office BIMM.	
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA NA

Report No.: MSKGL/ED/2023-24/005066

Sample No.: MSKGL/ED/2023-24/03/00008

#### RESULT

analysis Result of Ambient Air						
SI No.	Parameter	NOM	Method	Limit	Result	
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	18.5	
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.	21,4	
.4	Ozone (O3)	micro gm/m3	(S 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.	223	
5	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR.	105	
7	Sulphur Diaxide (SO2)	micro gm/m3	IS: 5182 (Part 2)_(O)	80 24 HR.	7.4	

--- END ---

Report Verified By

Head Office:

For Mitra S. K. Private Limited

Blandhary

Authorised Signatory

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

Name & Address of Customer:

AVPo: - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

West Bengal Tel.: +91 7044036120

Email: udayanlab@mitrask.com

Tata Steel Ltd.(MGM)\_Joda West





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ULR: TC-695024000003536F

DOC NO. MSK/GEN/19/07

TESTING # INSPECTION

# TEST REPORT

Report No. :

Date:

MSKPL/ED/2023-24/T13BFP

06/03/2024

Sample No.:

Discipline:

MSKNB/ED/2023-24/02/BY47EJ

28/02/2024

Date of receipt of sample: Date(s) of performance:

Location of performance of

28/02/2024 - 06/03/2024 Permanent Facility

Reference No. & Date :

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	24/02/2024
5. Place of sampling	Jroull High School
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 by MSK	Akash Kumar Setty
9. Field Equipments Used	MSK/BBL/FIELD/RDS-18

MSKPL/ED/2023-24/T13BFP Report No.:

NA

Sample No.: MSKNB/ED/2023-24/02/BY47EJ

#### RESULT

hemical					
SI No.	Parameter	now	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)Pyrane	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

END

Dr. Devottem Banene Designation Teccretical in Charge Authorized Signator

or Harn Dr. Devottom Banarjes

Designation

Tectrinical in Cherge

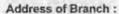
The results relate only to the firm(s) trailed.

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

This reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Water) shall be retained for 15 days as per CPCB guideline & (No) 1 month from the date of issue of the Test Report.

Shrinchi Centro (5th Floor), 748, A.J.C. Boss Ross, Kolosta - 700016, West Bengal, India Tel. 91 33 40143000 / 22650007 Fex 91 33 22650008 Ernal : info@mitrask.com Website : www.mitrask.com



P.O. Barbil Dt Keonihar Orissa 758 035





#### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

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

Report No.:

Sample No.:

Date:

MSKGL/ED/2023-24/004993

02/03/2024

MSKGL/ED/2023-24/02/01150

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)	Barnebari Iron & Mn. Mines
4. Date of sampling	24/02/2024
5. Place of sampling	Jrouli High School
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA NA

Report No.: MSKGL/ED/2023-24/004993

Sample No.: MSKGL/ED/2023-24/02/01150

#### RESULT

analysis Result of Ambient Air						
SI No.	Parameter	UOM	Method	Limit	Result	
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	<10.0	
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10)_(O)	2 BHR.	0.28	
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS: 5182 (Part 6)_(O)	80 24 HR.	16.1	
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	<20.0	
5	Particulate Matter (<10um)	micro gm/m3	tS: 5182 (Part 23)_(O)	100 24 HR.	142	
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR.	69	
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 18 Daudham Authorised Signatory

Shrachi Cestre (5th Floor), 749, A.J.C. Sose Rourt, Kolkutu + 700016. West Birrigal, India. Tel.: 91 33:40143000 / 2263007 Fax: 91.33.22650006 Emoil: info@retresk.com Website: www.mitrask.com Head Office:

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

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







ULR: TC-695024000003535F

Doc No: MSK/GEN/19/07

TESTING . INSPECTION

# 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/G13BFX

06/03/2024

MSKNB/ED/2023-24/02/8V47DH

28/02/2024

28/02/2024 - 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	Absorbed Man
2. Description of sample	Atmospheric Pollution
Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA California
5. Place of sampling	24/02/2024
6. Environmental conditions during sampling & Transport	Jajang High School  1) Temperature :19-30 deg C 2) Barometric Pressure: 709 mm of Hg 3) Rain fall
7. Sampling Plan & Method used	No & Cold Chain Maintained IS:5182(P-11,12) & USEPA
3. Identification of the personnel performing sampling by MSK	Akash Kumar Setty
9. Field Equipments Used	MSK/BBL/FIELD/RDS-16

MSKPL/ED/2023-24/G13BFX Report No.:

Sample No.: MSKNB/ED/2023-24/02/8V47DH

## RESULT

Parameter	UOM	Method	Limit	Result
Arsenic as (As)	ng/m3	USEPA-IO 3.4. June		
Benzene	micro gm/m3			BDL(DL:1.0)
Berizo(a)Pyrene	ng/m3			BDL(DL:4.2)
Lead (as Pb )	micro gm/m3		The second second second	BDL(DL:0.5)
Manganese as Mn	micro gm/m3		The second secon	BDL(DL:0.01)
Nickel as Ni	ng/m3			BDL(DL:0.01) BDL(DL:5.0)
	Arsenic as (As)  Benzene  Benzo(a)Pyrene  Lead (as Pb)  Manganese as Mn	Arsenic as (As) ng/m3  Benzene micro gm/m3  Benzo(a)Pyrene ng/m3  Lead (as Pb ) micro gm/m3  Manganese as Mn micro gm/m3	Arsenic as (As) ng/m3 USEPA-IO 3.4, June  Benzene micro gm/m3 IS 5182 (Part 11)  Berzo(a)Pyrene ng/m3 IS 5182 (Part 12)  Lead (as Pb) micro gm/m3 USEPA-IO 3.4, June  Manganese as Mn micro gm/m3 USEPA-IO 3.4; June	Arsenic as (As) ng/m3 USEPA-IO 3.4, June 6 (Annual)  Benzene micro gm/m3 IS 5182 (Part 11) 5 (Annual)  Benzo(a)Pyrene ng/m3 IS 5182 (Part 12) 1 (Annual)  Lead (as Pb) micro gm/m3 USEPA-IO 3.4, June 1 (24 Hours)  Manganese as Mn micro gm/m3 USEPA-IO 3.4; June Not Specified

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

- END -

Reviewed By:

Designation : Technical In Charge Authorized Signatory

Signature en

Name

Dr. Davoltam Bennya

Technical in Charge

The results miste only to the item(s) fasted.
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The reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Fond, 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 sensenger in common excepts procedure sensenger reserved and reserved part of sensenger in the reserved part of sensenger in committee and procedure sensenger in the reserved part of sensenger in committee and part of sensenger in committee

Head Office:

Strach: Centre (5th Floor), 748, A.J.C. Bose Road, Nokute - 700015, West Bengel, India. Tet.: 91 33 40143000 / 22650007 Fax: 91 33 22650008 Email: info@mitrask.com Website: www.mitrask.com



P.O. Barbil Dt Keonjhar Orissa 758 035





#### TEST REPORT

Name & Address of Customer:

Tata Steel Ltd.(MGM), Joda West

Al/Po, - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

Date:

MSKGL/ED/2023-24/004992

02/03/2024

Sample No.: MSKGL/ED/2023-24/02/01149

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)	Barneban Iron & Mn. Mines	
4. Date of sampling	24/02/2024	
5. Place of sampling	Jajang High School	
6. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA NA	

Report No.: MSKGL/ED/2023-24/004992

Sample No.: MSKGL/ED/2023-24/02/01149

#### RESULT

nalysis Result of Ambient Air					
SI No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	<10.0
2	Carbon Monoxide (CO)	mg/m3	IS: 5182 (Part 10)_(O)	2 8HR.	0.2
3	Nitrogen Dioxide (NO2)	micro gm/m3:	IS: 5182 (Part 6)_(O)	80 24 HR.	16,0
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	<20.0
5	Particulate Matter (<10um)	micro gm/m3	IS: 5182 (Part 23)_(O)	100 24 HR.	166
6	Particulate Matter (<2.5um)	micro gm/m3	(S 5182 (PT-24),2019_(O)	60.24 HR.	78
7	Sulphur Dioxide (SO2)	micra gm/m3	IS: 5182 (Part 2) (O)	80 24 HR.	<6.0

END -

Report Verified By

For Mitra S. K. Private Limited Blandhay Authorised Signatory

# ENVIRONMENTAL MONITORING REPORT

## JANUARY 2024

# BAMEBARI IRON & MANGANESE MINES

At the request of:

# M/s. TATA STEEL LIMITED Bichakundi, Joda, Dist: Keonjhar ODISHA

\*\*\*\*\*\*

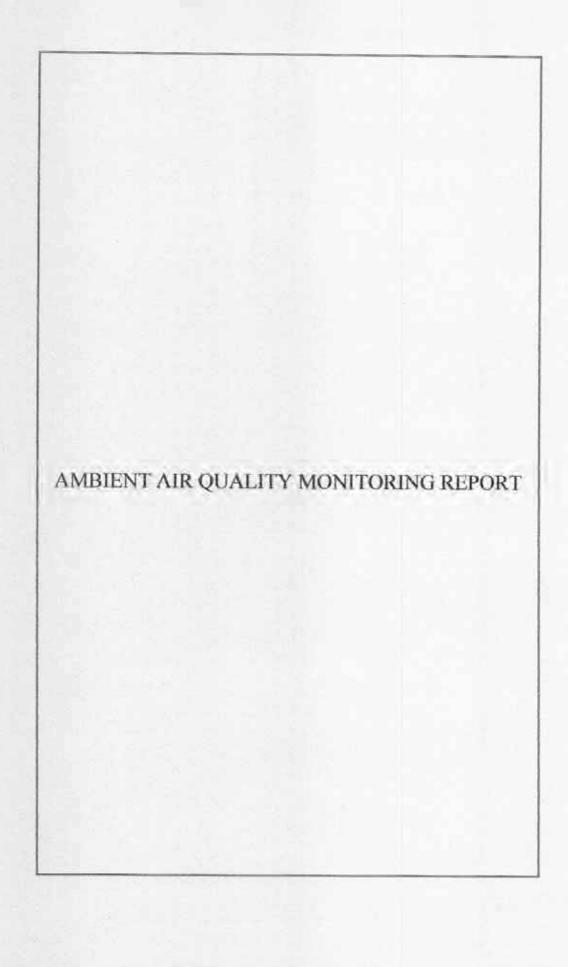
Conducted By:



# M/s. MITRA S.K. PRIVATE LIMITED

At/Po – Barbil Dist : Keonjhar, Odisha Pin - 758 035

90



DOCNO MSIGGEN/19/07







TC-6950

Scan for Portal

ULR: TC-695024000001704F

MSKPL/ED/2023-24/Z11ECW

MSKNB/ED/2023-24/01/2A208J

16/01/2024 - 05/02/2024

# Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

Address of Laboratory :

West Bengal Tef, : \*91 7044036120 Email: udayanlıb@mitrask.com

Building No. P. 48, Udayan Industrial Estate. 3, Pagladanga Road Kolketa 700018

At/Pa - Jods 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:

Permanent Facility

3000156017/056, Date - 15/09/2023

Chemical

05/02/2024

16/01/2024

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

1. Group	
2. Description of sample	Almospheric Pollution
Unique Identification of sample(if any)	Amblent Air
4. Date of sampling	NA NA
5. Place of sampling	11/01/2024
5. Environmental conditions during sampling & Transport	NEAR PROJECT OFFICE BIMM  1) Temperature :10-27 deg C 2) Barometric Pressure: 732 mm of Hg 3) Rain fall No & Cold Chain Maintained
. Sampling Plan & Method used	
Elekt Fouriements Visconnel performing sampling by MSK	IS:5182(P-11,12) & USEPA
. Field Equipments Used	LALIN KUMAR NAIK, PRATIK KUMAR MANTRI
The state of the s	MSK/BBL/FIELD/FDS-5

Report No.: MSKPUED/2023-24/Z11ECW

Sample No.: MSKNB/ED/2023-24/01/2A208J

## RESULT

Chemical			RESULT		
SI No.	Parameter	UOM	Method		
1	Arsenic as (As)	ng/m3		Limit	Result
2	Benzene		USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
3	The state of the s	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
A	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	
4	Lead (as Pb )	micro gm/m3	USEPA-IO 3.4. June	1 (24 Hours)	BDL(DL:0.5)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June		0.02
6	Nickel as NI	ng/m3		Not Specified	0.34
pinion:	Limit as per CPC	B notification, New Delh	USEPA-IO 3.4, June	20 (Annual)	BDL(DL(5.0)

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END -

Designation

Authorized Significial

Signature

Designation

Lab in en

he results relate only to the item(s) tested

he results relate only to the item(s) rested
his Test Report shall not be reproduced erough in tall, without the permission of Mare 5.K. Private Liment
his Test Report and sample(s) for chemical enables (Non-- peristrable sample(s) Food. Where shall be related for 15 days from the date of sample of the Test Report
his reserved part of sample(s) for chemical analysis (Non-- peristrable sample(s) Food. Where shall be related for 15 days as see CPCB guidance 5.(Atr.) I means from the date of the Test Report
his reserved part of sample(s) for chemical enables (Non-- peristrable sample(s) Food, Seeled Water, Seeled Water, Seeled Good) shall be retering to 15 days from the date of the Test Report

Shrack Gerera (5th Floor), 748, A.J.C. Beha Road, Konau i 700016, West Bengal, India. Tm. 91:33:401450007:29650007 Fax: 91:33:20000000 Email #stg@minites.com Wabsile: Www.miltesk.com

Address of Branch:

P.O. Barbil Dt Keonither Orissa 758 035





Scan for Portal

Name & Address of Customer :

Trita Steel Lld (MGM), Jorla West

Al/Po. - Jode, Dist. - Keonifiar, Odisha - 758034 India Pin

TEST REPORT

Report No. :

Date:

Sample No.

Reference No. & Date :

MSKGL/ED/2023-24/004483

10/02/2024

MSKGL/ED/2023-24/01/00553

3000156017, Date - 28/09/2023

We hareby cartify that the following sample Drawn by us has been analyzed v

2. Description of sample	AIR
3. Unique Identification of sample(if any)	Ambient Air
. Date of sampling	Joda West Iron & Mn. Mines
5. Place of sampling	11/01/2024
2. Environmental conditions during sampling & Transport	Near Project Office BIMM
. Sampling Plan & Method used	Clear & Sunny
and and	NA .

Report No.: MSKGL/ED/2023-24/004483

Sample No.: MSKGL/ED/2023-24/01/00553

#### RESULT

SI No.	Parameter	DOW			
1	Ammonia (NH3)		Method	Limit	Result
2	and the second s	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	-
9	Carbon Monoxide (CO)	mg/m3	IS 5182 Part to :1999 (Realf.2014)	HOU 24 HM	18.5
ā	Mitrogen Dioxide (NO2)	eniera mentina	(NDIR) (O)	2 BHR.	0.40
4	Ozone (O3)	micro gm/m3	IS 5182 : Pari 6 :2006 (Reaft 2012) (O)	50 24 HR.	21.4
5	Particulate Matter (<10um)	Emling croim	IS 5182 (Part 9)	180 1 HR	
B	Particulate Matter (<2.5cm)	micro gri/m3	IS 5182 Part 23:2006 (Rentf. 2012) (O)	100 24 HR.	BDL(DL:20:0)
2		micro gm/m3	IS 5182 (P7-24),2019 (O)		139
	Sulphur Dioxide (SO2)	micro.gm/m3	IS 5182 : Part 2 :2001 (Realf:2012) (O)	60 24 HR.	67
			END (Nothi, 2012) (0)	80 24 HR.	8.5

END -

Report Verified By



For Mitra S. K. Private Limited

-Su-Authorised Signatory

Head Office: Shearly Centre (5th Floor), 74B, A.J.C. Bove Rend, Krisma - 700018, West Rengal, India Tol.; 31 33 40143000 / 2005000 / Flor; 91 33 2765000 Emily 10 20 40143000 / 2005000 / www.mbrask.com

DOC NO. MSK/GEN/19/07









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ULR: TC-695024000001706F

# Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Address of Laboratory:

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

Building No. P- 48, Udayan Industrial Estate. 3, Pagladanga Road, Kolkata 700015

At/Po. - Jode, 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/B11F9E

05/02/2024

MSKNB/ED/2023-24/01/CH207P

16/01/2024

16/01/2024 - 05/02/2024

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	Atmospheric Pollution		
Description of sample     Unique Identification of sample(if any)	Ambient Air		
L Date of sampling	NA .		
Place of sampling	11/01/2024		
Environmental conditions during sampling & Transport	NEAR SORTING YARD BIMM  1) Temperature :10-27 deg C 2) Saccounts D		
. Sampling Plan & Method used	1) Temperature :10-27 deg C 2) Barometric Pressure: 732 mm of Hg 3) Rain fal No.4 Cold Chain Maintained 15:5182(P-11,12) & USEPA		
Identification of the personnel performing sampling by MSK.	LALIN KUMAR NAIK, PRATIK KUMAR MANTRI MSK/BBL/FIELD/RDS-12		

Report No. : MSKPL/ED/2023-24/B11F9E

Sample No.: MSKNB/ED/2023-24/01/CH207P

#### RESULT

Parameter	UOM	Method	-	
Arsenic as (As)	nalm3	TO THE PARTY OF TH	Limit	Result
			6 (Annual)	BDL(DL:1.0)
			5 (Annual)	BDL(DL:4.2)
	A STATE OF THE STATE OF		1 (Annual)	BDL(DL 0.5)
	rnicro gm/m3	USEPA-IO 3.4, June		
	micro gm/m3	USEPA-IO 3.4: June		BDL(DL:0.01)
Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	0.24
	Arsenic as (As)  Benzene  Benzo(a)Pyrene  Lead (as Pb.)  Manganese as Mn  Nickel as Ni	Arsenic as (As) ng/m3  Benzene micro gm/m3  Benzo(a)Pyrene ng/m3  Lead (as Pb ) roicro gm/m3  Manganese as Mn micro gm/m3	Arsenic as (As) ng/m3 USEPA-IC 3.4, June  Benzene micro gm/m3 IS 5182 (Part 11)  Benzo(a)Pyrene ng/m3 IS 5182 (Part 12)  Lead (as Pb ) micro gm/m3 USEPA-IC 3.4, June  Manganese as Mn micro gm/m3 USEPA-IC 3.4, June	Arsenic as (As) ng/m3 USEPA-IC 3.4, June 6 (Annual)  Benzene micro gm/m3 IS 5182 (Part 11) 5 (Annual)  Benzene ng/m3 IS 5182 (Part 12) 1 (Annual)  Lead (as Pb ) micro gm/m3 USEPA-IC 3.4, June 1 (24 Hours)  Manganese as Mn micro gm/m3 USEPA-IC 3.4: June Not Specified

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality.

Statement of Conformity NA.

END -

Authorized Signatury

Signature

he results rebise only to the Sensis) tested.

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The reserved part of sample(s) for chemical analysis (Non - pershable sample(s) Food. Weller) shall be outsided for 15 days from the date of laste of the Test Report.

Personal part of sample(s) for chemical shallows (Sine Solid & Louis Where) shall be missioned for 15 days.

The reserved part of sample(s) for chemical shallows (Sine Solid & Louis Where) shall be missioned for 15 days.

The reserved part of sample(s) for chemical shallows (Sine Solid & Louis Where) shall be missioned for 15 days.

The reserved part of sample(s) for chemical shallows (Sine Solid & Louis Where) shall be missioned for 15 days.

on the date of issue of the Test Report.

In flacting part of sample(s) for chamical analysis (Soil & Liquid Wasin) shall be missied for 15 days as our CPCB guidatine & (Air) 3 month from the sales of the Test Report, the reserved part of sample(s) for Microbiological analysis (Mon - periodable sumple(s) Food, Seeled Witter, Seeled food) shall be retained for 15 skys from the date of issue of the Test Report.

Street: Carrie (Str Floor), 74B, A.J.C. Book Road, Kdikata –700016, West Bengal, India Tell: fir 33-40143000 / 20650007 Fax.: 94-33 2/950000 Email: n/ogmitralk.com (Mobile: www.mirralk.com

## Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





Scan for Portal

# Name & Address of Customer:

Tinta Steel Ltd.(MGM) Joda West

Al/Po. - Joda, Dist. - Keonihar, Odisha - 758054. India Pin

# TEST REPORT

Report No.:

Date :

MSKGL/ED/2023-24/004476

10/02/2024

Sample No.:

MSKGL/ED/2023-24/01/00555

Reference No. & Date :

3000156017, Date - 28/09/2023

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

Group     Description of sample	AIR
3. Unique identification of sample(if any)	Ambient Air
4. Date of sampling	Barnebari fron & Mn. Mines
5. Place of sampling	11/01/2024
6. Environmental conditions during sampling & Transport	Near Sorting Yard BIMM
7. Sampling Plan & Method used	Clear & Sunny
The second discu	NA NA

Report No.: MSKGL/ED/2023-24/004476

Sample No.: MSKGL/ED/2023-24/01/00555

#### RESULT

200000000000000000000000000000000000000	Parameter	UOM	44.44-4		-
1	Ammonia (NH3)		Method	Limit	Result
		micro gm/m3	15 5182 (Part 25)	400 24 HR.	147
2	Carbon Monojide (CO)	mg/m3	IS 5182 : Part 10 :1999 (Realf-2014)		142
3	Nitrogan Dioxide (NO2)	micro gm/m3	(NDIR) (O)	2 BHR	0.68
4	Dzpna (O3)		IS 5182 : Part 6 : 2006 (Reeff. 2012) (O)	80 24 HR.	26.6
5	Particulate Matter (<10om)	micro grn/m3	IS 5182 (Part 9)	180 1 HR.	BD( )DL-20.0)
8		Enring aralm	IS 5182: Port 23:2006 (Reaff, 2012) (D)	100 24 HR.	
-	Particulate Matter (<2.5um)	micro gm/n3	IS 5182 (PT-24),2019 (O)		101
-	Sulphur Dioxide (SQ2)	micro grom3	IS 5182 : Part 2 :2001 (Realf.2012) (O)	80 24 HR.	7.8

\_\_\_ END \_\_\_

Report Verified By

Head Office:



For Mitra S. K. Private Limited

Authorised Signatory

Strand i Centre (35) Root, 749; A.J.C. Bose Front (Calums - 700016; West Bengel, India. Tel. : 81:39:49143006 / Zel50007 Frax: 81:35 22550006 Ermal / whigh ritinals care. Website ; www.mitrans.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







DISC NO. MSK/GEN/19/07

TESTING I MARECICH

Scan for Portal

MSKPL/ED/2023-24/H11F80

MSKNB/ED/2023-24/01/502092

ULR: TC-695024000001705F

# Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po - Jode Dist. - Keoninar, 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:

16/01/2024 - 05/02/2024 Permanent Facility

3000156017/056, Date - 18/09/2023

Chemical

05/02/2024

16/01/2024

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

2. Description of sample	Atmospheric Pollution
. Unique Identification of sample(If any)	Ambient Air
. Date of sampling	NA NA
. Place of sampling	11/01/2024
. Environmental conditions during sampling & Transport	NEAR WEIGH BRIDGE BIMM
Sampling Plan & Method year	Temperature :10-27 deg C 2) Barometric Pressure, 732 mm of Hg 3) Rain fall     No & Cold Chain Maintained
Identification of the personnel performance	IS:5182(P-11,12) & USEPA
Field Equipments Used	LALIN KUMAR NAIK PRATIK KUMAR MANTO
	MSK/BBL/FIELD/RDS-11

Report No. : MSKPL/ED/2023-24/H11F8D

Sample No.: MSKNB/ED/2023-24/01/502092

#### RESULT

SI No.	Parameter	UOM			
1	Araenic as (As)		Method	Limit	Result
2	Benzene	ng/m3	USEPA-IO 3.4, June	5 (Annual)	
3	Act of God S	micro gm/m3	IS 5182 (Part 1.1)	5 (Amual)	BDL(DL:1.0
4	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)		BDL(DL:4.2)
5	Lead (as Pb.)	micro gm/m3	USEPA-IO 3.4, June	J (Annual)	BDL(DL:0.5)
	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June	1 (24 Hours)	0.03
6	Nickel as Ni	ng/m3		Not Specified	0.51
pinlon:	Limit as per CDC		USEPA-IO 3.4, June 1.18th November 2009, for Amb	20 (Annual)	9.0

Limit as per CPGB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END ----

Executive Chemist

Authorized Signatory

e results relate only to the sem(s) trained:

is Test Report shall not be reproduced accept in full, without the permission of Mitte S.K. Private Limited
in Test Report of sample(s) for chemical analysis (Non - perishable sample(s) Food, Water) shall be retained for 15 days from the date of lesses of the Test Report.

In the date of lesses of the Test Report.

In chemical analysis (Sd., Solid is Lipad Water) shall be retained for 15 days as per CPCs guideline is (Phys.) for chemical analysis (Sd., Solid is Lipad Water) shall be retained for 15 days as per CPCs guideline is (Phys.) for the Test Report.

In caseword part of sample(s) for Microsissingical analysis (Rd., Solid is Lipad Water) shall be retained for 15 days from the date of fesses of the Test Report.

In caseword part of sample(s) for Microsissingical analysis (Phys. - passings) and part of sample(s) for 15 days from the date of fesses of the Test Report.

Sad Office: Structs Cares (Str Flox), 74B, A.J.C. Boss Road, Kolkula - 700016, Was Sangal, India. Str. 32 40143000 / 25650007 Fax: 91 30 22000000 Email: info@minoss.com Website: www.micross.com

Address of Branch:

P.O. Barbii Dr Kacophar Orissa 758 035





Scan for Portal

Name & Address of Customer:

Titta Steel Ltd.(MGM) Joda West

Al/Po. - Joda, Dist. - Keonjihar, Odisha - 758034. India Pin

TEST REPORT

Report No. :

Date :

Sample No.:

Reference No. & Date :

MSKGL/ED/2023-24/004471

10/02/2024

MSKGL/ED/2023-24/01/00554

3000156017, Date - 28/09/2023

We hereby certify that the following sample Drawn by us has been analyzed with the following re-

2. Description of sample	AIR
Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Barnebari tron & Mn. Mines
5, Place of sampling	11/01/2024
6. Environmental conditions during sampling & Transport	Nare Weigh Bridge BIMM
7. Sampling Plan & Method used	Clear & Sunny
The state of the s	NA.

Report No. 7 MSKGL/ED/2023-24/004471

Sample No.: MSKGL/ED/2023-24/01/00554

#### RESULT

SI No.	Parameter	UOM	www.		4
1	Ammonia (NH3)		Method	Limit	Result
2		micro gm/m3	IS 5182 (Part 25)	400 24 HR	
4	Carbon Monovido (CO)	mg/m3	(S 5182 : Part 10 :1999 (Reaff.2014)	400 24 HR	14.7
9	Nitrogen Diaxide (NO2)	minuted and	(NDIR) (O)	2 8HR.	0,44
4	Ozone (O3)	micro gm/m3	IS 5162 : Part 6 :2006 (Reaff 2012) (O)	80 24 HR	nin a
5		micro gm/m3	IS 5182 (Part 9)	180 1 HR.	20.4
В	Particulate Matter (<10um)	micro gm/m3	(S 5182: Part 23:2006 (Reaff, 2012)_(0)		BDL(DL:20,0)
-	Particulate Matter (<2.5um)	micro gm/m3	15 F LOD (FOX DOLLARS) (D)	100 24 HR.	113
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HR	52
		I mean Busing	IS-5182 ; Part 2 :2001 (Reaft 2012) _(O)	80 24 HR.	7.5

- END -

Report Verified By

Head Office:

For Mitra S. K. Private Limited

**Authorised Signatory** 

Shours Carere (5th Floor), 74B, A.J.C. Broo Hoad, Kollatts - 700015. West Biorges audio 7dl - \$1.53 40143500 / 22650007 Flax - \$1.33 22650000 Email : Missimulmak care Widolite : www.refrask.com

DOC NO. MSK/GEN/19/07









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ULR: TC-695024000001710F

## Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Address of Laboratory:

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

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

At/Po. - Joda, Dlst. - 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:

16/01/2024 16/01/2024 - 05/02/2024

05/02/2024

Permanent Facility 3000156017/056, Date - 16/09/2023

MSKPL/ED/2023-24/P11FDC

MSKNB/ED/2023-24/01/4W/226Y

Chemical

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

2. Description of sample	Atmospheric Pollution	
3. Unique Identification of sample(If any)	Ambient Air	
. Date of sampling	NA NA	
. Place of sampling	12/01/2024	
Environmental conditions during sampling & Transport	NEAR PROJECT OFFICE BIMM	
. Sampling Plan & Method used	1) Temperature :10-26 deg C 2) Barometric Pressure: 733 mm of Hg 3) Rain fall No. & Cold Chuln Maintained	
identification of the personnel performing sampling by MSK.	LALIN KUMAR NAIK, PRATIK KUMAR MANTRI	
- 12 printing Good	MSK/BBL/FIELD/RDS-5	

Report No.: MSKPL/ED/2023-24/P11FDC

Sample No.: MSKNB/ED/2023-24/01/4W228Y

#### RESULT

Chemical			RESULT		
SI No.	Parameter	UOM	Method		
-1	Arsenic as (As)		100000000000000000000000000000000000000	Limit	Result
2	Benzene	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BOL(DL-1.0)
3	Benzo(a)Pyrene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL 4.2)
4		ng/m3	IS 5182 (Part 12)	1 (Annual)	
-6	Lead (as Pb )	micro gm/m3	USEPA-IO 3,4, June	1 (24 Hours)	BDL(DL:0.5)
6	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June	Not Specified	0.02
	Nickel as Ni	ng/m3	USEPA-IO 3.4, June		0.32
opinion:	Limit as per CPC	B notification, New Dolla	L 18th November 2009, for Amb	20 (Annual)	BDL(DL:5.0)

Limit as per CPCB notification. New Delni, 18th November 2009, for Ambient air quality

Statement of Conformity

END ---

Reviewed By

Designation

Authorized Signatory

Squattre

he results relate only to the item(s) tested

he results relinic only to the form(s) tested.

The Test Report and not be reproduced except in full, without the permission of Mare 5.K. Private Limited.

In reserved part of serviced in the Chemical analysis (Non - parishable sample(s) Food. Water) shall be relianed for 15 days from the date of issue of the Test Report.

The date of service part of sample(s) for chemical analysis (Soil, Solid & Liquid Water) shall be retained for 15 days as per CPCR is educed. (Av.) 1 month from the date of issue of the Test Report.

The Test Report of sample(s) for chemical analysis (Non - personal or sample(s) Food, Seeled Water, Seeled food) shall be retained for 15 days month from the date of issue of the Test Report.

Shrinchi Coww (5th Floor), 748, A.J.C. Bose Rised, Komata - 700016, West Bungel, India. Thil: 91 33 40143000 / 92450007 Fax: 91 33 2005000 Email: w/olg/mbrask.com (Wessel : www.mbrask.com)

Address of Branch:

P.O. Barbil Dr Keoninar Orissa 758 035





Scan for Portal

Name & Address of Customer:

Talii Steel Ltd.(MGM)\_Joda West

AVPo. - Joda. Dist. - Kaonjivar, Odlater - 758034 Index Pin

TEST REPORT

Report No.:

Date ;

Sample No. :

Reference No. & Date

MSKGL/ED/2023-24/004474

10/02/2024

MSKGL/ED/2023-24/01/00559

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		
3. Unique Identification of sample(if any)	Ambient Air	
4. Date of sampling	Barnsbari Iron & Mr. Mines	
5. Place of sampling	12/01/2024	
6. Environmental conditions during sampling & Transport	Near Project Office BIMM	
7. Sampling Plan & Method used	Clear & Sunny	
Printy and or middle of mission made	NA NA	

Report No. : MSKGL/ED/2023-24/004474

Sample No.: MSKGL/ED/2023-24/01/00559

#### RESULT

SI No.	Parameter	Parameter UOM Model			-
1	Ammonia (NH3)	7.50		Method Limit	
14		micro gm/m3	tS 5182 (Part 25)	400 24 HR.	30.0
2	Carbon Monoxide (CO)	mg/m3	IS 5182 : Part 10 :1999 (Realf.2014)		15.5
3	Nitrogen Dioxide (NO2)	micro sustain	(NDIR) (O)	2 8HR.	0.49
4	Ozone (O3)	micro gin/m3	IS 5182 : Part 6 .2006 (Realf.2012) _(O)	80.24 HR.	22.2
5	Particulate Matter (<10um)	micro gm/m3	IS 5182 (Part 9)	180 T HR.	BDL(DL-20,0)
6		писто дт/т3	IS 5182: Part 23:2006 (Reaft, 2012)_(D)	100 24 HR.	
7	Phrticulator Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)		141
1	Sulphur Dioxede (SO2)	micro grr/m3	IS 5182 : Part 2 :2001 (Realf:2012) (O)	60 24 HR.	70
			- (A) (21.0211150.15)	80 24 HR.	7.5

---- END -----

Report Verified By

Head Office:



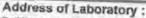
For Mitra S. K. Private Limited

< Bon-

Authorised Signatory

Shacel Contre (Sin Floor), 748, A.J.C. Bone Read, Konsta - 700710. West Bengal, trac. 1-6: 97.55.4014.5000 / 22050007 Fax: 01.33 22050000. Email: wildgradess.com Website: www.missak.com





Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

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





Scan for Portal

ULR: TC-695024000001712F

### Name & Address of Gustomer:

Tata Steel Ltd.(MGM) Joda West

AVPo. - Joda, Dist. - Keonjher, 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/X11FFG

05/02/2024

MSKNB/ED/2023-24/01/7W223L

18/01/2024

16/01/2024 - 05/02/2024

Permanent Facility

3000156017/056, Dale - 16/09/2023

Chemical

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

1. Group	and the second		
2. Description of sample	Atmospheric Pollution		
3. Unique Identification of sample(if any)	Ambient Air		
4. Date of sampling	NA NA		
5. Place of sampling	12/01/2024		
	NEAR SORTING YARD BIMM		
5. Environmental conditions during sampling & Transport	1) Temperature :10-26 deg C 2) Barometric Programs: 733 mm et the 30 December 1		
Sampling Plan & Method used	Composition of the composition o		
. Identification of the personnel performing sampling by MSIC	IS.5182(P-11,12) & USEPA		
Field Equipments Used	LALIN KUMAR NAIK, PRATIK KUMAR MANTRI		
wie Equipments Osed	MSK/BBL/FIELD/RDS-9		

Report No. : MSKPL/ED/2023-24/X11FFG

Sample No.: MSKNB/ED/2023-24/01/7W223L

## RESULT

Chemical					
SI No.	Parameter	UOM	Method	Limit	1
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June		Result
2	Benzone	micro gm/m3		6 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene		IS 5182 (Part (1)	5 (Annual)	BDL(DL:4,2)
4	Lead (as Pb)	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
5		micra gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June	Not Specified	0.14
6 pinion :	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)

Limit as per GPCB notification, New Delin, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END

Designation **Executive Chemist**  Authorized Signatory

Signature

Lab in charp

The results relate only to the temps tested.

This Test Report shall not be reproduced except in full, without the permission of Milre S.R. Private Lamind.

The reserved part of earnives of the Test Report. Pereliable sample(s) Food. Water) shall be retained for 15 days from the date of haus of the Test Report. Pereliable sample(s) Food. Water) shall be retained for 15 days from the date of haus of the Test Report.

The reserved part of sample(s) for chemical analysis (Sos, Solid & Liquid Wests) shall be received port of sample(s) for chemical analysis (Sos, Solid & Liquid Wests) shall be received port of sample(s) to Microbiological analysis (Non - perchable sample(s) Food, Sessed Wests, Beand food) shall be returned for 15 days from the date of source of the Report.

Streets Dentre (59) Fore), 74b, A.J.C. Bose Rand, Kolkatz –700015, West Berger, India Tel., 91 33-491 43000 / 22650007 Fax: 91 33 22650006 Email: MODINIFrask.com Website (www.mikrask.com)

Address of Branch:

P.O. Barbil Dt Knonjinir Onssu 758 035





Scan for Ports

### Name & Address of Customer :

Tata Steni Ltd (MGM) Joda West

At/Po. Joda, Dist. - Keonifear, Odistra - 758034 India Pin

## TEST REPORT

Report No. !

Date :

Sample No.:

Reference No. & Date :

MSKGL/ED/2023-24/004480

10/02/2024

MSKGL/ED/2023-24/01/00561

3000156017, Date - 26/09/2023

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

AIR
Ambient Air
Bamebari Iron & Mn. Mines
12/01/2024
- Contract
Near Sorting Yard BIMM
Clear & Sunny NA

Report No.: MSKGL/ED/2023-24/004480

Sample No.: MSKGL/ED/2023-24/01/00561

#### RESULT

SI No.	Parameter	Parameter UOM Months			-
1.	Ammonia (NH3)		Method	Limit	Result
-		micro gm/m3	IS 5182 (Part 25)	400 24 HR.	16.6
2	Carbon Monoxide (CO)	mg/m3	(S 5182 - Part 10 , 1999 (Realt 2014)	2 BHR	
3	Nitrogen Dioxide (NO2)	micro gm/m3	(NDIR) (O)	e oran.	0.42
4	Ozone (O3)		IS 5182 : Part 6 :2006 (Realf.2012) _(O)	80 24 HR.	21.5
K		Emiyag oraim	IS 5182 (Part 9)	180 1 HR	BDL(DL 20.0
	Particutate Matter (<10um)	micro gm/m3	IS 5182: Part 23:2006 (Reaff. 2012) (O)	100 24 HR	- 1
6	Particulate Malter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)		1.18
7.	Sulphur Dioxide (SO2)	micro gm/m3		60 24 HR.	59
		The state of the state of	IS 5182 : Part 2: 2001 (Reself, 2012) (O)	80 24 HR	7.8

---- END -----

Report Verified By

Head Office:

(1819)

For Mitra S. K. Private Limited

**Authorised Signatory** 

Shocks Course (St. Floor), 748, A.J.C. Bown Road, Roberts - 70001E. West Manual India. Res. 91 33 40143000 22050000 Fax: 91 33 22550000 Fax: 91 33 22550000

Address of Laboratory :

Building No. P- 48, Lidayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

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







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ULR: TC-695024000001711F

DOC NO. MSKIGEN/19/07

TESTING + INSPECTION

### Name & Address of Customer :

Teta Steel Ltd.(MGM)\_Jods 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/M11FEY

05/02/2024

MSKNB/ED/2023-24/01/6Y2284

16/01/2024

16/01/2024 - 05/02/2024

Permanent Facility

3000156017/056 Date - 15/09/2023

Chemical

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

1, Group	Almospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA NA
4. Date of sampling	12/01/2024
5. Place of sampling	NEAR WEIGH BRIDGE BIMM
6. Environmental conditions during sampling & Transport	1) Temperature: 10-26 deg C 2) Barometric Pressure: 733 mm of Ho 3) Rain Tell
7. Sampling Plan & Method used	No. 8: Cold Chain Maintained IS:6182(P-17,12) & USEPA
3. Identification of the personnel performing sampling by MSK	LALIN KUMAR NAIK, PRATIK KUMAR MANTRI
9. Field Equipments Used	MSK/BBL/FIELD/RDS-11

Report No.: MSKPL/ED/2023-24/M11FEY

Sample No.: MSKNB/ED/2023-24/01/6Y2284

#### RESULT

Chemical						
SI 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:42)	
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	0.55	
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

Designation

Executive Chemist

The results reside only to the sense) tented.

This Test Report shall not be reportduced excelent in full, we mout the permission of Mitre S.K. Private Lamined.

The reserved part of sample(s) for chambers analysis, (Non - perishable sample(s) Food, Water) shall be retained from the case of laste of the Test Report. Perishable sample(s) must be retained from the case of laste of the Test Report.

The reserved part of sample(s) for chemical amayers (Soil, Soul & Liquid Wisser) shall be returned for 15 days as per CPCB quideline & (Air), a mount from the date of mous of the Test Report.
The reserved part of excepte(s) for attachbouggest soveryes (Non - penetrable sample(s) Food, Souled Water Section (sod) shall be returned for 15 days from the date of mous of the Test Report.

Streets Centre (Siti Floor), 74B. K.J.C. Bose Read, Kolkute: -700015, West Bengal, India Tris. -91 23 40143000 / 22000007 Fair -91 33 22500000 Email: ##0\_gretness.com Website: www.nitrask.com Head Office:

Page 1 pt1

#### Address of Branch:

P.O. Barbil Dt Koonjhar Orissa 758 035





## Name & Address of Customer:

Tata Steel Ltd.(MGM) Joria West

Al/Po. - Joda. Dist. - Keonihar, Odisha - 758034. India Pin

## TEST REPORT

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/004484

10/02/2024

MSKGL/ED/2023-24/01/00560

3000156017, Date - 28/09/2023

We hereby certify that the following sample Drawn by us has been

1. Group	
2. Description of sample	AIR
3. Unique Identification of sample(if way)	Ambient Air
f. Date of sampling	Bernebari Iron & Mr. Mines
	12/01/2024
5. Place of sampling	Near Weigh Bridge BIMM
S. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA NA

Report No.: MSKGL/ED/2023-24/004484

Sample No.; MSKGL/ED/2023-24/01/00560

#### RESULT

SI No.	Parameter	Parameter UOM Manual		-	
1	Ammonia (NH3)	7.7	Method	Limit	Result
	No. of Contract of	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	15.5
2	Carbon Morioxide (CO)	mg/m3	IS 5182 Part 10:1999 (Reaff.2014)	2 BHR	
3	Nitrogen Dioxide (NO2)	micro gm/m3	(NDIR) (O) IS 5182 : Part 6 2006 (Realt 2012) (O)		0.41
4	Ozone (O3)	micro gm/m3		80 24 HR.	18,8
5	Particulate Matter (<10um)		15 5182 (Part 9)	150 1 HR	BDL(DL/20.0)
5	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 Part 23:2006 (Realt. 2012)_(0)	100 24 HR.	125
7		micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HR.	62
	Sulphur Dioxida (SO2)	Emiring draim	IS 5182 Part 2:2001 (Realf.2012) (O)	80 24 HR.	8.2

END -

Report Verified By

Head Office:



For Mitra S. K. Private Limited

**Authorised Signatory** 

Shorth Center (Sh Fhart, 748, A.J.C. Boer Rund, Kokuma - John III, West Gengel, Indicate: 61, 32 4914-9900 (1997)

Doc No: MSK/GEN/19/07







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ULR: TC-695024000001809F

## Name & Address of Customer:

Tata Steel Ltd (MGM) Joda West

Address of Laboratory:

Email: udayanlab@mitrask.com

West Bengal Tel.: 491 7044036120

Building No. P- 48, Udayan Industrial Estate. 3, Pagladanga Road, Kolkata 700015

At/Po. - Joda, Dist. - Keonihar, 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/K120EB

06/02/2024

MSKNB/ED/2023-24/01/1M3C7Z

24/01/2024

24/01/2024 - 08/02/2024

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:

Group     Description of sample	Atmospheric Pollution
3. Unique identification of sample(if any)	Ambient Air
I. Date of sampling	NA NA
5, Place of sampling	18/01/2024
6. Environmental conditions during sampling & Transport	Near Project Office BIMM  1) Temperature : 18-28 days C 2) Second 1
. Sampling Plan & Method used	1) Temperature :18-28 deg C 2) Barometric Pressure: 733 mm of Hg 3) Rain fail No & Cold Chain Maintained IS:5182(P-11,12) & USEPA
. Identification of the personnel performing sampling by MSK. . Field Equipments Used	Pratik Kr Mantri, Dnambrudhar Das MSK/BBL/FIELD/RDS-5

Report No.: MSKPL/ED/2023-24/K120EB

Sample No.: MSKNB/ED/2023-24/01/1M3C7Z

### RESULT

Chemical			RESULT		
SI No.	Parameter	UOM	******		
1	Arsenic as (As)		Method	Limit	Resutt
2	Benzene	ng/m3	USEPA-IO 3.4, June	5 (Annual)	BDL(DL-1,0)
3		micro gm/m3	IS 5182 (Part 11)	5 (Annual)	
	Benzo(s)Pyrene	ng/m3	IS 5182 (Part 12)		8DL(DL4.2)
4	Lead (as Pb.)	micro gm/m3	USEPA-IO 3.4. June	1 (Annual)	BDL(DL:0.5)
5	Manganese as Mn	micro gm/m3		1 (24 Hours)	BDL(DL:0.01)
.6	Nickel as Ni	7.3.22	USEPA-IO 3.4: June	Not Specified	0.38
pinion :		ng/m3 B notification: New Date	USEPA-IO 3.4, June I. 18th November 2009, for Amb	20 (Annual)	6.4

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

NA

END

fleviewed By:

Name Dasignwoon Dr. Dovollem Banarjoe

Technical in charge

Authorized Signatory.

Signature

Designation

he results relate only to the item/p) tented
his Teel Report shall not be reproduced except in full, without the permission of Mara S.K. Private Limited
his Teel Report of sample(s) for chemical ensigner (Non - penshable sample(s) Enod, Water) shall be retained for 16 days from the date of sample of the Teel Report
his reserved part of sample(s) for chemical ensigner (Non - penshable sample(s) Enod, Water) shall be retained for 16 days from the date of sample(s) the Teel Report
his reserved part of sample(s) for chemical ensigns (Sign Splid & Lieuid Waster) enails to be retained for 15 days as part of sample(s) for chemical ensigns (Sign Splid & Lieuid Waster) enails to days

The Teel Report

T

on the date of source of the Test Report to resolve part of sample(s) for changes analysis (Soil, Solid & Liquid Waste) shall be retained for 15 days an per CPCB guissians 8. (Air) 1 month from the case of feace of the Test Report to resolve part of sample(s) for Microbiological analysis (Non-perchebie sample(s) Food, Solided Water, Sudded load) shall be retained for 15 days from the date of sause of the Test Report. Stracty Conce (Sti Floor), 748, A.J.C. Bose Road, Kokada - 700016, Wast Bongs, India. Tel. 91.33 40143000 / 22650007 Fax, 91.33 22550000 Email: http://pubm.crask.com/Website: www.mitnesk.com/

## Address of Branch ;

P.O. Barbil Dt Keonithar Orissa 758 035





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## Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

Al/Po. - Joda, Dist. - Keorilliar, Odisha - 758034 India Pin

## TEST REPORT

Report No. :

Date:

MSKGL/ED/2023-24/004501 10/02/2024

Sample No. :

MSKGL/ED/2023-24/01/00970

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

2. Description of sample	AIR
3. Unique Identification of sample(if any)	Amblent Air
I. Date of sampling	Barnebari Iron & Mr. Mines
5. Place of sampling	18/01/2024
S. Environmental conditions during sampling & Transport	Near Project Office BIMM
. Sampling Plan & Method used	Clear & Suriny
	NA NA

Report No.: MSKGL/ED/2023-24/004501

Sample No.: MSKOL/ED/2023-24/01/00970

#### RESULT

SI No.	Parameter	UOM	0		
1 -	Ammonia (NH3)		Method	Limit	Result
2	The state of the s	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	
-	Carbon Monacide (CO)	mg/m3	IS 5182 : Part 10 :1999 (Realf:2014)	400 24 MM	15,5
1	Nitrogen Dioxide (NO2)	miero mentura	(NDIR) (O)	2 8HR.	0.54
4	Ozone (O3)	micro gm/m3	IS 5182 Part 5 :2006 (Reaff.2012) (O)	80 24 HR	1A.S
5	Particulate Matter (<10um)	Enviring croim	IS 5182 (Part 9)	180 1 HR	
6	Particulate Matter (<2.5um)	rniero gm/m3	IS 5182: Part 23:2006 (Reaff, 2012), (O)	100 24 HR.	BDL(DL 20.0)
7		mara gm/m3	IS 5182 (PT-24),2019 (O)		236
	Sulphur Dioxide (SO2)	micro gra/ind	IS 5182 Part 2:2001 (RaxII.2012) (O)	60:24 HR.	118
			END	80 24 HR.	7.6

END -

Report Verified By

Head Office:

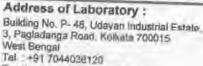


For Mitra S. K. Private Limited

**Authorised Signatory** 

Seach Code (3th Rinn), 748, A.J.C. Brise Rice: K.S. - 700010, West Serious Incl., Tel. 191 33 40143000 / 20000007 Fire: 91 30 22550008 Email: vid-Smithsox com Websile: www.mittak.com





Email: udayanlab@mtrask.com







Scan for Portal

ULR: TC-695024000001815F

### Name & Address of Customer:

Tata Steel Lld.(MGM)\_.loda West

Al/Po. - Joda Dist - Keonjhar, Odisha - 758034 Indla

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/P1211S

06/02/2024

MSKNB/ED/2023-24/01/X93C90

24/01/2024

24/01/2024 - 06/02/2024

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		
2. Description of sample	Atmospheric Pollution	
3. Unique Identification of sample(if any)	Ambient Air	
Date of sampling	NA .	
5. Place of sampling	18/01/2024	
	Near Back Filling Yard Barnebari	
5. Environmental conditions during sampling & Transport	1) Temperature :18-28 deg C 2) Recometric Processing 200	
. Sampling Plan & Method used	1 + De Se South Citain Maintainnia	
I Identification of the personnel performing sampling by MSK	18.5182(P-11,12) & USEPA	
Field Equipments Used	Pratik Kr Mantri, Dhambrudhar Das	
	MSK/BBL/FIELD/RDS-13	

Report No.: MSKPL/ED/2023-24/P1211S

Sample No.: MSKNB/ED/2023-24/01/X93C90

### RESULT

SI No.	Parameter	UOM	Method	13/5	1
1	Arsenic as (As)	ng/m3	THE STATE OF THE S	Limit	Result
2	Benzene		USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
4	Lead (as Pb )	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL-0.01)
6		micro gm/m3	USEPA-IO 3.4: June	Not Specified	0.1
pinion :	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL;5,0)

Limit as per CPCB notification, New Deltii, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END -

Reviewed By:

Signature

bannya Dr. Devottam Barrery

Technical In charge

Authorized Signatory.

Dissignation

Signisfree:

This results relief only to the item(s) tented.

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The reserved part of sample(s) for chemical analysis (Non-peristable sample(s) Food. Whiter) shall be retained for 15 days from the date of lease of the Test Report. Perismobile sample(s) inner be retained 2 days.

The reserved part of sample(s) for chemical analysis (Non-peristable sample(s) Food. Whiter) shall be retained for 15 days from the date of lease of the Test Report.

The reserved part of sample(s) for chemical analysis (Non-peristable sample(s) Food. Whiter) shall be retained for 15 days from the date of lease of the Test Report.

The reserved part of sample(s) for chemical analysis (Non-peristable sample(s) Food. Whiter) shall be retained for 15 days from the date of lease of the Test Report.

The reserved part of sample(s) for character analysis (Soit & Liquid Waste) shall be retained for 15 days as per CPCB guideline & (Air) 1 month from the date of that Report.
The reserved part of sample(s) for Astrobiological analysis (Non - perishable earspin(s) Food. Sealed Water. See all food) shall be retained for 15 days from the date of Issue of the Test Report.

Rhwarn Carers (sin Floor), 749, A.J.C. Bose Road, Kolisata -700016, West Bergal, Index Tel. 31 23 40143000 / 22650007 Fax: 1st 23 22650000 Email: wfoligmitrask.com Website: www.mitrask.com

Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





Scan for Porta

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Po, - Joda, Dist. - Keonituir. Odisha - 758034 India Pin

TEST REPORT

Reference No. & Date :

Report No. : Date :

Sample No. :

MSKGL/ED/2023-24/004549

10/02/2024

MSKGL/ED/2023-24/01/00976

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)	Barnebari Iron & Mri Mines	
4. Date of sampling	18/01/2024	
5. Place of sampling		
6. Environmental conditions during sampling & Transport	Near Back Filling Yard Bemebari	
7. Sampling Plan & Method used	Cloudy	

Report No. 4 MSKGL/ED/2023-24/004549

Sample No.: MSKGL/ED/2023-24/01/00976

#### RESULT

SI No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	15 5182 (Part 25)	400 24 HR.	18.5
2	Carbon Monoxide (CO)	mg/m3	IS 5182 : Part 10 :1999 (RealL2014) (NDIR) (O)	2 8HR.	0.30
3	Naregen (Jioxide (NO2)	micro gm/m3	IS 5182 : Part 5 :2006 (Resit 2012) (O)	80 24 HR.	
4	Ozonii (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR	15,5
5	Particulate Matter (<10um)	mioro grn/m3	IS 5182: Part 23:2006 (Realf. 2012) (O)	100 24 HR	BDt (DC-20,0)
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)		211
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 Part 2 2001 (Reaft 2012) (O)	60 24 HR. 80 24 HR.	5.7

----- END -----

Report Verified By

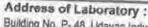
Head Office:



For Mitra S. K. Private Limited

Doc No. MSKIGEN/19/07





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





Scan for Portal

ULR: TC-695024000001811F

## Name & Address of Customer:

Tata Sleet 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 :

Disciplina:

MSKPL/ED/2023-24/712102

06/02/2024

MSKNB/ED/2023-24/01/4W3CB0

24/01/2024

24/01/2024 - 05/02/2024

Permanent Facility

3000156017/056, Date - 18/09/2023

Chemical

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

1. Group	
2, Description of sample	Almospharic Pollution
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA NA
5. Place of sampling	18/01/2024
	Near Shorting Yard BIMM
5. Environmental conditions during sampling & Transport	1) Temperature 18-28 deg C 2) Barrymetric Pressures 799
Sampling Plan & Method used	The state of the s
i. Identification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA
Field Equipments Used	Pratik Kr Mantri Dhambrudhar Das
r ress equipments used	MSK/BBL/FIELD/RDS-9

Report No. : MSKPL/ED/2023-24/71210Z

Sample No.: MSKNB/ED/2023-24/01/4W3CB0

## RESULT

		RESULT		
Parameter	Non	Method	) Touris	
Alsenic as (As)	ng/m3	1,000		Result
Benzene			200000000000000000000000000000000000000	BDL(DL1,0)
Benzo(a)Pyrane			5.(Annual)	BDL(DL:4.2)
	PHARMACH TO BE BE BE		1 (Annual)	BDL(DL:0.5)
			1 (24 Hours)	BDL(DL:0.01)
	micro gm/m3	USEPA-IO 3.4: June	Not Specified	0.2
	ng/m3	USEPA-IO 3,4, June	20 (Annual)	11.0
	Arsenic as (As) Benzene Benzo(a)Pyrene Lead (as Pb ) Manganese as Min Nickel as Ni	Aisenic as (As) ng/m3  Benzene micro gm/m3  Benzo(a)Pyrene ng/m3  Lead (as Pb ) micro gm/m3  Manganese as Mr micro gm/m3  Nickel as Ni ng/m3	Parameter         UOM         Method           Alsenic as (As)         ng/m3         USEPA-IO 3.4, June           Benzene         micro gm/m3         IS 5182 (Part 11)           Benzo(a)Pyrene         ng/m3         IS 5182 (Part 12)           Lead (as Pb.)         micro gm/m3         USEPA-IO 3.4, June           Manganese as Mir         micro gm/m3         USEPA-IO 3.4, June           Nickel as Ni         ng/m3         USEPA-IO 3.4, June	Parameter         UOM         Method         Limit           Aisenic as (As)         ng/m3         USEPA-IO 3.4, June         5 (Annual)           Benzene         micro gm/m3         IS 5182 (Part 11)         5 (Annual)           Benzo(a)Pyrene         ng/m3         IS 5182 (Part 12)         1 (Annual)           Lead (as Pb.)         micro gm/m3         USEPA-IO 3.4, June         1 (24 Hours)           Manganese as Mrr.         micro gm/m3         USEPA-IO 3.4: June         Not Specified           Nickel as Ni         not Specified         Not Specified

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END

Reviewed By

Signature

Dissignation Technical In charge Authorized Signatury

Signature

The results relate only to the item(s) tested

The results retailed only to the remost tested.

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This reserved part of sample(s) for chemical enables (Non - perishable sample(s) Food, Water) areas for retained for the date of leaus of the Test Report.

The Test Report Limit on the Test Report.

The reserved part of sample(s) for chemical analysis (Soit, Soite & Lipse Weste) shart be resumed for 15 days as per CPCB guideline & (Air). I mostly from the skee of issue of the Test fungor.

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

Shrech/ Centre (5th Ficor), 748, A.J.C. Base Road, Kokuta - 700016, West Beroad, India Tel. 91 IS 40145000 / 22650007 Fer: 91 33 22950000

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## Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





Scan for Portal

## Name & Address of Customer:

Tuta Steel Ltd.(MGM)\_Joda West

At/Po, - Joda, Dist. - Keonihar, Odesha - 758034 India Pin

## TEST REPORT

Report No. :

Date :

Sample No. : Reference No. & Date : MSKGL/ED/2023-24/004531

10/02/2024

MSKGL/ED/2023-24/01/00972

3000158017/056; Date - 15/09/2023

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

2. Description of sample	AIR
Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Barnebari Iron & Mn Mines
5. Place of sampling	18/01/2024
5. Environmental conditions during sampling & Transport	Near Shorting Yard, BIMM
7. Sampling Plan & Method used	Clear & Sunny
a membo used	NA NA

Report No.: MSKGL/ED/2023-24/004531

Sample No.: MSKGL/ED/2023-24/01/00972

#### RESULT

SI No.	Parameter	UOM	1000		
1	Ammonia (NH3)		Method	Limit	Result
7		micro gm/m3	IS 5182 (Part 25)	400 24 NR.	
-	Carbon Monoxide (CO)	mg/m3	IS 5182 : Part 10 :1999 (Reaff.2014)		18.5
3	Nitrogan Diaxide (NO2)	Princes and for the	(NDIR) (O)	2 BHR	0.59
4	Ozone (O3)	micro gm/m3	IS 5182 Part 6 2006 (Reaft 2012) (O)	80 24 HR	18.4
5	Particulate Matter (<10um)	Em/mg proim	IS 5182 (Part 9)	186 1 HR	
6	Porticulate Matter (<2.5um)	micro gm/m3	IS 5182: Part 23:2006 (Reaff, 2012) (O)	100 24 HR	BDL(DL:20.0)
7		micro gm/m3	IS 5182 (PT-24),2019 (O)		164
-	Sulphur Dioxide (SQ2)	micro gm/m3	IS 5182 : Part 2 :2001 (Reaff.2012) (O)	80 24 HR.	83
			- END	30 24 HR	8.2

END

Report Verified By

Head Office:

For Mitra S. K. Private Limited

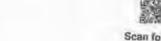
Address of Laboratory :

Building No. P-48, Lidayan Industrial Estate. 3, Pagladanga Road, Kolkata 700015 West Bengal

Tel. :+91 7044036120

Email: udayanlab@mitrask.com







DOC NO. MSK/GEN/19/07

TESTING WINSPECTION

Scan for Portal

ULR: TC-695024000001810F

MSKPL/ED/2023-24/W120EB

MSKNB/ED/2023-24/01/153CDJ

## Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

APPo. - 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:

24/01/2024 24/01/2024 - 06/02/2024

06/02/2024

Permanent Facility

3000156017/056, Date - 15/09/2023

Chemical

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

2. Description of sample	Atmospheric Pollution
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA
5. Place of sampling	18/01/2024
6. Environmental conditions during sampling & Transport	Near Weight Bridge BIMM
. Sampling Plan & Method used	1) Temperature :18-28 dag C 2) Berometric Pressure: 733 mm of Hg 3) Rain fall No.6 Cold Chain Maintained
Identification of the personnel performing consults to train	1S:5182(P-11,12) & USEPA
Field Equipments Used	Pratik Kr Mantri Dhambridhar Das
	MSK/BBL/FIELD/RDS-11

Report No.: MSKPL/ED/2023-24/W120EB

Sample No.: MSKNB/ED/2023-24/01/183CDJ

#### RESULT

SI No.	Parameter	UOM	Method		1
1	Arsenic as (As)	ng/m3		Limit	Result
2	Benzene	The second secon	USEPA-10 3.4, June	6 (Annual)	BDL(DL:1.0)
3	Benzo(s)Pyrene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
4	Lead (as Pb )	ng/m3	IS 5182 (Part 12).	7 (Annual)	BDL(DL:0.5)
5	Manganese as Mn	micra gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	
6		micro gm/m3	USEPA-IO 3.4: June	Not Specified	BDL(DL-0.01)
oinlon :	Nickel as Ni	ng/m3	USEPA-IO 3.4, June f, 18th November 2009, for Amb	Maria	8DL(DL:5.0)

Limit as per CPC8 notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Reviewed By:

Signatura

Namo

Dissignation Technical in chanse Authorized Signatory

Signature

the results relate only to the item(e) lessed.

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The reserved part of sample(s) for chemical enalysis (Non - perishable sample(s) Food, Walse) shall be retained for 15 days from the date of issue of the Test Report. Permissible sample(s) and 2 days his reserved part of sample(s) for chemical analysis (Soil S. Liquid Wassa) small be retained for 15 days as per CPCB quidware A. (Air.). I more from the over all bounds of the Test Report.

The reserved part of sample(s) for Microbiological enalysis (Non - permissible sample(s) Food, Sealed Wester, Sealed food) when the retained for 16 days from the over all bounds of issue of the Test Report. dead Office: Stracts Centre (Sin Fear), 746, A.J.C. Bose Road, Kokata -700016, West Benge, India Tel. 91 33 40143000 / 22650007 Fev. 91 30 22650009 Email: Info@minasc.com Website: www.mitress.com

Address of Branch:

P.O. Barbil Dt Koonjhar Orissa 758 035





Scan for Portal

Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Joda West

Al/Po, - Joda, Drit. - Keonifuar Odistia - 758034 India Ptn

TEST REPORT

Report No.:

Date: Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/004502

10/02/2024

MSKGL/ED/2023-24/01/00971

3000156017/056, Date - 15/09/2023

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

2. Description of sample	AIR
3. Unique identification of sample(if and	Ambient Air
4. Date of sampling	Bamebari Iron & Mn. Mines
5. Place of sampling	18/01/2024
6. Environmental conditions during sampling & Transport	Near Weight Bridge BIMM
7. Sampling Plan & Method used	Clear & Suriny
The state of the s	NA NA

Report No.: MSKGL/ED/2023-24/004502

Sample No.: MSKGL/ED/2023-24/01/00971

#### RESULT

SI No.	Parameter	UOM	400		
1	Ammonia (NH3)	77.00	Method	Limit	Result
0.		micro gm/m3	IS 5182 (Part 25)	400 24 HR	
-	Darbon Monoxide (CO)	mg/m3	IS 5182 : Part 10 :1999 (Reaff.2014)	400 Z4 HR.	12.6
3	Nitrogen Diaxide (NO2)	miner well in	(NDIR) (O)	2 8HR.	0.75
4	Ozone (O3)	micro gm/m3	IS 5182 . Part 8 :2006 (Reaff.2012) _(0)	80 24 HR.	16.7
5	Particulate Matter (<10cm)	Em/mg ordina	IS 5182 (Part 9)	180 1 HR.	
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182; Part 23:2006 (Reaff, 2012)_(O)		BDL(DL:20,0)
7	estication watter (<2.5em)	Emimp oraim	IS 5182 (PT-24),2019 (O)	100 24 HR.	226
	Sulphur Dioxida (SO2)	micro gm/m3	IS-5162 : Part 2 :2001 (Res/IL2012) (O)	60-24 HR	127
			END END	80 24 HR.	7.6

END ----

Report Verified By

Head Office:



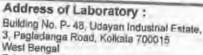
For Mitra S. K. Private Limited

Bre Authorised Signatory

Swarts Centre (Str. Floor), 748. A.J. C. Bres Road, Kellenta -700016, West Borrow, India Ter. 97 to 40143000 / 2755007 Fax: 91 30 22550000 Email: nine Tresusk.com Website: Www.netresk.com

Doc No. MSK/GEN/19/07





Tel \_+91 7044036120

Email: udayanlab@mitrask.com







Scan for Portal

ULR: TC-695024000001816F

### Name & Address of Customer :

Tata Steel Ltd.(MGM)\_Jode West

AVPo. - 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/2023-24/51212M

06/02/2024

MSKNB/ED/2023-24/01/053C72

24/01/2024

24/01/2024 - 06/02/2024

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:

Group  1. Group	
2. Description of sample	Atmospheric Pollution
Unique identification of sample(if any)	Ambient Air
4. Date of sampling	NA .
5. Place of sampling	19/01/2024
	Near Project Office BIMM
6. Environmental conditions during sampling & Transport	1) Temperature (13-29 deg C 2) Barometric Pressure, 734 mm of Hg 3) Rain fall
7. Sampling Plan & Method used	A SERVICE CHRIST MENTINED
I Identification of the reservoir 1 to 1	IS;5182(P-11,12) & USEPA
Identification of the personnel performing sampling by MSK.     Field Equipments Used	Dhambrudhar Das, Akash Kr. Sethy
r reio Equipments Usea	MSK/BBL/FIELD/RDS-5

Report No.: MSKPL/ED/2023-24/51212M

NA

Sample No.: MSKNB/ED/2023-24/01/053C7Z

#### RESULT

SI No.	Parameter	UOM	1		_
1			Method	Limit	Result
2	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)		BDL(DL 4.2)
4	Lead (as Pb )	micro gm/m3	USEPA-IO 3.4, June	T (Annual)	BDL(DL:0.5)
5	Manganese as Mn	micro gm/m3		T (24 Hours)	BDL(DL:0.01
8	Nickel as NI		USEPA-IO 3.4: June	Not Specified	0.3
pinion:		ng/m3	USEPA-IO 3.4, June 1, 18th November 2009, for Amit	20 (Annual)	9.6

Limit as per CPCB notification. New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Reviewed By

Signature

Mame

Dr. Devottam Barary

Designation Technical in charge Authorized Signatory:

Soomies

The results relate only to the man(e) tested.

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The reserved part of sample(s) for chamical analysis (Non - pershable sample(s) Food. Water) shall be retained for 15 days from the date of issue of the Test Report. Perundom sample(s) shall be retained 2 days from the date of issue of the Test Report.

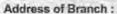
The reserved part of sample(s) for chamical analysis (Non - pershable sample(s) Food. Water) shall be retained for 15 days from the date of issue of the Test Report.

The reserved part of sample(s) for chamical enalysis (Non - pershable sample(s) Food. Water) shall be retained for 15 days as per CPCR disclosers. & (Aix 1 miles) from the date of issue of the Last Report.

The reserved part of sample(s) for the micro enabyes (Sait, Spile & Lique) White) shad be retained for 15 days as per CPCR guidaline & (Air) 1 ments from the unite of issue of the 1 self Report.

The reserved part of sample(s) for Microtrological analysis (Non - perandos exemple(s) Food, Smiled Water, Second food) shad be retained for 15 days from the date of issue of the Text Report. Stream Centre (5th Floor), 748, s.J.C. Base Rosst, Kalesta -700016, West Bergas, India. Tel., 91 33 401 40000 / 20050007 Fax. 91 33 226500000 Enast : infogmitrask.com Website : www.mitrask.com

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



P.O. Barbil Of Koonjhur Onssu 758 035

Tata Steel Ltd.(MGM) Joda West





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### **TEST REPORT**

Name & Address of Customer: Report No. :

Date:

MSKGL/ED/2023-24/004550

10/02/2024

Sample No.

MSKGL/ED/2023-24/01/00977

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)	Barroberi Iron & Mn Mines
4. Date of sampling	19/01/2024
5. Place of sampling	Near Project Office
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA .

Report No.: MSKGL/ED/2023-24/004550

Sample No.: MSKGL/ED/2023-24/01/00977

#### RESULT

Analysis I	analysis Result of Ambient Air							
SI No.	Parameter	UOM	Method	Limit	Result			
3	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	14.6			
-2	Carbon Monoxide (CO)	mg/m3	tS 5182 : Part 10 :1999 (Reaff,2014) (NDIR) (O)	2 8HR.	0.46			
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 : Part 6 :2006 (Reaff 2012) _(O)	50 24 HR.	18.0			
d	Ozone (O3)	micro gm/m3	(S.5182 (Part 9)	180 1 HR.	BDL(DL-20,0)			
fi	Particulate Matter (<10um)	micro gm/m3	IS 5182: Part 23:2006 (Reaff, 2012)_(O)	100 24 HR.	249			
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR.	120			
7	Sulphur Dioxide (SO2)	micro gm/mil	IS 5182 : Part 2 :2001 (Realf.2012) (O)	80 24 HR.	6,8			

---- END -----

Report Verified By

Head Office:



For Mitra S. K. Private Limited

Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

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







Die No. MSKIGEN/1907



ULR: TC-695024000001818F

#### Name & Address of Customer:

Tata Steel Ltd.(MGM) Jode West

Al/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/U1212C

06/02/2024

MSKNB/ED/2023-24/01/GQ3C98

24/01/2024

24/01/2024 - 08/02/2024

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	Atmospheric Pollution	
2. Description of sample	Ambient Air	
3. Unique identification of sample(if any)	NA.	
4. Date of sampling	19/01/2024	
5. Place of sampling	Near Shorting Yard BIMM	
6. Environmental conditions during sampling & Transport	<ol> <li>Temperature: 13-29 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain fil No &amp; Cold Chain Maintained.</li> </ol>	
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA	
8. Identification of the personnel performing sampling by MSK	Dhambrudhar Das, Akash Kr. Sethy, Pratik Mishra,	
9. Field Equipments Used	MSK/BBL/FIELD/RDS-9	

Report No.: MSKPL/ED/2023-24/U1212C

Sample No.: MSKNB/ED/2023-24/01/G03C98

#### RESULT

Chemical							
Si 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/m/3	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	0.2		
6	Nickel as Ni	ng/m3	USEPA-IQ 3.4, June	20 (Annual)	12.2		

Opinion:

Limit as per CPCB notification, New Dulhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Reviewed By.

Dr. Devoltam Bararyee

Designation ... Technical in charge

This reacts ratios only to the liam(a) leated.

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The reserved part of sample(s) for chamical analysis (Non - perishable sample(s) Food, William) shall be retained for 15 days from the date of same of the Test Report. Perwhater sample(s) shall be retained 2 days from the date of same of the Test Report.

The reserved part of sample(s) for dismical analysis (finit. Solid & Liquid Wasio) shall be interred for 15 days as per CPCB guarante & (Art 1 month from the date of lesse of the Test Report. The reserved part of sample(s) for Microbiological analysis (Non . perishable sample(s) Food, Sasted Water, Sealed lood) shall be made and it is 15 days from the date of lesse of the Test Report.

Sheschi Çannı (Sin Fasır), 74B, A.J.C. Bown Rosid, Kokuts - 700015, West Bengal, Viol. Tel.: 91 33 40143000 / 22650007 Fax: 91 33 20160008 Head Office:

En of motivask.com Website, www.mitras.com



P.O. Barbir Dt Keoninan Onssa 758 035

Name & Address of Customer:

Tata Steel Ltd.(MGM) Jpds West





#### TEST REPORT

Report No. :

MSKGL/ED/2023-24/004504

Date:

Sample No. 1

10/02/2024

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

MSKGL/ED/2023-24/01/00979

Reference No. & Date:

3000156017/056, Oute - 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)	Barneban Iron & Mr. Mines	
4. Date of sampling	19/01/2024	
5. Place of sampling	Near Shorting Yard	
6. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA NA	

Report No.: MSKGL/ED/2023-24/004504

Sample No.: MSKGL/ED/2023-24/01/00979

#### RESULT

Analysis I	analysis Result of Ambient Air							
SI No.	Parameter	UOM	Method	Limit	Result			
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR	13.2			
2	Carbon Monoxide (CO)	mg/m3	IS 5182 : Part 10 :1999 (Renff.2014) (NDIR) (O)	2.8HR.	0.69			
3	Nitrogen Dioxine (NO2)	micro gm/m3	IS 5182 : Part 5 :2006 (Reaff.2012) (O)	80 24 HR	29.6			
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	BDL(DL-20.0)			
5.	Particulate Matter (<10cm)	micro gnt/m3	IS 5182: Part 23:2006 (Renff, 2012) (D)	100 24 HR.	107			
G	Particulate Malter (<2.5cm)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR.	56			
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 : Part 2 :2001 (Reeff:2012) _(O)	80 24 HRL	7.6			

- END -

Report Verified By

For Mitra S. K. Private Limited

#### Address of Laboratory:

Building No. P. 48, Udayan Industrial Estate. 3, Pagladanga Road, Kolksta 700015 West Bengal

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







Scan for Portal

ULR: TC-695024000001822F

DOC NO.: MSK/GEN/19/07

TESTING - INSPECTION

## Name & Address of Customer:

Tata Steel Ltd (MGM)\_Jode West.

AVPo. - Joda, Dist. - Keoninar, 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/E1212A

06/02/2024

MSKNB/ED/2023-24/01/U73CB5

24/01/2024

24/01/2024 - 06/02/2024 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	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA NA
4. Date of sampling	19/01/2024
5. Place of sampling	Near Back Filling Yard Barnebari
6. Environmental conditions during sampling & Transport	Temperature :13-29 deg G 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	Dhambrudhar Das, Akash Kr. Setby
9, Field Equipments Used	MSK/BBL/FIELD/RDS-13

Report No.: MSKFL/ED/2023-24/E1212A

Sample No.: MSKNB/ED/2023-24/01/U73CB5

#### RESULT

Chemical							
SI No.	Parameter	UOM	Method	Limit	Result		
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)		
2	Benzane	milero gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(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	0.21		
6	Nickel as NI	ng/m3	USEPA40 3.4, June	20 (Annual)	11.5		

Opinion:

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient pir quality

Statement of Conformity

END -

Reviewed By:

Name

Tachsical to charge

Authorized Signatory

Signature

Designation

The requite relate only to the item(a) teated.

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The reserved part of sample(s) for chamical analysis (Non - pershabit sample(s) Food, Weller) shall be relained to 15 cays from the data of saver of the Test Report. Personal sample(s) shall be retained 2 days from this date of Issue of the Yest Report.

The reserved part of sample(s) for character analysis (Soil, Soild & Liquid Winste) shall be reserved by (5 cays as per CPCid purchase & (As) I month from the citie of same of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non-perial soble sample(s) Food, Seeled Winter, Seesed tood) shall be related for 11 days from the date of loads of the Test Report.

Sporchi Cuntre (5th Floor), 74B, A.J.C. Boss Road, Kofasts - 700016, Wast Bengal, India. Tel., \$1.33.40143000) r.2550007 Fax: 91.33.22650000 Email, infoggrafusek.com Websile, www.mirash.com

### Address of Branch:

P.O. Barbil Di Keonjhor Crissa 758 035





Scan for Portal

### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/Pn. - Joda, Diet. - Kwonjhor, Odishe - 758034 India Pin

## TEST REPORT

Reference No. & Date :

Report No. :

Date :

MSKGL/ED/2023-24/004540

Sample No.:

10/02/2024 MBKGL/ED/2023-24/01/00983

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	
Unique Identification of sample(if any)	Barnebari Iron & Mn Mines	
4. Date of sampling	19/01/2024	
5. Place of sampling	Near Back Filling Vard Barnebari	
6. Environmental conditions during sampling & Transport	Cloudy	
7. Sampling Plan & Method used	NA NA	

Report No.: MSKGL/ED/2023-24/004540

Sample No.: MSKGL/ED/2023-24/01/00063

#### RESULT

Analysis Result of Ambient Air						
SI No.	Parameter	HOM	Method	Limit	Result	
1	Ammonia (NH3)	micro gm/m3	IS 5162 (Part 25)	400 24 HR.	1	
2	Carbon Monexide (CO)	mg/m3	IS 5182 : Part 10 :1999 (Reaft.2014) (NDIR) (O)	2 8HR.	0.79	
3	Nitrogen Diokide (ND2)	micro gm/m3	IS 5182 : Part 5 :2005 (Reaff,2012) (O)	80 24 HR	18,5	
4	Ozone (O3)	micro gm/m3	IS:5182 (Part 9)	180 1 HR.		
5	Particulate Matter (<10um)	moro gm/m3	IS 5182 Part 23:2006 (Reaff, 2012) (D)	100 24 HR	BDL(DL-20.0)	
g.	Particulate Metter (<2.5um)	micro gm/m3	IS-5182 (PT-24),2019 (O)		240	
J.	Sulphur Diazide (SQ2)	inias gn/n3	(S 5182 : Part 2 2001 (Reaff,2012) (O)	80 24 HR. 80 24 HR.	7.5	

---- END ----

Report Verified By

Head Office:

For Mitra S. K. Private Limited

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Rosd, Kolkata 700015 West Bengal

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



TC-6950





Doc No. MSK/GEN/19/07



ULR: TC-695024000001817F

#### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Al/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/E0/2023-24/912122

08/02/2024

MSKNB/ED/2023-24/01/0X3CC1

24/01/2024

24/01/2024 - 06/02/2024

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	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique identification of sample(if any)	NA.
4. Date of sampling	19/01/2024
5. Place of sampling	Near Weight Bridge BIMM
6. Environmental conditions during sampling & Transport	Temperature 13-29 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
Identification of the personnel performing sampling by MSK	Dhambrudhar Das, Akash Kr. Sethy
9. Field Equipments Used	MSK/BBL/FIELD/RDS-11

Report No.: MSKFL/ED/2023-24/912122

Sample No.: MSKNB/ED/2023-24/01/0X3CC1

### RESULT

Chemical							
SI No.	Parameter	UOM	Method	Limit	Result		
1 .	Arsanic as (As)	ng/m3	USEPA-IQ 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	0.3		
6	Nickel as NI	ng/m3	USEPA-10 3.4, June	20 (Annual)	11.9		

Opinion:

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient sir quality

Statement of Conformity NA

END -

Reviewed By:

Signature

Designation . Technical in charge

Authorized Signatory

Signature

The results reliate only to the term(s) tosted

This Test Report shall not be reproduced except in full, without the permission of Milira S.K. Private Linkaud.

The reserved part of sample(s) for chemical analysis (Non-perishable sample(s) Food. Wherey shall be retained to 15 days from the date of lease of the Test Report. Personable sample(s) shall be retained 2 days.

The reserved part of sample(s) for chemical analysis (Bot. Solid 5 Liquid Weste) shall be released by 15 days on per CPCII guideless 6 (Air) 1 month from the date of tesse of the Yest Report. The reserved part of sample(s) for Microbiological analysis (Non - peristrate sample(s) Food, Greated Wester, Seeled food) shall be related to 15 days from the date of same of the Yest Report.

Head Office:

Streets Cerey (Str Flory), 74B, A J C. Bose Road, Kokses -700016, West Benget, India. Tel : 91:33.40143000 / 22550007 Fax: 91:30.22550008 Emst Info@micrask.com Wirbsite www.mirrask.com

Address of Branch:

P.O. Berbil Dt Koonjhai Orissa 758.035





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Name & Address of Customer:

Tate Steel Ltd.(MGM) Joda West

Al/Po. - Joda, Dist. - Keonjihar, Odisha - 758034 India Pin

TEST REPORT

Report No. :

Date:

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/004555

10/02/2024

MSKGL/ED/2023-24/01/00978

3000156017/056, Dale - 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)	Earnebari Iron & Mn Mines	
4. Date of sampling	19/01/2024	
5, Place of sampling	Near Weight Bridge	
6. Environmental conditions during sampling & Transport	Cloudy	
7. Sampling Plan & Method used	Stoudy	

Report No.: MSKGL/ED/2023-24/004555

Sample No.: MSKGL/ED/2023-24/01/00978

#### RESULT

SI No.	Parameter	now	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR	20.2
2	Carbon Monoxide (CO)	mg/m3	IS 5182 ; Part 10 ;1999 (Realf.2014) (NDIR) (O)	2 BHR.	0,47
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 : Part 6: 2006 (Realt.2012) (O)	80 24 HR.	24.5
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 (Roeff: 2012) (O)	100 24 HR.	192
6	Particulare Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24).2019 (O)	60 24 HR	100
7	Sulphur Dioxide (SO2)	micro gro/m3	IS 5182 : Part 2 :2001 (Reaff.2012) (O)	80 24 HR	6.8

---- END ----

Report Verified By

Head Office:



For Mitra S. K. Private Limited

Doc No. MSK/GEN/19/07





Email: udayanlab@mitrask.com

Building No. P- 48. Udayan Industrial Estate. 3. Pagladanga Road, Kolkula 700015 West Bengal Tel. 1+91 7044036120





ULR: TC-695024000001947F

## Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Jode, Dist. - Keonjhar, Odlsha - 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/Q1218D

07/02/2024

MSKNB/ED/2023-Z4/01/4Z450G

29/01/2024

29/01/2024 - 06/02/2024

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	
2. Description of sample	Atmospheric Pollution
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA NA
5. Place of sampling	25/01/2024
	Barnebari Project Office BIMM
6. Environmental conditions during sampling & Transport	1) Temperature 17/32 deg C 2) Barometric Pressure 735 mm of the 21 Page 6
7. Sampling Plan & Method used	130 S South Schaff Maintained
3. Identification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA
9. Field Equipments Used	Pratik Kr.Mantri, Lalin Naik
Treat Equipments Used	MSK/BBL/FIELD/RDS-5

Report No.: MSKPL/ED/2023-24/Q1218D

Sample No.: MSKNB/ED/2023-24/01/4Z450G

### RESULT

SI No.	Parameter	UOM	Method	Limit	1
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	Result
2	Benzene	micro gm/m3	IS 5182 (Part 11)		BDL(DL-1.0
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	5 (Annual)	BDL(DL:4.2
4	Lead (as Pb.)	micro gm/m3	USEPA-IO 3.4, June	1 (Annual)	BDL(DL 0.5
5	Manganese as Mrr	micro gm/m3	USEPA-IO 3.4: June	1 (24 Hours)	0.04
6	Mickel as Ni	ng/m3		Not Specified	0.33
pinlon			USEPA-IO 3:4, June	20 (Annuai)	9.7

Limit as per CPCB notification, New Dethi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END ----

Royalwing By.

Signature

Designation

Executive Chemist

Authorized Signatory

Signature

Lab in charge

The results relate only to the item(s) tested.
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The reserved part of sample(a) for chemical analysis (Non-pereliable sample(s) Food, Water) shall be retained for 15 days from the date of linear of the Test Report. Perishable sample(s) multiple date of linear of the Test Report.

The reserved part of sample(s) for chemical analysis (Soil, Bolid & Liquid Wester) small be retailed for 15 days as per CFICB guideline & (Air) + month from the date of insure of the Test Report The reserved port of sample(s) for dissipulations analysis (Non - periobable sample(s) Food, Sedied Wester, Gested Sould) shall be retained for 13 days from the date of insure of the Test Report. Head Office: Bivesty Centre (5th Floor), 748, A.J.C. Bose Road, Kolinita - 700015, West Bengal, India. 7cl : 91 35-40143000 / 25650007 Fax: 91 32 25650035 Email: rifogrammic.com Websile: level militals com

Address of Branch:

P.D. Barbil Di Keonjhur Orissa 758 035

Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West





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## TEST REPORT

Report No. :

MSKGL/ED/2023-24/004583

Date:

10/02/2024

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin Sample No. :

MSKGL/ED/2023-24/01/01110

Reference No. & Date : 1000156017.

1000156017/056, Dale - 15/09/2028

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)	Barnebari Iron & Mr. Mines BIMM	
4. Date of sampling	25/01/2024	
5. Place of sampling	Near Project Office BIMM	
6. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA .	

Report No.: MSKGL/ED/2023-24/004583

Sample No.: MSKGL/ED/2023-24/01/01110

#### RESULT

analysis Result of Ambient Air							
SI No.	Parameter	HOM	Method	Limit	Result		
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR	16.3		
2	Carbon Monoxide (CO)	mg/m3	IS 5182 : Part 10 :1999 (Reaff.2014) (NDIR) (O)	2 8HR.	0.57		
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 : Part 6 :2006 (Reaff,2012) (O)	80 24 HR.	21.5		
4	Ozonii (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	BDL(DL:20.0		
4	Particulate Matter (<10um)	micro:gm/m3	IS 5182; Part 23:2006 (Reaft, 2012) (O)	100 24 HR	153		
6.	Particulate Matter (<2.5om)	trilicro gm/m3	IS 5182 (PT-24),2019 (O)	60.74 HR	81		
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 : Part 2 2001 (Reaft 2012) (0)	B0 24 HR.	7.8		

----- END -----

Report Verified By (1892

For Mitra S. K. Private Limited

Address of Laboratory:

Building No. P. 48, Udayan Industrial Estate; 3, Pagladanga Road, Kolkata 700015 West Bengal Tel. | +91 7044035120 Email: udayanlab@mitraak.com







Doc No. MSK/GEN/19/07

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ULR: TC-695024000001949F

### Name & Address of Customer:

Tata Steel Lld.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjinar, 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/K1219E

07/02/2024

MSKNB/ED/2023-24/01/EB453J

29/01/2024

29/01/2024 - 05/02/2024

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 re

1. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA NA
I. Date of sampling	25/01/2024
S. Place of sampling	Near Shorting Yard BIMM
5. Environmental conditions during sampling & Transport	1) Temperature: 17-32 deg C-2) Barometric Pressure: 735 mm of Ho 31 Rain fall
Sampling Plan & Method used	No & Cold Chain Maintained IS 5182(F-11, 12) & USEFA
Identification of the personnel performing sampling by MSK	Pratik Kr. Mantri, Lalin Nalk
P. Field Equipments Used	MSK/BBL/FIELD/RDS-12

MSKPL/ED/2023-24/K1219E Report No. :

Sample No.: MSKNB/ED/2023-24/01/EB453J

#### RESULT

Chemical					
SI No.	Paramoter	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)Pyrane	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)	23.7

Opinion:

Limit as per CPCB notification, New Delhi. 18th November 2009, for Ambjent air quality

Statement of Conformity MA

END -

Reviewed By

Signature

Ms. Piuli Ganguly

Designation Executive Chemist

Authorized Signatory

Keb in charge

This results rotate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Miltra S.K. Private Limited.

This reserved part of sample(s) for chemical analysis (Non - perior able sample(s) Food. Weter) shall be releared for 15 days from the or same of the Test Report. Persynoble sample(e) shall be releared for 15 days from the original of the Test Report.

The reserved part of semple(s) for chemical enabyses (Soil, Soild & Liquid Wester) when the return of the 15 days are per CPCB guidanne & (Air) 1 manus from the clean of issues of the Test Respect.
The reserved part of semple(s) for Microbiological analysis (Non - pershebie semple(s) i nod, Sealed Water, Tested hood) shall be returned for 15 days from the date of issue of the Test Report.

Britisch Gertre (Str. Floer), 749, A.J.C. Bose Road, Kollesia - 700015, Wast Bengal, India. Tal. 194 33 40143:000 / 20600007 Fax: 91 33 92600006 Ermail. Info@emitrask.com Websits: www.miraeli.com Head Office:

Address of Branch:

P.O. Barbil Dt Knonjhur Orissa 758 035

Name & Address of Customer:

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

Tata Steel Ltd.(MGM) Jode West





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### **TEST REPORT**

Report No. :

MSKGL/ED/2023-24/004584

Date :

10/02/2024

Sample No.:

MSKGL/ED/2023-24/01/01112

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)	Samebari Iron & Mr. Mines BIMM	
4. Date of sampling	25/01/2024	
5. Place of sampling	Near Shorting Yard BIMM	
6. Environmental conditions during sampling & Transport	Clear & Surmy	
7. Sampling Plan & Method used	NA.	

Report No.: MSKGL/ED/2023-24/004584

Sample No.: MSKGL/ED/2023-24/01/01112

#### RESULT

Analysis Result of Ambient Air						
SI No.	Parameter	UOM	Method	Limit	Result	
1	Ammonia (NH3)	micro-gm/m3	IS 5182 (Part 25)	400 24 HR.	12.5	
2	Cartiert Monoxide (CO)	mg/m3	IS 5182 : Part 10 ;1999 (Reaff.2014) (NDIR) (O)	2 8HR.	0,67	
3	Nitrogen Dicode (NO2)	micro gm/m3	IS 5182 Part 6:2006 (Reaff,2012) (O)	80 24 HR,	16.9	
4	Ozone (O3)	micro gm/m3	(5 5182 (Part 9)	180 1 HR.	BDL(DL:20.0)	
9	Particulate Malter (<10um)	micro gm/m3	IS 5182: Part 23:2006 (RealL 2012) (O)	100 24 HR.	162	
û	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)	80 24 HFI.	72	
Ŧ	Sulphur Dioxide (SQ2)	micro gm/m3	IS 5182 : Part 2 :2001 (Realf.2012) _(0)	80 24 HR	6.8	

----- END -----

Report Verified By

Head Office:



For Mitra S. K. Private Limited

#### Address of Laboratory:

Building No. P. 48, Udayan Industrial Estate, 3. Pagladanga Road. Kolkala 700015 West Bangal

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







Scan for Portal

ULR: TC-695024000001953F

Doc No.: MSK/GEN/19/07

### 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/Z121AL

07/02/2024

MSKNB/ED/2023-24/01/YY454K

29/01/2024

29/01/2024 - 06/02/2024

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	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA NA
4. Date of sampling	25/01/2024
5. Place of sampling	Near Back Filling Yard Barnebari
5. Environmental conditions during sampling & Transport	1) Temperature :17-32 deg C.2) Barometric Pressure: 735 mm of Hp 3) Pain (a)
7. Sampling Plan & Method used	No & Cold Chain Maintained IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Kr.Mantri, Lalin Naik
9. Field Equipments Used	MSK/BBL/FIELD/RDS-13

Report No.: MSKFL/ED/2023-24/Z121AL

Sample No.: MSKNB/ED/2023-24/01/YY454K

### RESULT

Chemical					
SI 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	Manganése 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)	7.3

Opinion:

Limit as per CPCB notification, New Deibi, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Mr Plat Garguly

Executive Chemist

Authorized Signatory

The results relate only to the item(e) bested.

This Test Report shall not be reproduced except in full, without the parquesion of Meta 5.K. Private Lamind.
This result requires an only as one accept in full, without the parquesion of Meta 5.K. Private Lamind.
The result requires a sample(v) for chierical analysis (Non--perishable sample(s) food, Water) small be returned for 15 days from the date of issue of the Test Report. Perishable sample(s) and the returned 2 days.
The result of part of sample(s) for chierical analysis (Sci. Solid & Liquid Water) shall be returned for 15 days as our CPCB quadeline & (Air) a month from the date of issue of the Test Report.
The result of part of sample(s) for chierical analysis (Non--perishable sample(s) Food. Smalled Water, Shelled food that by returned the 15 days from the date of issue of the Test Report.

Street Centre (filth Floor), 748, A.J.C. Bose Road, Kolinds -700016, West Bargal, India Tel: 91 33 40143000 / 22650007 Fex: 91 33 22650008 Head Office:

Email info/Imitrasa.com Website : www.mitrasa.com

Address of Branch:

V.O. Barbil Dt Knonjiter Orissav 758 035





Scan for Portal

### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AVPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

### TEST REPORT

Report No.:

Date :

Sample No. :

10/02/2024 MSKGL/ED/2023-24/01/01116

MSKGL/ED/2023-24/004580

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)	Bameban Iron & Mn. Mines	
4. Date of sampling	25/01/2024	
5. Place of sampling	Near Back Filling Yard Barnebari	
6. Environmental conditions during sampling & Transport	Clear	
7. Sampling Plan & Method used	NA NA	

Report No.: MSKGL/ED/2023-24/004580

Sample No.: MSKGL/ED/2023-24/01/01116

#### RESULT

Analysis	Result of Ambient Air				
SI No.	Parameter	UOM	Nethod	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR	14.6
2	Carbon Monoxide (CO)	En/gm	IS 5182 Part 10 1999 (Roulf, 2014) (NDIR) (O)	2 8HR.	0,74
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 ; Part 6:2006 (ReafE2012) (O)	80 24 HR	24.2
4	Ozone (O3)	mioro gm/m3	IS 5182 (Part 9)	180 1 HR.	BDL(DL:20.0)
5	Particulate Matter (<10um)	micro gm/m3	IS 5182: Part 23:2005 (Reaff, 2012) (O)	100 24 HR.	126
ũ	Perticulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24).2019 (O)	60 24 HR	66
7	Sulphur Dioxide (SG2)	micro gm/m3	(S 5182 : Part 2 :2001 (Reafl.2012) (O)	80 24 HR.	7.8

----- END -----

Report Verified By



For Mitra S. K. Private Limited

**Authorised Signatory** 

Head Office: Stroom (Sin-Flour), 748, A.J.C. Bose Rose, Kullense-7000th, West bangul India. 1st 33 49143000 / 22050007 Fast: 91 33 22950000 From: Notice to the Committee Commit

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Tel | #91 7044038120 Email: udayanlab@mitrask.com





TEST REPORT



Scan for Portal

ULR: TC-695024000001948F

Disc No. MERCOENTING?

Name & Address of Customer:

Tata Steel Ltd (MGM)\_Joda West

Al/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/2023-24/61218N

07/02/2024

MSKNB/ED/2023-24/01/DQ4525

29/01/2024

29/01/2024 - 06/02/202#

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

We hereby cartify 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 NA
4. Date of sampling	25/01/2024
5. Place of sampling	Near Weight Bridge BIMM
6. Environmental conditions during sampling & Transport	<ol> <li>Temperature 17-32 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain fail No &amp; Cold Chain Maintained</li> </ol>
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Kr.Mantri, Lalin Naik
9. Field Equipments Used	MSK/BBL/FIELD/RDS-11

Report No.: MSKPL/ED/2023-24/61218N

Sample No.: MSKNB/ED/2023-24/01/DQ4525

### RESULT

Chemical					
SI No.	Parameter	NOM	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	Berizo(a)Pyrene	rig/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)	0.05
5	Manganese as Mn	micro gm/m3	USEPA-IQ 3.4 June	Not Specified	0.41
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	11.2

Opinion:

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient sir quality

Statement of Conformity

NA

END -

Reviewed By:

Ma. Pinti Carculti

Designation Executive Chemist Authorized Silinatory

Designation

Lab in charge

The results retain only in the hom(a) terred.

This Test Report shall not be retroduced except in full, without the permission of Mitre S.K. Private Limited.
The reserved part of sample(s) for chemical shallysis (Non - perishable sample(s) Food, Water) shall be retained 2 days from the date of tissue of the Test (teport.

The reserved part of sample(s) for chemical gradyer (Ed.) Soid & Liquid Weste) grad to steamed for 15 days at one CPCB obtaining & (Air, 1 more) from the one of time of the Test Report.

The reserved part of sample(s) for Microbiological scrains (Non - personne sample(s) Food, Sanied Water, Secret room) shall be retained for 15 days from the date of feater flows.

Head Office: Email: mlo@minuik.com Wildnise www.milrask.com

Shructy Centra (5th Floor), 748, A.J.C. Boow Road, Kolkatta - 700016, West Bengal, Inclin. Tel. | 81 33 40143000 / 22050007 Fex | 91 33 22150008

Address of Branch ;

P.O. Barbil Dt Keonitiar Orissa 758 035





### TEST REPORT Name & Address of Customer:

Tata Steel Ltd (MGM), Joda West

Al/Pn. - Jodu, Dist. - Keonihar, Odisha - 758034 India Pin

Report No. :

Date ;

Sample No.:

Reference No. & Date :

MSKGL/ED/2023-24/004592

10/02/2024

MSKGL/ED/2023-24/01/01111

3000156017/058, Date - 15/09/2023

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

1, Group	AIR	
2. Description of sample	Ambient Air	
3. Unique Identification of sample(if any)	Bamebari Iron & Mr. Mines BIMM	
4. Date of sampling	25/01/2024	
5, Place of sampling	Near Weight Bridge BIMM	
6. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA NA	

Report No.: MSKGUED/2023-24/004592

Sample No.: MSKGL/ED/2023-24/01/01111

#### RESULT

Si No.	Parameter	UOM	Method	Limit	Result
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	18.5
2	Carbon Monoidde (CO)	mg/m3	(S 5182 : Part 10 .1999 (Reaff.2014) (NDIR) (O)	2 8HR	0.53
1	Mitrogen Dioxide (NO2)	micro gm/m3	IS 5182 : Part 6 2006 (Reaff.2012) (O)	80.24 HR	-
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 T HR.	19.6 BDL/DL:20.0
5	Particulate Matter (<10um)	micro gm/m3	IS 5182: Part 23:2006 (Reaff, 2012) (O)	100 24 HR.	203
8	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)	80 24 HR.	107
7	Sulphur Digwide (SQ2)	mlaro gm/m3	IS 5182 : Part 2: 2001 (Reaff.2012) (O)	80 24 HR.	8.8

- END -

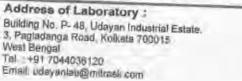
Report Verified By



For Mitra S. K. Private Limited

Doc No. MSKIGEN/19/07









Scan for Portal

ULR: TC-695024000001954F

## Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

AMPs. - 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:

07/02/2024

MSKNB/ED/2023-24/01/1Y455L

MSKPL/ED/2023-24/S121AR

29/01/2024

29/01/2024 - 06/02/2024

Permanent Facility

3000165017/058, Dale - 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 NA
4. Date of sampling 5. Place of sampling	26/01/2024
	Near Project Office BIMM
3. Environmental conditions during sampling & Transport	1) Temperature :17-32 deg C 2) Razametric Processor 724
7. Sampling Plan & Method used	The second secon
3. Identification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA
Field Equipments Used	Pratik Kr, Manto, Lalin Naik
	MSK/B8L/FIELD/RDS-5

Report No. : MSKPL/ED/2023-24/S121AR

Sample No.: MSKNB/ED/2023-24/01/1Y455L

#### RESULT

Chemical			RESULT		
SI No.	Parameter	UOM	Method	1100	1
1	Arsenic as (As)	ng/m3	THE PARTY OF	Limit	Result
2	Benzene		USEPA-10 3:4, June	6 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BOL(DL:4.2)
4		ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
-	Lead (as Pb.)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	
.5	Manganese as Mn	micro gm/m3	USEPA-IO 3,4: June	Not Specified	0.02
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June		0.45
pinion:	Limit as our CDC		i. 18th November 2009, for Ame	20 (Annual)	7.7

Limit as per CPCB natification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Reviewed By

Designation

Executive Chemist

Authorized Segretory

The results relate only to the servici) tended.

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This Test Report shall not be reproduced except in full, webout the permander of Mans S.F. Private Limited.
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The reserved just of surprises) for sharpless) in shall be extensive. Private Limited.
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The reserved just of surprises and the Test Report.

The reserved part of sample(s) for character analysis (Soil, Soild & Liquid Winste) shall be interior for 15 days as per CPCB quideline & (Air) 3 excepts from the date of seaso of the Test Report.

The reserved part of sample(s) for Mismobiological analysis (Non - persistable sample(s) Food, Sealed Winser, Sealed food) analysis present to days from the date of seaso of the Test Report.

Shreichi Centra (5th Floor), 748; A.J.C. Boxe Road, Kolkesa -700018; West Bengel, India. Tell : 91.33 40143000 / 22650007 Fax: 91.33 22000000

Ensail vilogin casi com Website : www.mitrask.com

Address of Branch:

P.O. Barbii Di Keoninar Orissa 758 035





### TEST REPORT Name & Address of Customer:

Tata Steel Ltd.(MGM) Joda West

Al/Pn. - Joda, Dist. - Keonjhur, Odisha - 758034 India Pin

Report No.:

MSKGIJED/2023-24/00458 Date: 10/02/2024

Sample No. :

MSKGL/ED/2023-24/01/01117

Reference No. & Date :

3000156017/056, Date - 15/09/2023

We nereby certify that the following sample Drawn by us this bean analyzed with the follow

1. Group	AIR
2. Description of sample	Ambient Air
Unique Identification of sample(if any)	
4. Date of sampling	Bantobari Iron & Mn. Mines BIMM
5. Place of sampling	26/01/2024
6. Environmental conditions during sampling & Transport	Near Project Office BIMM
7. Sampling Plan & Method used	Clear & Sunny
annipring rian or method used	NA NA

Report No.: MSKGL/ED/2023-24/004581

Sample No.: MSKGL/ED/2023-24/01/01117

#### RESULT

SI No.	Parameter	HOM	Method	21.16	1
01	Ammonia (NH3)	micro-am/m3		Limit	Result
		mactor duminis	IS 5182 (Part 25)	400 24 HR.	13.8
2	Carbon Monaxide (CO)	mg/mã	IS 5182 : Part 10 :1999 (Reaft 2014) (NDIR) (O)	2 SHR	0.56
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 Part 6 2006 (Reaft.2012) (O)	NOT THE LINE	1.00
at .	Ozone (O3)	micro gm/m3		80 24 HR.	19.8
5	Particulate Matter (<10um)		(S.5182 (Part 9)	180 T HR.	BDL(DL-20.0)
		micro gm/m3	IS 5182: Part 23:2006 (Reaff, 2012) (O)	100 24 HR.	134
0	Parliculate Multer (<2.5um)	En/mg croim	IS 5182 (PT-24),2019 (O)	80 24 HR	
7	Sulphur Diaxide (SQ2)	Ensuring orașim	IS 5182 : Part 2 2001 (Reaft.2012) (O)		65
		The second second	The same (Near Cold)	80 24 HR	8,2

END -

Report Verified By

For Mitra S. K. Private Limited

Doc No: MSK/GEN/19/07





TC-6950





Scan for Portal

ULR: TC-895024000001956F

## Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Jods West

Address of Laboratory:

West Bengal Tel: +91.7044036120 Email udayanlab@mitrask.com

Building No. P. 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015

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/2023-24/0121BQ

07/02/2024

MSKNB/ED/2023-24/01/KX454B

29/01/2024

29/01/2024 - 06/02/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

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

1. Group	Atmospheric Pollution	
2. Description of sample		
3. Unique Identification of sample(if any)	Ambient Air	
1. Date of sampling	NA NA	
5. Place of sampling	26/01/2024	
	Near Shorting Yard BIMM	
6. Environmental conditions during sampling & Transport	1) Temperature 17.32 des C.D. Dessey	
	Temperature :17-32 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain fall No & Cold Chain Maintained	
. Sampling Plan & Method used	IS.5182(P-11,12) & USEPA	
Identification of the personnel performing sampling by MSK	Daniel V V	
. Field Equipments Used	Pratik Kr. Manto, Lalin Naik	
	MSK/BBL/FIELD/RDS-12	

Report No.: MSKPL/ED/2023-24/C1218Q

Sample No.: MSKNB/ED/2023-24/01/KX454B

### RESULT

Chemical						
SI No.	Parameter	UOM	Method	1 to 16	1	
1	Arsenic as (As)	rig/m3	USEPA-IO 3.4, June	Limit	Result	
2	Benzene			6 (Annual)	BDL(DL:1.0)	
3	Benzo(a)Pyrene	micro gm/m3	IS 5182 (Parl 11)	5 (Annual)	BDL(DL:4.2)	
4	Lead (as Pb )	ng/m3	IS 5182 (Part 12)	† (Annual)	BDL(DL:0.5)	
5		micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)	
	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June	Not Specified		
D	Nickel as Ni	ng/m3	USEPA-IO 5.4, June	20 (Annual)	0,18	
pinion	Limit as per CPC	B notification, New Della	18th Movember 2000 for 5 5	«u (Annual)	BDL(DL 5.0)	

Limit as per CPCB notification, New Delfri, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Reviewed By

Signature

Designation

Authorized Signatory

Signature

Designation

Lab in the

The results relate only to the tiern(s) tested

The Treat Report shall not be reproduced except in full, without the permission of Mirra S.K. Private Limited.

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

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

The reserved part of sample(s) to the Test Report.

The reserved part of sample(a) for cherescal analysis (Soil, Solid & Liquid Wares) shall be retained for 15 days as per CPGB guideline a (AU) 1 month from the date of teaus of the Test Report.

The reserved part of sample(a) for Microbiologiscal analysis (Non - participate asymptote) Food, Sealed Water, Sealed Visiter, Sealed to shall be retained for 15 days from the date of issue of the Test Report.

Head Office: Streets Castre (50 Floor), 748, A.J.C. Birne Rood, Kokalla - 700016, West Bengel, India Tal. 91 83 4043000 / 22650007 Fox: 91 33 27550008 Email: info@mitrask.com Website - www.mitrask.com

Address of Branch:

P.O. Barbil DI Koonjhur Orissa 758 035





Scan for Portal

Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda Wast

Al/Pn. - Joda, Dist. - Keoninar, Odisha - 758034 India Pm

TEST REPORT

Report No. :

Sample No.:

Date : 10/02/2024

Reference No. & Date :

MSKGL/ED/2023/24/004586

MSKGL/ED/2023-24/01/01119

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)	Barnebari Iron & Mn. Mines BIMM
4. Date of sampling	26/01/2024
5. Place of sampling	Nisar Shorting Yard BIMM
6. Environmental conditions during sampling & Transport	Clear & Sunny
7. Sampling Plan & Method used	NA NA

Report No.: MSKGU/ED/2023-24/004586

Sample No.: MSKGL/ED/2023-24/01/01119

#### RESULT

SI No.	Parameter	UOM	Method	1450	1
1	Ammonia (NH3)	mines and in C		Limit	Result
0.1		micro gm/m3	IS 5182 (Part 25)	400 24 HR.	13.8
2	Carbon Monoxide (CO)	mg/m3	IS 5182 Part 10:1999 (Reaff.2014) (NDIR) (O)	2 8HR.	0.50
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 : Part 6 :2006 (Realf, 2012) (Q)		1,17
4	Ozone (O3)	micro gm/m3		80 24 HR.	24,3
5	Particulate Matter (<10um)		IS 5182 (Part 9)	180.1 HR.	BDL(DL:20.0)
-5		micro gm/m3	IS 5182: Part 23:2006 (Realf, 2012) (O)	100 24 HFL	139
10.	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HR	
7	Sulphus Dioxide (SD2)	milaro gm/m3	IS 5182 Part 2 :2001 (Reaff.2012) (O)	80 24 HR:	8.0

----- END -----

Report Verified By

Head Office:



For Mitra S. K. Private Limited

Authorised Signatory

Shool Come (st) Plost, 749, A.J.C. Sine Road, Kolasta - 700010, Vrest Emight, Fig. 51 33 40143030 / 32650007 Fax: 91 33 23600000 Emili nfo@mitratk.com/Watsite www.misratk.com/

DOE NO. MISIUGEN/19/07









Scan for Portal

MSKPL/ED/2023-24/8121BE

MSKNB/ED/2023-24/01/T6456V

ULR: TC-695024000001960F

## Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

Address of Laboratory :

West Bengal Tel : +91 7044038120 Email udayantab@mitrack.com

Building No. P- 48, Udayan Industrial Estate. 3, Pagladanga Road, Kolkata 700015

AVPo. - 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

Discipline:

Reference No. & Date :

29/01/2024 29/01/2024 - 06/02/2024

07/02/2024

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:

Group	
2. Description of sample	Atmospheric Pollution
3. Unique Identification of sample(if any)	Ambient Air
f. Date of sampling	NA NA
5. Place of sampling	26/01/2024
	Near Back Filling Yard Bameban
Environmental conditions during sampling & Transport	1) Temperature: 17-32 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain fall
Sampling Plan & Method used	
Identification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA
Field Equipments Used	Pratik Kt. Mantri, Lalin Naik
1-	MSK/BBL/FIELD/RDS-13

Report No.: MSKPL/ED/2023-24/8121BE

Sample No.: MSKNB/ED/2023-24/01/T6456V

### RESULT

SI No.	Parameter	UOM	Method	11-14	1
1	Arsenic as (As)	Em/gn		Limit	Result
2	Benzene		USEPA-IO 3.4, June	6 (Annual)	BDL(DLH.0
3	Benzo(a)Pyrene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL vi 2)
4	Lead (as Pb.)	ng/m3	IS 5182 (Part 12)	† (Annual)	BDL(DLI0.5)
8	Manganese as Mn	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	0.02
6		micro gm/m3	USEPA-IO 3.4: June	Not Specified	0.22
pinion :	Nickel as Ni	ng/m3	USEPA-IO 3.4, June I. 18lfr November 2009, for Amb	20 (Agruel)	25.5

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END -

Authorized & greecy.

Syndre

Designation

The results relate only to the item(s) feeted.
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The results relate only to the item(s) feeted.
The results relate only to the item(s) feeted except in full, without the permission of Mirra S.K. Private Limited.
The results relate of issue of the Test Report. Perishable sample(s) Food, Water) shall be referred to: 15 days from the date of issue of the Test Report. Perishable sample(s) final be interned 2 days.
The resource four of associated by source of another interned 2 days.

The reserved part of sample(s) for chemical analysis (Soil, Solid & Liquid Wester) shall be remined for 15 days as per CPCB guidaline A (Au) 1 month from the date of issue of the Test Report.

The reserved part of sample(s) for Alterobiological analysis (Non - perishable surraines) Food. Sealed Weter, Summer food) shall be received for 16 days from the date of issue of the Test Report. Head Office: Streets (5th Floor), 748, A.J.C. Bose Road, Kolsate -700016, West Berigst, Indi-Tel: 91-03-40143000 / 2265007 Fax: 91-33-22650006 Email: info@marask.com Website: www.indi/ask.com

Address of Branch:

P.O. Barbil DI Knon har Orissa 758 035

Name & Address of Customer:

AvPo. - Joda, Dist. - Keonhar, Odisha - 758034 India Pin

Tota Steel Ltd.(MGM) Jodn West





Scan for Portal

### TEST REPORT

Report No. :

MSKGL/ED/2023-24/004591

Date :

10/02/2024

Sample No. :

MSKGL/ED/2023-24/01/01123

Reference No. & Date :

3800158017/056, Data - 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)	Barnebari Iron & Mn. Mines BIMM	
4. Date of sampling	26/01/2024	
5. Place of sampling	Near Back Filling Yard Barnebari	
6. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA.	

Report No.: MSKGL/ED/2023-24/004591

Sample No.: MSKGL/ED/2023-24/01/01123

#### RESULT

Analysis !	Analysis Result of Ambient Air						
SI No.	Paramoter	MOU	Method	Limit	Result		
1	Ammonis (NH3)	micro gm/m3	fS 5182 (Part 25)	400 24 HR.	14.2		
2	Carbon Monoxide (CO)	mg/m3	(5 5182 : Part 10 : 1999 (Reall 2014) (NDIR) (O)	2 BHR.	0,37		
3	Nitrogen Dioxido (NO2)	micro gm/m3	IS 5182 : Part 6 :2006 (Reaff.2012)_(O)	80 24 NR.	16.6		
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR	BDL(DL:20.0)		
	Particulate Matter (<10um)	micro gm/m3	IS 5182: Part 23:2006 (Reaft. 2012) (O)	100.24 HR.	131		
6	Particulate Matter (<2.5um)	micro grivm3	IS 5182 (PT-24),2019 (O)	60 24 HPL	70		
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 : Part 2 2001 (ReafL2012) (O)	B0 24 HR.	BDL(DL:6.0)		

---- END -----

Report Verified By

Head Office:



For Mitra S. K. Private Limited

Authorised Signatory

Sheckli Centre (9th Floor) 746. A.L.C. Bose Right, Kolonia - 700014. Wast Georgel, India Tm. - 91-33.40143000 / 27650007 Fax: - 91-33.22650006 Email: http://milospi.com/Website: www.millask.com

Address of Laboratory :

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 780015 West Bengal

Tel : +91 7044036120 Email udayanlab@mitrast.com







ULR: TC-895024000001955F

Doc No. MSKIGEN/19/07

#### Name & Address of Customer:

Tata Steel Ltd.(MGM), Joda West

AUPo. - Joda, Dist. - Keonjhar, Odisha - 758034 Indla

### TEST REPORT

Report No. 1

Date:

Sample No. c

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date :

Discipline:

29/01/2024 - 06/02/2024 Permanent Facility

MSKPL/ED/2023-24/8121BR

MSKNB/ED/2023-24/01/CV463Y

3000156017/056, Date - 15/09/2023

Chemical

07/02/2024

29/01/2024

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 NA
4. Date of sampling	28/01/2024
5. Place of sampling	Near Weight Bridge BIMM
6. Environmental conditions during sampling & Transport	Temperature :17-32 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain fall No & Cold Chain Maintained
7. Sampling Plan & Method used	S:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pratik Kr.Mantri, Lalin Naik
9. Field Equipments Used	MSK/BBL/FIELD/RDS-11

Report No.: MSKPL/ED/2023-24/8121BR

Sample No.: MSKNB/ED/2023-24/01/CV453Y

#### RESULT

Chemical				
Parameter	UOM	Method	Limit	Result
Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL-1,0)
Benzene	micro.gm/m3	IS 5182 (Part 11)		BDL(DL 4.2)
Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)		BDL(DL:0.5)
Lead (as Pb)	micro gm/m3	USEPA-IO 3.4, June		0.08
Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June		0.51
Nickel as Ni	ng/m3	USEPA-IO 3.4, June		8.4
	Arsenic as (As) Berizene Berizo(a)Pyrene Lead (as Pb.) Mariganese as Mri	Arsenic as (As) ng/m3 Benzene micro gm/m3 Benzo(a)Pyrene ng/m3 Lead (as Pb ) micro gm/m3 Manganese as Mn micro gm/m3	Arsenic as (As) ng/m3 USEPA-IO 3.4, June Benzene micro gm/m3 IS 5182 (Part 11) Benzo(a)Pyrene ng/m3 IS 5182 (Part 12) Lead (as Pb ) micro gm/m3 USEPA-IO 3.4, June Manganese as Mn micro gm/m3 USEPA-IO 3.4, June	Arsenic as (As) ng/m3 USEPA-IO 3.4, June 6 (Annual)  Benzene micro gm/m3 IS 5182 (Part 11) 5 (Annual)  Benzo(a) Pyrene ng/m3 IS 5182 (Part 12) 1 (Annual)  Lead (as Pb ) micro gm/m3 USEPA-IO 3.4, June 1 (24 Hours)  Manganese as Mn micro gm/m3 USEPA-IO 3.4: June Not Specified

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Authorized Signatory

Designation :

Lab in charge

The results relate only to the flam(s) limited

This Test Report shall not be reproduced except in full, witness the permission of Mitra S.K. Private Limited.

The precised part of sample(s) for chemical analysis (Non-perishable sample(s) Food, Vision) shall be columned for 16 days from the date of the Test Report. Feelinsble sample(s) shall be retained 2 days from the date of tissue of the Test Report.

The reserved part of sample(s) for charmoal enables (Soil Solid & Liquid Wester) shall be retained for 15 diagnost per CPCR quideline & (Aur. 9 month from the date of issue of the Test Report. The reserved part of sample(s) for Microbiological enables (Non - periodeline) Food, Seeled Wester, Second booth shall be retained for 15 deep first the date of assue of the Test Report.

Head Office: Shorth Centre (5th Floor), 748, A.J.C. Bose Road, Kolkata - 700016, West Bengal, India Tel: 91 30 40143000 / 22850007 Fas: 91 33 22950008 Email of Emilian com Website, www.mil/auk.com

### Address of Branch:

P.O. Barbil Dt Keonjhar Orissa 758 035





Scan for Porta

## TEST REPORT

Name & Address of Customer : Report
Tala Steel Ltd.(MGM)\_Joda Wost Date :

Al/Po. - Joda, Dist. - Kennihar, Odishu - 758034 India Pin

Report No.: MSKGL/ED/2023-24/004582

Date : 10/02/2024

Sample No. : MSKGL/ED/2023-24/01/01118

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	- 1777
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	Barnebari Iron & Mr. Mines BIMM
5. Place of sampling	26/01/2024
6. Environmental conditions during sampling & Transport	Near Weight Bridge BIMM
7. Sampling Plan & Method used	Clear & Sunny
- Camping Finite describe used	NA .

Report No.: M5KGL/ED/2023-24/004582

Sample No.: MSKGL/ED/2023-24/01/01118

#### RESULT

SI No.	Parameter	NOW	Method	Limit	Danute
1	Ammonis (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	Result 17.2
2	Carbon Monoxide (CO)	Emigm	IS 5182 : Part 10 :1999 (Realf 2014) (NDIR) (O)	2.8HR.	0.57
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 Part 6 2006 (Reaff.2012) (O)	80 24 HR	21.4
4	Ozorie (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 (Realf, 2012) (O)	100 24 HR	162
6	Particulate Matter (<2.5um)	micro-gm/m3	IS 5182 (PT-24),2019 (O)	80 24 HR	82
7	Sulphur Dioxide (SO2)	mucro gm/m3	IS 5182   Part 2 2001 (Realf.2012) (O)	80 24 HR.	7.3

----- END -----

Report Verified By

Head Office:



For Mitra S. K. Private Limited

DOD NO. MSK/GEN/19/07









MSKPL/ED/2023-24/3121BP

MSKNB/ED/2023-24/02/0JWR57

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ULR: TC-6950240000002251F

### Name & Address of Customer:

Tata Steel Ltd (MGM)\_Joda West

Address of Laboratory:

West Bengal Tel.: +91 7044035120 Email: udayunlab@nillrask.com

3. Pagladangs Road, Kolkata 700015

Building No. P- 48, Udayan Industrial Estate,

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:

01/02/2024 - 12/02/2024 Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

12/02/2024

01/02/2024

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 NA
4. Date of sampling	29/01/2024
5. Place of sampling	Near Project Office BIMM
6. Environmental conditions during sampling & Transport	1) Temperature: 18-33 deg C 2) Barometric Pressure: 735 mm of Ho 3) Rain fall
7. Sampling Plan & Method used	No. & Cold Chain Maintained 18:5162(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pranab Kr Setty
9. Field Equipments Used	MSK/BBL/FIELD/RDS-5

Report No.: MSKPL/ED/2023-24/3121BP

Sample No.: MSKNB/ED/2023-24/02/0JWR57

#### RESULT

Chemical					
SI No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:10)
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)	T (Annual)	8DL(DL:0.5)
4	Lead (as Ph.)	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	0.35
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	B.4

Opinion:

Limit as per CPCB notification, New Delin, 18th November 2009, for Ambient air quality

Statement of Conformity

- END -

Raviewed By

Ms. Plul Gargoly

Designation

Evecutive Chanual

Authorized Signatory

Lab In charge

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

The Teat Report shall not be reproduced except in full, without the permason of Mitro 8 K. Private Limited.
The reserved part of sample(s) for chamical analysis (Non-perhabite sample(s) Food. Wilder) shall be retained for 15 days from the date of issue of the Test Report. Refutible sample(s) enail be retained 2 days.

The reserved part of sample(s) for the Test Report. Refutible sample(s) Food. Wilder) shall be retained 2 days.

The reserved part of sample(s) for chemical analysis (Soli, Solid & Land) Wester) shall be reserved part of sample(s) for chemical analysis (Soli, Solid & Land) Wester) shall be reserved part of sample(s) for chemical analysis (Soli, Solid & Land) Wester) shall be reserved part of sample(s) for chemical analysis (Non - perishable sample(s) Food, Solid Water Security (Solid ) and be reserved for 15 days from the date of inverse of the Test Report.

Head Office:

Sprach Cerire (50) Floor), 748, A.J.C. Boss Road, Kokata - 700015, West Bengal, India. Tol. | 91 23:40143000 / 22650007 Fax: | 01 33:27650008

Email info@mlinish.com Website: www.mitrasi.com

#### Address of Branch:

P.O. Barbii Dt Knonjhar Orissa 758 035-





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#### Name & Address of Customer :

Tata Steet Ltd.(MGM)\_Joda West

Atilio: - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

#### **TEST REPORT**

Reference No. & Date :

Report No.:

Date:

MSKGL/ED/2023-24/004601

10/02/2024

Sample No. :

MSKGL/ED/2023-24/02/00004

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)	Barneben Iron & Mn. Mines BIMM	
4. Date of sampling	29/01/2024	
5. Place of sampling	Near Project Office BIMM	
6. Environmental conditions during sampling & Transport	Clear & Suriny	
7. Sampling Plan & Method used	NA NA	

Report No. 7 MSKGU/ED/2023-24/004601

Sample No.: MSKGL/ED/2023-24/02/00004

#### RESULT

nalysis l	nalysis Result of Ambient Air							
SI No.	Parameter	UOM	Method	Limit	Result			
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	15.8			
2	Carbon Monoxide (CO)	Em/gm	IS 5182 : Plat 10 : 1999 (Realf 2014) (NDIR). (O)	2 8HR.	0.48			
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 : Part 5 :2006 (Reaft 2012) (O)	80 24 HR	21.2			
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR.	BDL(DL-20.0)			
8	Particulate Matter (<10um)	micro gm/m3	IS 5182; Part 23:2006 (Reaft 2012) (O)	100.24 HR.	159			
6	Particulate Matter (<2.5um)	micro gra/m3	IS 5182 (PT-24),2019 (O)	60 24 HR	72			
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 : Part 2 :2001 (Reaf(.2012) _(0)	80.24 HR.	8.4			

---- END -----

Report Verified By

Head Office:

For Mitra S. K. Private Limited

**Authorised Signatory** 

Shraufa Centre (Mr. Floor), 74B, A.J.C. Rece Road, 4:e6um - 700/16. West Barend 5:10. 91.33.40143000 / 2265000 Fax: 81.33.22050008. Entel: white-translation (Widoles: www.mitask.com)

#### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkala 700015 West Bengal Tel : +91 7044036120

Email: udayanlab@mitrask.com







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ULR: TC-695024000002253F

DOC NO : MSK/GEN/19/07

TESTING # HSPECTION

#### 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/2023-24/9121B7

12/02/2024

MSKNB/ED/2023-24/02/3T1S3P

01/02/2024

01/02/2024 - 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	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA .
4. Date of sampling	29/01/2024
5. Place of sampling	Near Shorting Yard BIMM
6. Environmental conditions during sampling & Transport	Temperature :18-33 deg C 2) Barometric Pressure: 735 mm of Hg 3) Hain 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 Kr Setty
9. Fleid Equipments Used	MSK/BBL/FIELD/RDS-12

Report No.: MSKPL/ED/2023-24/912187

Sample No.: MSKNB/ED/2023-24/02/37153P

#### RESULT

SI 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-10 3.4, June	1 (24 Hours)	BDL/DL:0.01
5	Manganese as Mn	micro gm/m3	USEPA-IO S.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, 18th November 2009, for Ambient air quality

Statement of Conformity

END

Ms. Piet Genguly

Dissignation

Executive Chemist

Authorized Signatory

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

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

The reserved part of sample(s) for chamillal analysis (Sol. Solid & Liquid Weste) shall be reterred for 15 gays as per CPCB publishes & (AV) 1 month from the date of same of the Test Report. The reserved pan of sample(s) for Microbiological analysis (Non - perishabile sample(s) Food, Sealed Wester, Sealed Vester, Sealed food) shall be retained in 15 stays from the date of same of the Test Report.

Sheath Centre (5th Fivor), 74B, A.J.C. Bare Road, Rokuta ~700016, White Bengal, India Tel. 191 33:40143000 / 22650007 Film: 101 30 22550008

Email Infa@mirrusk.com Website www.mirresk.com

Address of Branch:

P.O. Barbil DI Koonihar Orlssa 758 035

Name & Address of Customer:

At/Po. - Joda, Dist. Knonjhiir, Odisha - 758034 India Pin

Tata Steel Ltd.(MGM), Jode West





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## TEST REPORT

Report No. :

MSKGL/ED/2023-24/004611

Date :

10/02/2024

Sample No.:

MSKGL/ED/2023-24/02/00006

Reference No. & Date :

3000156017/056, Date - 15/09/2023

We hereby certify that the following sample brown by us has been unelyzed with the following results:

1. Group	AIR	
2. Description of sample	Ambient Air	
3. Unique Identification of sample(If any)	Barnebari Iron & Mr. Mines BIMM	
4. Date of sampling	29/01/2024	
5. Place of sampling	Near Shorting Yard BIMM	
6. Environmental conditions during sampling 8. Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA	

Report No. : MSKGL/ED/2023-24/084611

Sample No.: MSKGL/ED/2023-24/02/00006

#### RESULT

SI No.	Parameter	UOM	UOM Method		1
1	Ammonio (ABJ2)	2700		Limit	Result
	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR	13.4
2	Carbon Monoxide (CO)	mg/m3	IS 5192 : Part 10 :1999 (Reaff,2014)	2 8HR.	0.60
3	Nittogen Dioxide (ND2)	micro gm/m3	(NDIR) (0) IS 5182 : Part 6 2006 (Reaft 2012) _(0)	6.276	0.00
4	Ozone (O3)			80 24 HR.	23.4
5		Emimp aroun	IS 5182 (Part 9)	180 1 HR.	BDL(DL-20.0
	Particulate Matter (<10um)	micro gm/m3	IS 5182 Part 23:2006 (Reaff, 2012) (O)	100 24 HR.	118
6	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT.24),2019 (O)		
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 : Part 2 :2001 (Rustl( 2012) (O)	60 24 HR.	5/
		Total Brancas	10 2 (01   Legal 2 2001 (February 2015) [O]	80 24 HR	7.0

---- END ----

Report Verified By

Head Office:



For Mitra S. K. Private Limited

Authorised Signatory

Struck) Co. (mr FASO), 740, ALI C. Bose Ross, (Column - 700016, West Bureau Lines, 741, 101.35 4014000) (22600007 Fas.: 81.33 22600000 Final: Index Com Website: Www.retmak.com

Address of Laboratory:

Building No. P- 48. Udayarı Industrial Estate. 3, Pagladanga Roau, Kolkata 700015 West Bengal

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







ULR: TC-695024000002257F

Doc No. MSK/GEN/(BIO7

## 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/N121BK

12/02/2024

MSKNB/ED/2023-24/02/WD8H4Y

01/02/2024

01/02/2024 - 12/02/2024 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	
3. Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA 2004 Inne
5. Place of sampling	29/01/2024
6, Environmental conditions during sampling & Transport	Near Back Filling Yard Barnebari  1) Temperature :18-33 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain fall
7. Sampling Plan & Method used	No & Cold Chain Maintained IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Pranab Kr Setty
9. Field Equipments Used	MSK/B8L/FIELD/RDS-13

Report No.: MSKPL/ED/2023-24/N121BK

Sample No.: MSKNB/ED/2023-24/02/WD8H4Y

### RESULT

SI No.	Parameter	UOM	Method	Limit	Result
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	6 (Annual)	
2	Banzene	rnicro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL-1.0)
3	Banzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:4.2)
4	Lend (as Pb )	micro gm/m3	USEPA-IO 3 4 June	The state of the s	BDL(DL:0.5)
5	Manganese as Mn	micro gm/m3	USEPA-IO 3.4: June	1 (24 Hours)	BDL(DL:0.01)
5	Nickel as NI	ng/m3	USEPA-IO 3.4, June	Not Specified	0.06
pinion:			ii, 18th November 2009, for Ami	20 (Annual)	BDL(DL:5:0)

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END -

Havewed By

Signature

Ms. Plati Ganguly

Designation

Executive Chemiat

Authorized Signatory

Lab In charg

The results relate only to the memory sented.
This Test Report shall not be repredicted except in (uii, without the permission of Mitter's Limited.
The reserved part of semple(s) for chemical analysis (Non - pershable sample(s) Food, Water) shall be relatined for 15 days from the date of issue of the Test Report. Pershable sample(s) shall be returned 2 days.
The reserved part of session of the Test Report.

The reserved part of sample(s) for chemical analysis (Solid & Liquid Waster) shall be interested for 15 days as per CPCB quickelve & (Ab.) 1 movembrene date of vesse of the Test Report The reserved part of sample(s) for Microbiological analysis (Not) - perioticals sample(s) Food, Sealed Water, Sealed food) shall be religious from the date of lease of lease of the Test Report. Head Office:

Straids Certre (Str. Floor), 748, A.J.C. Boss Roes, Kolkain -700016, Wall Bengal, Invite Tet.: 91 33 40140400 / 22550007 Fax.: 91 33 22650000 Email: #Sc@mitrash.com Websile: www.mitrash.com

#### Address of Branch:

P.O. Barbii Dt Koonmar Onssa 758 035

Name & Address of Customer :

Tata Steel Ltd.(MGM) Joda West





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### **TEST REPORT**

Report No. :

MSKGL/ED/2023-24/00461/ii

Date:

10/02/2024

All/10. - Joda, Dist. - Keonjhar, Odisha - 758034. India Pin Sample No. :

MSKGL/ED/2023-24/02/00016

Reference No. & Date :

3000156017/056, Oate - 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)	Barnebari Iron & Mr. Mines BIMM	
4. Date of sampling	29/01/2024	
5. Place of sampling.	Near Back Filling Yard Barnebari	
6. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA.	

Report No.: MSKGL/ED/2023-24/004618

Sample No.: MSKGL/ED/2023-24/02/00010

#### RESULT

Analysis Result of Ambient Air							
SI No.	Parameter	UOM	Method	Limit	Result		
4	Ammonia (NH3)	micro gn/m3	IS 5182 (Part 25)	400 24 HR.	15,1		
2	Carbon Monoode (CO)	mg/m3	IS 5182 : Part 10 :1999 (Reaff.2014) (NDIR) (O)	2 8HR	0.48		
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 : Part 6: 2006 (Realf.2012) (O)	80 24 HR	17.6		
4	Ozona (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 HRL	215		
B	Particulate Matter (<2,5um)	micro gm/m3	IS 5182 (PT-24),2019_(O)	60 24 HR	102		
7	Sulphur Diaxide (SO2)	micro gm/m3	IS 5162 : Part 2 2001 (Reaff.2012) (O)	80 24 HR.	7.8		

----- END -----

Report Verified By

Head Office:



For Mitra S. K. Private Limited

#### Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3. Pagladanga Road, Kolkuta 700015 West Bengal Tel +91.7044036120

Email: udayanlab@mitrask.com







Scan for Portal

ULR: TC-685024000002252F

Doc No.: MSK/GEN/19/07

### Name & Address of Customer:

Tata Steel Ltd.(MGM), Joda West

At/Po. - Jode, Dist. - Keonjher, Odisha - 758034 India

TEST REPORT

Report No. :

Date: Sample No. 7

Date of receipt of sample:

Date(s) of performance:

Location of performance of Reference No. & Date :

Discipline:

MSKPL/ED/2023-24/0121BT

12/02/2024

MSKNB/ED/2023-24/02/3EMN65

01/02/2024

01/02/2024 - 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	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(If any)	NA NA
4. Date of sampling	29/01/2024
5, Place of sampling	Near Weight Bridge BIMM
6. Environmental conditions during sampling & Transport	Temperature: 18-33 dag 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	Pranab Kr Setty
9. Field Equipments Used	MSK/BBL/FIELD/RDS-11

Report No.: MSKPL/ED/2023-24/0121BT

Sample No.: MSKNB/ED/2023-24/02/3EMN65

#### RESULT

Chemical						
SI 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	0.73	
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	12.7	

Opinion:

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Riswawad By

Ms. Pinf Gorguly

Dissippidipp

Executive Chemist

Authorized Signate

The results relief only to the angres leaded.

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This Test Report shell not be reproduced except in full, without the permission of Mitra 6.K. Private Limited.

The reserved part of samples is not restricted energies (Non - perishable sample(s) shell be retained for 16 days from the case of lease of the Test Report.

The reserved part of samples is not observed enables (Soit & Liqued Weens) shell be retained for 15 days as per CPCB guideline 6.(Air) 1 mount that these of feature of the Test Report.

The reserved part of samples is not observed enables (Non - perishable sample(s) Food, Squand Water Section 16 days from the case of feature of the Test Report.

Stracts Centre (5th Floor), 74B, A.J.C. Boss Roset, Kokova 700016, West Bengal, India Tel. 31 53 40145000 / 22850007 Fax: 91 33 22850008 Email: http://doi.org/10.1001/10.0001 Head Office:



P.O. Barbil Dt Knonjhar Orissa 758 035





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### **TEST REPORT**

Name & Address of Customer:

Tata Steel Ltd./MGMT Jorle West

At/Po. - Joda. Dist. - Knonjher, Odisha - 758034. India Pin

Report Na.:

Date : 05/02/2024

Sample No.:

MSKGL/ED/2023-24/02/00005

MSKGL/ED/2023-24/00461/

Reference No. & 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)	Bemebari Iron & Mr. Mines BIMM	
4. Date of sampling	29/01/2024	
5. Place of sampling	Near Weight Bridge BIMM	
6. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA .	

Report No.: MSKGL/ED/2023-24/004617

Sample No.: MSKGL/ED/2023-24/02/00005

#### RESULT

analysis Result of Ambient Air							
SI No.	Parameter	UOM	Method	Limit	Result		
4	Arrenonia (NH3)	micro gm/m3	18 5182 (Part 25)	400 24 HR.	10.2		
2	Carbon Monoxide (CO)	mg/m3	(S 5182 : Part 10 :1999 (Realf 2014) (NDIR) (O)	2 8HR.	0.54		
3	Nitrogen Dioxide (NO2)	micro.gm/m3	IS 5182 : Part 6 :2006 (Reaff.2012) _(O)	80 24 HR.	22.1		
4	Ozone (O3)	micro gm/m3	(S 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:	208		
ñ	Particulate Matter (<2,5um)	micro gm/m3	IS 5182 (FT-24),2019 (O)	60 24 HR.	121		
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 : Part 2 :2001 (Realf.2012) _(O)	80 24 HR.	7.8		

----- END -----

Report Verified By (

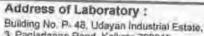
Head Office:



For Mitra S. K. Private Limited

Doc No.: MSK/GEN/16/07





3. Pagladanga Road, Kolkata 700015 West Bengal

Tel . +91 7044036120

Email: udayanlab@milirask.com





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ULR: TC-695024000002163F

### Name & Address of Customer:

Tata Steel Ltd (MGM)\_Joda West

AVPo. - Joda, Dist. - Keonfhar, 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/2023-24/3121BN

10/02/2024

MSKNB/ED/2023-24/02/25Y89.1

02/02/2024

02/02/2024 - 10/02/2024

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	Atmospheric Pollution
2. Description of sample	
3. Unique Identification of sample(if any)	Ambient Air
Date of sampling	30/01/2024
5. Place of sampling	Near Bamebari Project Office BIMM
5. Environmental conditions during sampling & Transport	1) Temperature (18-33 deg C 2) Barometric Pressure: 735 mm of Hz 3) Dais to
Sampling Plan & Method used	No & Cold Chain Maintained IS:5182(P-11,12) & USEPA
I. Identification of the personnel performing sampling by MSK	LALIN NAIK.
). Field Equipments Used	MSK/BBL/FIELD/RDS-5

Report No.: MSKPL/ED/2023-24/3121BN

Sample No.: MSKNB/ED/2023-24/02/25Y89J

#### RESULT

Chemical						
SI 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	0.02	
6.	Nickel as Ni	rig/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL-5.0)	

Opinion:

Limit as per CPCB notification, New Delfu, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END -

Reviewed By

Signalum

Designation Executive Chorus Authorized Signate

Designation

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

This Test Report shall not be reproduced except in full, without the permission of Milar S.K. Private Limited.

The reserved part of sample(s) for chemical analysis (Non-penshabis sample(s) Food. Weter) shall be retained for 16 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 (figit, Bolid & Liquid Weste) shall be estuaged for 15 days as pay CPCB quasima a (Av) it most free the date of same of the Test Report. The reserved part of sample(s) for his substitution in the date of issue of the Tast Report. Stracts Cower (5th Floor), 745, A.J.C. Boso Road, Kolkater - 700016, West Bergol, India Tel.: b1 35 40143000 / 22000007 Fax: 31 33 23000009 Email: erfog increas con Website: www.mirrask.com Head Office:

#### Address of Branch:

P.O. Barbil Dt Keonjhar Onssa 758 035





Scan for Porta

## Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Jode West

Al/Po. - Joda, Dist - Keonjber, Odisha - 758034 India Pin

### TEST REPORT

Report No. :

.

Date:

10/02/2024

Sample No.:

MSKGL/ED/2023-24/02/00011

MSKGL/ED/2023-24/004813

Reference No. & Date :

3000156017/056, Date - 15/09/2023

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

1. Group	AIR
2. Description of sample	Ambient Au
3. Unique Identification of sample(if any)	The state of the s
4. Date of sampling	Samebari Ivos & Mr. Mines BIMM
5. Place of sampling	30/01/2024
6. Environmental conditions during sampling & Transport	Near Project Office BIMM
7. Sampling Plan & Method used	Clear & Suriny
The second of th	NA.

Report No.: MSKGL/ED/2023-24/004613

Sample No.: MSKGL/ED/2023-24/02/00011

#### RESULT

SI No.	Parameter	UOM	Method	1633	
1	Ammonia (NH3)	-		Limit	Result
0.1	Perminana (Nesa)	micro gm/m3	IS 5182 (Part 25)	400 24 HR	14.9
2	Carbon Monoxide (CO)	mg/m3	IS 5182 : Part 10 :1999 (Reaff.2014) (NDIR) (O)	2 BHR.	0.41
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 : Part 6 :2006 (Reaft 2012) (O)	200 24 102	
4	Ozone (O3)	miors gm/m3		80 24 HR.	20,3
5	Particulate Matter (<10um)		IS 5182 (Part 9)	180 1 HR	BDL/DL:20.0
B		micro.gm/m3	IS 5182: Part 23:2006 (Reaft, 2012), (O)	100 Z4 HR	151
0	Phrilipolete Mittair (<2.5um)	micra gm/m3	IS 5182 (PT-94),2019 (O)	60 24 HR.	
7	Sulphur Dicxide (SO2)	micro gm/m3	IS 5162 : Part 2 :2001 (Reaff 2012) (O)	80 24 HR.	80

---- END ----

Report Verified By

For Mitra S. K. Private Limited

**Authorised Signatory** 

Head Office: Straich Control (5th Fiber), 748, A.J.C. Bose Bond, Koketa - 705016, Word Bongel, India. Tel. 19 33:40143000 / 22950007 Fax: 19 30 20950000 Ethile who Control Control Website: Website Service Control Control

Address of Laboratory:

Building No. P- 48; Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

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







ULR: TC-695024000002165F

Doc No. MSK/GEN/(9/07

#### Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonjhar, Odisha - 758034 (ndia

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/Z121B8

10/02/2024

MSKNB/ED/2023-24/02/M4XM7Q

02/02/2024

02/02/2024 - 10/02/2024

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:

t. Group	Atmospheric Pollution
2. Description of sample	Ambient Air
3. Unique Identification of sample(if any)	NA .
4. Date of sampling	30/01/2024
5. Place of sampling	Near Joribar Shorting Yard BIMM
6. Environmental conditions during sampling & Transport	1) Temperature :16-33 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	LALIN NAIK
9. Field Equipments Used	MSK/BBL/FIELD/RDS-12

Report No.: MSKPL/ED/2023-24/Z121B8

Sample No.: MSKNB/ED/2023-24/02/M4XM7Q

#### RESULT

Chemical						
SI 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	1S 5182 (Part 11)	5 (Annual)	BDL(DL 4.2)	
3	Benzo(a)Pyrene	ng/m3	IS 5182 (Part 12)	I (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 Specifled	0.18	
Ð	Nickel as Ni	ng/m3	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

END

Reviewed By

eli Genguly

Executive Chemical

Authorized Signatury

: Lab to charge

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

This Teat Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.
This reserved part of sample(s) for chemical analysis (Nov. - perishable sample(s) Food, Weter) shall be retained for 15 days from the date of issue of the Test Report. Personate sample(s) shall be retained 2 days from the date of issue of the Test Report.

This reserved part of campbe(s) for chemical analysis (Sold & Liquid Wester) shall be retained for 15 days as per CPC8 guideline & (Air) 1 month from the date of most of the Test Report The reserved part of sample(s) for Microbiological analysis (Non - pershabit sample(s) Food, Seeled Water, Seeled Water, Seeled Food) after the reserved for 1.5 days from the date of feeder of the Test Report

Head Office: Streets Centre (Str Floor), 748, A.J.C. Bose Read, Koltuks - 700016, Wind Bengal, India, Tat. 191 33 4014/3000 / 22650007 Fax: 91 33 22650008. Email: hfs@mitrask.com/Wiesear-www.entrask.com/

Address of Branch:

P.O. Barbil Di Keonihar Orlsan 758 035





Scan for Portal

### Name & Address of Customer:

Tata Steel Ltd (MGM), Joda West

AVPa. - Joda, Dist. - Keonikor, Odisha - 758034 India Pin

## TEST REPORT

Report No. :

Date:

Sample No.:

Reference No. & Date :

MSKGL/ED/2023-24/004619

10/02/2024

MSKGL/ED/2023-24/02/00013

3000156017/056, Date - 15/09/2023

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

1. Group	AIR
2. Description of sample	
3. Unique identification of sample(if any)	Amblent Air
4. Date of sampling	Barneban Iron & Mn, Mines BIMM
5. Place of sampling	30/01/2024
6. Environmental conditions during sampling & Transport	Near Shorting Yard BIMM
7. Sampling Plan & Method used	Clear & Sunny
r. Sumpring Fran & method used	NA NA

Report No.: MSKGUED/2023-24/004619

Sample No.: MSKGL/ED/2023-24/02/00013

#### RESULT

SI No.	Parameter	UOM	Method	Limit	Provide
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	400 24 HR.	Result
2	Carbon Monoxide (CO)	mg/m3	IS 5182 : Part 10 :1999 (Realf 2014)	2 BHR	0.58
3	Nilrogen Dicxide (NO2)	micro gm/m3	(NDIR) (O) IS 5182 Part 6: 2006 (Real(2012) (O)	80 24 HR.	0.7
4	Oztine (O3)	micro gm/m3	IS 5182 (Part 9)	180 1 HR	22,1 BDL(DL-20,0
5	Particulate Matter (<10um)	micro gm/m3	IS 5182: Part 23:2006 (Reaff, 2012) (O)	100 24 HR.	
Б	Particulate Matter (<2 5cm)	micro gm/m3	IS 5182 (PT-24);2019 (O)	60 24 HR	131
7	Sulphur Dicode (SO2)	micro gm/m3	IS 5182 : Part 2 2001 (Reaff.2012) (O)	80 24 HPL	8.0

----- END -----

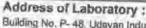
Report Verified By



For Mitra S. K. Private Limited

Doc No. MSKIGEW/19/07





Building No. P- 48, Udayan Industrial Estate. 3, Pagladanga Road, Kolkata 700015 West Bengal

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





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ULR: TC-695024000002169F

### Name & Address of Customer:

Tata Steel Ltd.(MGM), Joda Wast

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:

MSKPUED/2023-24/V121B1

10/02/2024

MSKNB/ED/2023-24/02/ZVMSA1

02/02/2024

02/02/2024 - 10/02/2024

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	E. P. L. C.
2. Description of sample	Atmospheric Pollution
Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA NA
5. Place of sampling	30/01/2024
	Near Back Filling Yard Barnebari
6. Environmental conditions during sampling & Transport	1) Temperature 18-33 deg C 2) Hammetric Processes 235 111 at E.
7. Sampling Plan & Method used	List in Still Chair Maintainen
Identification of the personnel and	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK 9. Field Equipments Used	LALIN NAIK
or range Education Open	MSK/BBL/FIELD/RDS-13

Report No.: MSKPL/ED/2023-24/V121B1

Sample No.: MSKNB/ED/2023-24/02/ZVMSA1

#### RESULT

SI No.	Parameter	UOM	Method	Limit	1
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June		Result
2	Benzene	micro gm/m3 -	IS 5182 (Part 11)	6 (Annual)	BDL(DL:1.0)
3	Benzo(a)Pyrene	ng/m3		5 (Annual)	BDL(DL:4,2)
4	Lead (as Pb.)	micro gm/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0,5)
6	Manganese as Mri	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)
6	Nickel as Ni		USEPA-IO 3,4: June	Not Specified	0.12
pinion		ng/m3	USEPA-IO 3.4, June i. 18th November 2009, for Amit	20 (Annual)	BDL(DL:5.0)

Limit as per CPCB notification, New Delhi. 18th November 2009, for Ambient air quality

Statement of Conformity

END -

Reviewed By:

Signature

Designation

Executive Chemist

The results rotate only to the dem(s) texted

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This reserved part of sample(s) for charactel analysis (Non - personable sample(s) Food. Water) shall be retained for 15 days from the date of insure of the Test Report.

Performance of the Test Report.

The reserved part of sample(s) for charactel analysis (Non - personable sample(s) Food. Water) shall be retained for 15 days from the date of insure of the Test Report.

The manyord part of sample(s) for common analysis (Soil, Solid & Liquid Wares) area be retained for 15 days as per CPCB quideline & (Air) I movem from the date of the Text Report.

The manyord part of sample(s) for black-policious analysis (Non - perturbable sample(s) Food, Souled Water, Seatest Ecol) shall be retained for 15 days from the date of issue of the Text Report.

Shrinch Certile (5th Floor), 748, A.J.C. Bose Rood, Kolletta -700016, West Bangel Inclu Tel: 19133 40143000 / 23953007 Fax : 9133 2205008 Entwil info@mitrask.com Website: www.mitrask.com

Address of Branch:

P.O. Barbil Dt Koonjhar Oressa 758 035





Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda. Dist. - Keonihar, Odisha - 758034 fixtur Pho

TEST REPORT

Report No. :

Date :

Sample No. :

Reference No. & Date :

MSKGL/ED/2023-24/004610

10/02/2024

MSKGL/ED/2023-24/02/00017

3000156017/056, Date - 15/09/2023

We hereby certify that the following sample Drawn by us has been

1. Group	AIR
2. Description of sample	
3. Unique identification of sample(if any)	Ambient Air
4. Date of sampling	Tiringpahar Iron & Mn. Mines TIMM
5. Place of sampling	30/01/2024
	Near Back Filling Yard Barneban
6. Environmental conditions during sampling & Transport	Cléar & Sunny
7. Sampling Plan & Method used	NA NA

Report No.: MSKGL/ED/2023-24/004610

Sample No.; MSKGL/ED/2023-24/02/00017

#### RESULT

SI No.	Parameter	UOM	Militaria	720	-
1	Ammonia (NH3)		Method	Limit	Result
	Committee of the Commit	micro gm/m3	IS 5182 (Part 25)	400 24 HR	14.8
3	Carbon Monoxide (CO)	mg/m3	IS 5182 : Part 10 :1999 (Reaff.2014)	2 8HR.	
3	Nitrogen Diaxide (NO2)	micro gm/m3	(NDIR) (O)	Z OPIK.	0.46
4	Ozone (O3)	micro gm/m3	IS 5182 : Part 6 2006 (Reaff 2012) - (O)	80 24 円尺。	19,3
5	Particulate Matter (<10um)		IS 5182 (Part 9)	180 1 HR.	BDL/DL/20.0
6	Particulate Matter (<2.5um)	Em/mg orains	IS 5182: Part 23:2006 (Reaff. 2012)_(0)	100 24 HR.	248
7		micro gm/m3	IS 5182 (PT-24),2019 (O)	00 24 HR.	130
-	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182; Part 2 (2001 (Reaff 2012) (O)	80 24 HR.	6.9

END -

Report Verified By

Head Office:



For Mitra S. K. Private Limited

- Som **Authorised Signatory** 

Doc No. MSK/GEN/19/07





Building No. P- 48. Udayan Industrial Estate. 3, Pagladanga Road, Kolkata 700015 West Bengal

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





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ULR: TC-695024000002164F

### Name & Address of Customer:

Tata Sieel Ltd.(MGM)\_Joda West

Al/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/2023-24/0121B7

10/02/2024

MSKNB/ED/2023-24/02/9CFN4Q

02/02/2024

02/02/2024 - 10/02/2024

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	
Unique Identification of sample(if any)	Ambient Air
4. Date of sampling	NA 30/01/2024
5. Place of sampling	Near Joribar Weight Bridge BIMM
6. Environmental conditions during sampling & Transport	1) Temperature 18-33 deg C 2) Barometric Pressure: 735 mm of Hig 3) Days Europe
7. Sampling Plan & Method used	No. 5 Cold Chain Maintained IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	LALIN NAIK
9. Field Equipments Used	MSK/BBL/FIELD/RDS-11

Report No.: MSKPL/ED/2023-24/012187

Sample No.: MSKNB/ED/2023-24/02/9CFN4Q

#### RESULT

Chemical							
SI No.	Parameter	UOM	Method	Limit	Result		
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June	8 (Annual)	-		
2	Benzene	micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL-1,0) BDL(DL-4,2)		
3	Benzo(s)Pyrene	ng/m3	IS 5182 (Part 12)	1 (Annual)	BDL(DL'0.5)		
4	Lead (es Pb )	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	BDL(DL:0.01)		
5	Manganese as Mn	mlcro gm/m3	USEPA-IO 3.4: June	Not Specified	0.64		
6	Nickel as Ni	ng/m3	USEPA-IO 3.4, June	20 (Annual)	7.7		

Opinion:

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END -

Raylowest By

Signature:

Plati Groundy

Designation

Executive Chemist

Authorized Signatury

The results roleto only to the sem(s) tested.

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

The reserved part of sample(a) for charmonical analysis (Soil, Solid & Liquid Walte) what be returned for 15 days as per CPEB quistaine is (As) 5 month from the date of issue of the Yest Report.

The reserved part of sample(a) for Sign spring on Syste (Non - perioduction sample(a) Food, Sested Walter, Bested front) shall be returned for 15 days from the date of issue of the Test Report.

Stracts Castro (5th Floor), 74B, A.J.C. Bose Rhad, Kotishs -700016, Wind Bengal, India Tel: 91 33 40143000 / 22650007 Fax: 91 33 22000008 Head Office:

Email info@mfrank.com Wichile www.mirasu.com

Address of Branch:

P.O. Barbil Dt Kennihar Orisen 758 035





Scan for Portal

Name & Address of Customer:

Tata Steel Ltd.(MGM) Jorda Wood

At/Po. - Joda: Dist. - Keonj/sir, Odisha - 758034 India Pin

TEST REPORT

Report No. :

Date :

Reference No. & Date :

MSKGL/ED/2023-24/004608 10/02/2024

Sample No.:

MSKGL/ED/2023-24/02/00012

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	
3. Unique Identification of sample(if any)	Ambient Atr
4. Date of sampling	Barnebani Iron & Mn. Mines BIMM
5. Place of sampling	30/01/2024
	Near Weight Bridge BIMM
5. Environmental conditions during sampling & Transport	Cloar & Sunny
7. Sampling Plan & Method used	NA.

Report No.: MSKGL/ED/2023-24/004608

Sample No.: MSKRL/ED/2023-24/02/00012

#### RESULT

Analysis Result of Ambient Air							
SI No.	Parameter	UOM	Method	4.5-14	1		
1	Ammonia (NH3)	micro gm/m3	IS 5182 (Part 25)	Limit	Result		
2	Cartion Monoxide (CO)		IS 5182 Part 10 :1999 (Realf 2014)	400 24 HR,	14,8		
-		mg/m3	(NDIR) (O)	2.8HR.	0.51		
3	Nitrogen Dioxide (NO2)	micro gm/m3	IS 5182 : Part 6 2008 (Reuff.2012) - (O)	80 24 HR.	0.0		
4	Ozone (O3)	micro gm/m3	IS 5182 (Part 9)		21.5		
5	Particulate Matter (<10um)			100 1 HR	BDL(DL:20.0)		
6		micro gm/ma	IS 5182; Part 23,2006 (Realf, 2012) (O)	100 24 HR	193		
	Particulate Matter (<2.5um)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HR.			
7	Sulphur Dioxede (SO2)	En/mg oralm	(S 5162 : Part 2 :2001 (Realf:2012) (O)	80 24 HR.	93		

----- END -----

Report Verified By

For Mitra S. K. Private Limited

Address of Laboratory:

Building No. P-48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Sengal

Tel 491 7044036120 Email udayanlab@mitrask.com







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ULR: TC-695024000001823F

Doc No.: MSK/GEN/19/07

ESTING+INDPEDTION

#### Name & Address of Customer:

Tuta Steel Litt.(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/ED/2023-24/Q1212Q

06/02/2024

MSKNB/ED/2023-24/01/0N3C7F

24/01/2024

24/01/2024 - 05/02/2024

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	
2. Description of sample	Atmospheric Pollution
3. Unique Identification of sample(if any)	Ambient Air
f. Date of sampling	NA NA
5. Place of sampling	20/01/2024
	Barnebari SSVM School
Environmental conditions during sampling & Transport	1) Temperature :14-30 deg C 2) Ratomatria Pressure: 774 mg ettl. 3) 7
. Sampling Plan & Method used	TO COLOR SECTION IN FILLING THE PROPERTY OF TH
Identification of the personnel performing sampling by MSK	IS:5182(P-11,12) & USEPA
Field Equipments Used	Dhambrudhar Das,Lalin Neik
A raid Equipments Used	MSK/BBL/FIELD/RDS-14

Report No.: MSKPL/ED/2023-24/012120

Sample No.: MSKNB/ED/2023-24/01/0N3C7F

### RESULT

Chemical					
SI No.	Parameter	UOM	Method	Limit	
1	Arsenic as (As)	ng/m3	USEPA-IO 3.4, June		Result
2	Benzene			6 (Annual)	BDL(DL:1.0)
3		micro gm/m3	IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
	Berizo(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)	1000
5	Manganese as Mn	micro gm/m3	USEPA-IO 3 4: June		0.03
6	Nickel as Ni	ng/m3		Not Specified	0.28
pinion:	Limit as pas CDC		USEPA-IO 3.4, June	20 (Annual)	5.7

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END -

Reviewed By

Signatura

Mame Or Devotare Barrery

Divigosion Technical in charge Authorized Signistory

Designation

The results relate only to the seminy instead.

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The reserved part of sample(s) for chemical analysis (Non - perjutable adequie(s) Food. Water) scall be retained for 15 days from the date of as a cit the Tast Report. Perutable sample(s) shall be retained 2 days.

The interved part of sample(s) for disminstal energies (Soil, Solid & Liquid Wester) shall be recalled for 15 days as per CPCR guideline it. (Air) 1 months from the data of sease of the Test Report.

The interved part of sample(s) for Microbiological analysis (Non-pershable sample(s) Food, Sealed Wester, Second God) shall be returned to 15 days from the data of sease of the Test Report. Head Office: Structu Centre (6th Floor), T48, K.J.C. Bose Road, Kolkess - 700016, West Bangal, India Tal : 31 33 40143000 / 22050007 Pax : 91 33 22050008 Ernell - indigen class, com Websell - www.mitrielk.com

AVPo. - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

#### Address of Branch:

P.O. Barbil Of Keorghar Orissa 758 035

Teta Steel Lld.(MGM) Joda West





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## TEST REPORT

Name & Address of Customer: Report No. :

Date:

MSKGL/ED/2023-24/00/499

10/02/2024

Sample No.:

MSKGL/ED/2023-24/01/00984

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

7. Sampling Plan & Method used	NA NA
6. Environmental conditions during sampling & Transport	Clear & Suriny
5. Place of sampling	Bilmebari SSVM School (Buffer Zone)
4. Date of sampling	20/01/2024
3. Unique Identification of sample(if any)	Barnebari Iron & Mn. Mines
2. Description of sample	Ambient Air
1. Group	AIR

Report No.: MSKGL/ED/2023-24/004499

Sample No.: MSKGL/ED/2023-24/01/00984

#### RESULT

analysis Result of Ambient Air							
SI No.	Parameter	UOM	Method	Limit	Result		
1	Ammonia (NH3)	micro gro/m3	IS 5182 (Part 25)	400 24 HR	BDL(D1-10)		
2	Carbon Monoxide (CO)	mg/m3	IS 5182 : Part 10 :1999 (Realf 2014) (NDIR) (O)	2 8HR.	0,61		
3	Wiltragen Diaxide (NO2)	micro gm/m3	IS 5182 : Part 6 :2006 (Realt.2012) (O)	80 24 HR.	16,3		
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 (Realf. 2012) (O)	100 24 HR	209		
6	Particulate Matter (<2.5iim)	micro gm/m3	IS 5182 (PT-24),2019 (O)	60 24 HB	97		
T	Sulphur Dioxide (SO2)	miliono gmi/m3	IS-5182 : Part 2:2001 (Reaff.2012) (O)	80.24 HR	BBL(DL:6,0)		

---- END -----

Report Verified By



For Mitra S. K. Private Limited

#### Address of Laboratory:

Building No. P-48, Udayan industrial Estate, 3, Pagladenga Road, Kolksta 700015 West Bengal

Tel. +91 7044036120

Email: udayanlab@mltrask.com







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ULR: TC-695024000002170F

Doc No.: MSK/GEN/19/07

TESTING . INSPECTION

## Name & Address of Customer:

Tata Steel Ltd.(MGM)\_Joda West

At/Po. - Joda, Dist. - Keonthar, 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/2023-24/0121BG

10/02/2024

MSKNB/ED/2023-24/02/VKU74K

02/02/2024

02/02/2024 - 10/02/2024

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	Atmospheric Pollution
	Ambient Air
Description of sample     Unique Identification of sample(if any)	NA
	31/01/2024
4. Date of sampling 5, Place of sampling	Jarouti High School Juridi  1) Temperature: 18-33 deg C 2) Barometric Pressure: 735 mm of Hg 3) Rain fall:
6. Environmental conditions during sampling & Transport	No & Cold Chain Maintained
7. Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
8. Identification of the personnel performing sampling by MSK	Dhembrudher Das
9. Field Equipments Used	MSK/BBL/FIELD/RDS-18

MSKPL/ED/2023-24/0121BC Report No. :

Sample No.: MSKNB/ED/2023-24/02/VKU74K

### RESULT

Chemical					
SI No.	Parameter	NOM	Method	Limit	Result
+	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	пр/т3	IS 5182 (Part 12)	1 (Annual)	BDL(DL:0.5)
A	Lead (as Pb.)	micro gm/m3	DSEPA-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	8DL(DL:0.01)
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 Ambieni air quality

Statement of Conformity MA

- END ----

Reviewed By:

Designation Exacutive Chemist

Authorized Signatory

Sanakee

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

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The reserved part of nample(s) for chemical analysis (Non - pertinable sample(s) shall be retained for 15 days from the date of trace of the Test Report. Pertinable sample(s) shall be retained 2 days. from the date of insus of the Test Report.

The reserved part of samplers for chemical analysis (Soil, Soild & Liquid Weste) shall be retained for 15 days as per CPGB guideline & (Air) 1 month from the date of imme of the Test Report.
The reserved part of sample(s) for Microbiological analysis (Non - pershabis sample(s) Food, Sessed Water, Sessed food) shall be retained for 15 days from the date of respect to the Test Report.

Head Office:

Shruchi Centre (fin Floor), 74B. A.J.C. Bose Road, Kolketa - 700016. West Bengal, India. Tel. | 91.33.40143000 / 22650007 Fax | 91.33.22650008 Email: afo@mitrask.com Website ; www.mitrask.com



P.O. Barbii Dt Keonjhar Onssa 758 035





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#### **TEST REPORT**

Reference No. & Date :

Name & Address of Customer:

Teta Steel Ltd.(MGM) Joda West

Al/Po - Joda, Dist. - Keonjhar, Odisha - 758034 India Pin

Report No. :

Sample No.:

Date :

MSKGL/ED/2023-24/004618

10/02/2024

MSKGL/ED/2023-24/02/00018

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	
Unique Identification of sample(if arry)	Barnebari Iron & Mn. Mines BIMM	
4. Date of sampling	31/01/2024	
5. Place of sampling	Jarouli High School Juridi	
6. Environmental conditions during sampling & Transport	Clear & Sunny	
7. Sampling Plan & Method used	NA .	

Report No.: MSKGL/ED/2023-24/004616

Sample No.: MSKGL/ED/2023-24/02/00018

#### RESULT

nalysis i	nalysis Result of Ambient Air						
SI No.	Parameter	UOM	Method	Limit	Result		
1	Ammonia (NH3)	micro gm/m3	IS 5162 (Part 25)	400 24 HR.	14.6		
2	Carbon Monoxide (CO)	ing/m3	IS 5162 : Part 10 :1999 (Realf.2014) (NDIR), (O)	Z BHR.	0,68		
3	Nitrogen Dioxida (NO2)	micro gm/m3	18 5182 : Part 6 .2005 (Resilf.2012) (O)	80 24 HR.	17.6		
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 5162: Part 23:2006 (Reaff. 2012). (O)	100.24 FIRE	170		
6	Particulate Matter (<2.5um)	micro amim3	IS 5182 (PT-24),2019 (O)	60 24 HR.	RS		
7	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 : Part 2 :2001 (Rentl. 2012) (O)	80 24 HR.	8.2		

----- END -----

Report Verified By

Head Office:



For Mitra S. K. Private Limited

Address of Laboratory:

Building No. P- 48, Udayan Industrial Estate, 3, Pagladanga Road, Kolkata 700015 West Bengal

Name & Address of Customer:

AVPo - Joda, Dist. - Keonhar, Odisha - 758034 India

Tata Steel Ltd.(MGM)\_Joda West

Tel. +91 7044036120

Email, udayanlab@mitrask.com





ULR: TC-695024000001846F

Doc No.: MSK/GEN/19/07

TESTING \* INSPECTION

TEST REPORT

Report No. :

Date:

Sample No. :

Date of receipt of sample:

Date(s) of performance: Location of performance of

Reference No. & Date:

MSKPL/ED/2023-24/M1215T

06/02/2024

MSKNB/ED/2023-24/01/Y8450A

27/01/2024

27/01/2024 - 06/02/2024

Permanent Facility

3000156017/056, Date - 16/09/2023

Chemical

Discipline:

te hereby certify that the following sample Drawn by us has been analyza	Atmospheric Pollution
I, Group	Ambient air
2. Description of sample	NA NA
3. Unique Identification of sample(if any)	24/01/2024
t, Date of sampling	In the state of th
5. Place of sampling	1) Temperature :16-31 deg C 2) Barometric Pressure: 734 mm of Hg 3) Rain fa
8. Environmental conditions during sampling & Transport	No & Cold Chain Maintained
7, Sampling Plan & Method used	IS:5182(P-11,12) & USEPA
Sampling Fran & medico deco	Pratik Kr. Mantri, Lalin Naik
8. Identification of the personnel performing sampling by MSK 9. Field Equipments Used	MSK/BBL/FIELD/FDS-14

Report No.: MSKPL/ED/2023-24/M1215T

Sample No.: MSKNB/ED/2023-24/01/Y8450A

#### RESULT

hemical				111-14	Result
SI No.	Parameter	UOM	Method	Limit	Nooun
SI NO.		ng/m3	USEPA-IO 3.4, June	6 (Annual)	BDL(DL:1.0)
1	Arsenic as (As)		IS 5182 (Part 11)	5 (Annual)	BDL(DL:4.2)
2	Benzene	micro gm/m3		1 (Annual)	BDL(DL:0.5)
3	Benzo(a)Pyrene	Em/gri	IS 5182 (Part 12)		BDL(DL:0.01)
	Lead (as Pb.)	micro gm/m3	USEPA-IO 3.4, June	1 (24 Hours)	
-		micro gm/m3	USEPA-10 3.4: June	Not Specified	0.09
5	Manganese as Mr.	ng/m3	USEPA-IO 3.4, June	20 (Annual)	BDL(DL:5.0)
R.	Nickel as Ni	- rightis	Between Title Williams		

Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality

Statement of Conformity NA

END -

Signature

Ma. Plair Glinguly

Designation Executive Chemiel

Authorized Signatury

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The reserved part of sample(s) for cherologic enables (Non - perishable sample(s) shall be reserved part of sample(s) for cherologic enables (Non - perishable sample(s) shall be reserved part of sample(s) for cherologic enables (Non - perishable sample(s) shall be reserved part of sample(s) for cherologic enables (Non - perishable sample(s) shall be reserved.

from the date of Issue of the Test Report. The reserved part of sample(c) for charactel analysis (Soil: Soil: 6 Liquid Weste) small be retained for 15 days are per CPCB published it (Air) 1 month from the date of sacure of the Test Report.

The reserved part of sample(s) for Microbiological analysis (Non - pershable sample(s) Food, Saland Water, Second food) when be retained for 15 days from the date of insure of the Test Report.

Head Office:

Shruchs Cardre (601 Facer), 74B, A.J.C. Rose Road, Nokaza ~700016, West Bengal, India. Tel.: 91-33-40143000 / 22650007 Fac.: 91-33-72650008

Ernal Info@mitrzali.com Wilbalin | www.rolfmin.com



Address of Branch:

P.O. Bartiil Dr Keoninar Onssa 758 005

Tale Steel Ltd.(MGM)\_Joda West



### TEST REPORT

Report No. : Name & Address of Customer:

Date:

MSKGL/ED/2023-24/004589

10/02/2024

Sample No.: AuPo. - Joda, Dist. - Keoninar, Odisha - 758034 India Pin

MSKGL/ED/2023-24/01/01109

Reference No. & Date :

300015(017/056, Date - 15/09/2023

We Drawn by us has been analyzed with the following results:

to hereby certify that the following sample Drawn by us has been seen	AIR
1. Group	Ambient Air
2. Description of sample	Tiringpahar Iron & Mn. Mines BIMM
Unique identification of sample(if any)	24/01/2024
4. Date of sampling	Palasa (kha) Village Pond (Buffer Zone)
5. Place of sampling	Clear & Sunny
6. Environmental conditions during sampling & Transport	NA .
7. Sampling Plan & Method used	

Report No.: MSKGL/ED/2023-24/004589

Sample No.: MSKGL/ED/2023-24/01/01109

#### RESULT

nalysis F	Result of Ambient Air	Limit	Result		
SI No.	Parameter	MON	Method		
SI NU.	4 (AILIS)	micro gmim3	(S-5182 (Part 25)	400 24 HR.	14.5
1	Ammonia (NH3)		IS 5182 : Part 10 :1999 (Reaff 2014)	2 BHR.	0.32
2	Carbon Monuside (CO)	mg/m3	(NDIR) (0)		
7		micro gm/m3	IS 5182 : Part 5 :2008 (Realf 2012) (O)	80.24 HRL	19,3
3	Nitrogen Dicode (NO2)		IS 5182 (Part 9)	180 1 HR.	BDL(D):20.0
A	Ozone (O3)	micro gm/m3	0.2 4116.00		166
- 17	Particulate Matter (<10um)	micro pm/m3	(S 5182 Part 23:2006 (Reaff, 2012) (O)	100 24 HR.	
-	Paraculate Matter (<2.5um)	Envirg usalm	IS 5182 (PT-24).2019_(O)	60 24 HR.	89
6	Sulphur Dioxide (SO2)	micro gm/m3	IS 5182 : Part 2 2001 (Realf.2012) _(0)	80 24 HR.	8.6

- END -

Report Verified By

For Mitra S. K. Private Limited



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

 ♥ FP-34, 35,Food Park, Five Star Industrial Estate, MIDC Bullbori, Nagpur, Maharashtra, India - 441 122 • 91 8045685558 Œ Email : Info@anacon.in shrtps://www.anaconlaboratories.com

Test Report

Page 1 of 1

Ambient Air Quality Monitoring Report-November-2023

Report No.: AN/AAQ/TS-JJ	EIM/2023/1-4	Date: 04/12/2023			
Name and Address of Industry:-	M/s Bamebari Iron & (M/s TATA Ste		W. O. No. , W. O. date:	4700098928/962 22/03/2022	
Sample Description/ Type	Ambient Air Quality (Core Zone)	Sample Ref. No.:-	ALPL/22112023/ENV-283-7/JEIM-CZ/AAQMS-7 at ALPL/22112023/ENV-283-8/JEIM-CZ/AAQMS-8		
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	6,13,20,27 November-2025	E-C-A-L-A-L-C-A-L-A-L-A-L-A-L-A-L-A-L-A-L	
Test Started On:-	6,13,20,27 Nov-2023 & 2-Dec- 2023	Test Completed On:-	7,16,21,28 November-2023& 4-Dec-2023		
Sampling Procedure	ANtd/7.2/Mon-01		7.1		

Sr. No.	LOCATION	Date of sampling	PMm µg/m³	PM2s µg/m³	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>	CO mg/m²
Method Reference		15 51E2 (Part 25)	USEPA-40 (Part 50)	(Part-2)	(5:5182 (Part-6)	(Fart-10)	
		03/11/2023	60.0	20.4	12.0	26.6	BDL (DL - 0.5)
		07/11/2023	52.6	18.2	10.9	17.3	BDL (DL -0.5)
		10/11/2023	57.1	23.7	13.2	24.9	BDL (DL - 0.5
AAQMS-7	Near Project	16/11/2023	59.9	25.8	12.7	21.8	BDL (DL - 0.5)
rereginar-7	Office-BIMM	18/11/2023	47.1	20.4	12.0	16.2	BDL (DL -0.5
		21/11/2023	57.0	21.7	10.3	21.4	BDL (DL - 0.5
		24/11/2023	61.3	20.2	11.2	28.6	BDL (DL-0.5
		28/11/2023	53.6	18.8	10.0	25.8	BDL (DL-0.5
	Monthly Average V	alue	56.1	21.2	11.5	22.8	BDL (DL-0.5
- 11	-	03/11/2023	62.5	23.9	11.5	29.3	BDL (DL-0.5)
		07/11/2023	68.0	27.0	14.8	33.6	BDL (DL-0,5)
		10/11/2023	64.0	23.7	12.9	28.4	BDL (D1-0.5)
AAQMS-8	Near Weigh	16/11/2023	61.4	25.9	13.3	28.1	BDL (DL-0.5)
AAQM340	Bridge-BIMM	18/11/2023	52.6	21.4	10.7	25.9	BDL (DL-0.5)
		21/11/2023	67.0	23.4	13.3	31.3	BDL (DL-0.5
		24/11/2023	58.9	20.7	11.7	27.1	BDL (DL -0.5
		28/11/2023	67.1	28,2	16.5	34.0	BDL (DL-0.5)
	Monthly Average V	alue	62.7	24.3	13.1	29,7	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

Snehal Raut

Deputy Technical Manager

Authorized Signatory

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

--- End of Report---



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Page 1 of 1

Ambient Air Quality Monitoring Report-November-2023

Report No.: AN/AAQ/TS-J	EIM/2023/1-5	Date: 04/12/2023				
Name and Address of Industry:-	PROBLEM CHANGE AND TO DO WAS AS	M/s Bamebari Iron & Manganese Mine W. O. No. (M/s TATA Steel Limited) W. O. date:				4700098928/962 22/03/2022
Sample Description/ Type	Ambient Air Quality (Core Zone)	Sample Ref. No.:-	ALPL/22112023/ENV-283-9/JEIM-CZ/AAQMS-9 a ALPL/22112023/ENV-283-10/JEIM-CZ/AAQMS-1			
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	6.13,20,27 November-2023	8 & 2-December-2023		
Test Started On:-	6,13,20,27 Nov-2023 & 2-Dec- 2023	Test Completed On:-	7,16,21,28 November-2023& 4-Dec-2023			
Sampling Procedure	ANtd/7.2/Mon-01					

Sr. No.	LOCATION	Date of sampling	PM <sub>10</sub> µg/m³	PM1s µg/m³	SO <sub>2</sub> µg/m³	NO <sub>2</sub> µg/m³	CO mg/m³
Mothod Reference		(Part 73)	USEPA-40 (Part 50)	(5:5192 (5:01-2)	(Part-6)	(5:5182 (Part-10)	
		04/11/2023	61.7	21.7	11.6	23.9	BDL (DL - 0.5)
		08/11/2023	57.3	16.8	9.2	18.1	BDL (DL - 0.5
	100 000 000 000	11/11/2023	54.6	16.4	8.1	16.7	BDL (DL-0.5)
лаом5-9	Near Sorting Yard-	17/11/2023	62.4	19.2	11.3	21.6	BDL (DL - 0.5)
Magmos	BIMM	22/11/2023	58.3	18.1	9.7	18.3	BDL (DL - 0.5
	1	25/11/2023	54.7	16.9	8.4	17.2	BDL (DL-0.5)
		27/11/2023	57.3	17.2	7.6	23.9 18.1 16.7 21.6 18.3	BDL (DL-0.5)
		30/11/2023	61.8	19.3	9.1	18.2	BDL (DL =0.5
	Monthly Average Va	ine	58.5	18.2	9.4	18.9	BDL (DL - 0.5
		04/11/2023	64.8	21.6	11.9	23,8	BDL (DL - 0.5
		08/11/2023	57.3	18.3	9.2	18.1 16.7 21.6 18.3 17.2 16.9 18.2 18.9 23.8 18.4 21.6 19.3 16.8	BDL (DL -0.5
	1 4	11/11/2023	67.1	23,8	12.6	21.6	BDL (DL - 0.5
AAOMS-10	Bamebari	17/11/2023	62.8	21.9	11.7	19.3	BDL (DL-0.5
AAQM5-10	Backfilling Yard	22/11/2023	56.3	18.2	8.4	16.8	BDL (DL -0.5
		25/11/2023	57.1	19.7	9.3	23.9 18.1 16.7 21.6 18.3 17.2 16.9 18.2 18.9 23.8 18.4 21.6 19.3 16.8 21.7 23.4 19.2	BDL (DL-0.5)
		27/11/2023	62.8	23.6	11.7	23.4	BDL (DL-0.5)
		30/11/2023	56,2	21.9	9.2	19.2	BDL (DL - 0.5
	Monthly Average Va	lue	60.6	21.1	10.5	20,5	BDL (DL - 0.5

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Remark: - All Results are within Limit as per CPCB Standards.

Verified by

Snehal Raut

Deputy Technical Manager

**Authorized Signatory** 

Dr. (Mrs.) S. D. Garway

----End of Report----





#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Page 1 of 1

Ambient Air Quality Monitoring Report-November-2023

Report No.: AN/AAQ/T	S-JEIM/2023/1-11		Date: 04/12/2023
Name and Address of Industry:-		& Manganese Mine Steel Limited)	W. O. No. 4700098928/962 22.03.2022
Sample Description/Type	Ambient Air Quality (Buffer Zone)	Sample Ref. Noa-	ALPL/22112023/ENV-283-21/JEIM-BZ/AAQMS-8 & ALPL/22112023/ENV-283-22/JEIM-BZ/AAQMS-9 & ALPL/22112023/ENV-283-23/JEIM-BZ/AAQMS-10
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	20-November-2023
Test Started On:-	21-November-2023	Test Completed On:-	22-November-2023
Sampling Procedure	ANtd/7.2/Mon-01		

Sr. No.	LOCATION	Date of sampling	PM <sub>10</sub> µg/m <sup>3</sup>	PM25 µg/m³	SO <sub>2</sub> μg/m <sup>3</sup>	NO <sub>2</sub> µg/m³	CO mg/m³
Method Reference			IS 5182 (Part 23)	USEPA-40 (Part 50)	IS:5182 (Part-2)	IS:5182 (Part-6)	(S:5182 (Part-10)
AAQMS-8	Bamebari SSVM School	18/11/2023	54.9	21.6	11,3	18.7	BDL (DL-0.5)
Monthly Average Value			54.9	21.6	11.3	18.7	BDL (DL-0.5)
AAQMS-9	Palsa Kha Village	18/11/2023	- 47.2	17.3	7.1	16.4	BDI (DI 05)
4	Monthly Averag		47.2	17.3	7.1	16.4	BDL (DL-0.5) BDL (DL-0.5)
AAQMS-10	Guruda Village	18/11/2023	53.9	18.2	9.7	21.6	BDL (DL-0,5)
	Monthly Averag	e Value	53.9	18.2	9.7	21,6	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 authoriticity 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

Snehal Raut

Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway

Quality Manager

----End of Report----



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Fugitive Emission Monitoring Report-November-2023

Report No.: AN/FE/TS-JEIM	Date: 30/11/2023			
Name and Address of Industry:-	the state of the s			
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 μg/m³
		Method Reference	IS 5182 (Part 23)
FE-1	Haul Road Joribar	07/11/2023	752
FE-2	Sorting Yard Joribar	07/11/2023	638
FE-3	Near weigh Bridge	07/11/2023	819
FE-4	Near Screen Plant	07/11/2023	427
	MoEF & CC Norms:	1200	μg/m³

NOTES: • Please see watermark "Original Test Report" to continue 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

----End of Report----



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Page 1 of 1

Ambient Air Quality Monitoring Report-October-2023

Report No.: AN/AAQ/TS-JI		Date: 03/11/2023			
Name and Address of Industry:-	the second secon	Manganese Mine	W. O. No.	4700098928/962	
muusuy	(M/s TATA St	eel Limited)	. W. O. date:	22/03/2022	
Sample Description/ Type	Ambient Air Quality (Core Zone)	Sample Ref. No.:-	ALPL/23102023/ENV-261-7/JEIM-CZ/AAQMS-7 a ALPL/23102023/ENV-261-8/JEIM-CZ/AAQMS-1		
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	9,16,23,30 October -2023		
Test Started On-	9,16,23,30 October-2023	Test Completed On:-	10,17,25,31 October-2023		
Sampling Procedure	ANtd/7.2/Mon-01				

Sr. No.	LOCATION	Date of sampling	PMu µg/m³	PM24 µg/m³	SO <sub>2</sub> µg/m³	NO <sub>2</sub>	CO mg/m³
Method Reference		(Part 23)	(Part 50)	(Furt-2)	(5:5182 (Part-6)	15:5182 (Part-10)	
1		03/10/2023	63.2	23.4	10.3	24.4	BDL (DL-0.5
		06/10/2023	58.6	20.0	9.4	26.6	BDL (DL -0.5
		10/10/2023	62.2	21.3	10.8	23.8	BDL (DL-0.5
AAQMS-7	Near Project	13/10/2023	51.7	18.2	11.8	19.3	BDL (DL - 0.5
	Office-BIMM	17/10/2023	63.6	24.7	9,6	27.2	BDL (DL-0.5
		20/10/2023	56:7	22.1	10.5	25.0	BDL (DL - 0.5
		24/10/2023	51.6	17,9	11.2	16.4	BDL (DL - 0.5
27/10/2023		50.5	19.6	10.5	25.3	BDL (DL -0.5	
	Monthly Average V	alue	57.3	20.9	10.5	23.5	BDL (DL - 0.5
		03/10/2023	58.8	25.9	12.6	26.1	BDL (DL-0.5)
1		06/10/2023	69.6	28.8	10.8	28.4	BDL (DL-0.5)
		10/10/2023	62.9	24.2	14.0	21.6	BDL (DL-0.5)
AAOMS-8	Near Weigh	13/10/2023	68.2	25.5	13.3	31.3	BDL (DL-0.5)
and the Control	Bridge-BIMM	17/10/2023	63.0	23.8	11.8	28.7	BDL (DL-0.5)
		20/10/2023	59.9	26.4	13.3	24.1	BDL (DL -0.5
4		24/10/2023	54.1	20.9	14.3	29.6	BDL (DL -0.5
		27/10/2023	58.9	19.2	11.9	23.8	BDL (DL-0.5)
	Monthly Average V	lue	61.9	24.3	12.8	26,7	BDL (DL-0.5)

NOTES: • Please see watermark "Original Test Report" to contirm the authenticity of this report. • Results shall be referred to tested sample(a) and applicable to tested parameters only. • Test report shall not be reproduced except in full without prior written approval of Anazon Labs. • BDL- Below detection limit.

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

---End of Report---





#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

Test Report

Page 1 of 1

Ambient Air Quality Monitoring Report-October-2023

Report No.: AN/AAQ/TS-J	EIM/2023/1-5	Date: 03/11/2023			
Name and Address of Industry:-		M/s Bamchari Iron & Manganese Mine (M/s TATA Steel Limited)		4700098928/962 22/03/2022	
Sample Description/ Type	Ambient Air Quality (Core Zone)	Sample Ref. No.:-	ALPL/23102023/ENV-261-9/JEIM-CZ/AAQMS-9 ALPL/23102023/ENV-261-10/JEIM-CZ/AAQMS-9		
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	9,16,23,30 October -2023	e regioni custi ignorio	
Test Started On:-	9,16,23,30 October-2023	Test Completed On:-	10,17,25,31 October-2023		
Sampling Procedure	ANtd/7.2/Mon-01				

Sr. No.	LOCATION	Date of sampling	PMm µg/m³	PM25 µg/m²	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub>	CO mg/m³
Method Reference		(Part 23)	USEPA-40 (Part 50)	(Fart-2)	(5:5182 (Part-6)	(5:5182 (Pert-10)	
		04/10/2023	50.4	19.2	7.9		BDL (DL-0.5
	1	07/10/2023	59.6	23.8	9.3		BDL (DL - 0.5
	***********	11/10/2023	66.9	25.4	10.0	18.0	BDL (DL-0.5
AAQMS-9		14/10/2023	50.1	19.6	9.4	μg/m³ 15.5182 (Part-6) 15.0 16.2	BDL (DL - 0.5
	BIMM	18/10/2023	73.4	23.8	10.7	26.1	BDL (DL - 0.5
	Gr.	21/10/2023	57.7	21.3	11.8	pig/m³ 15.182 (Part-6) 15.0 16.2 18.0 23.4 26.1 24.7 18.9 28.1 21.3 25.5 19.2 24.4 22.8 24.4 25.0 18.7 26.1	BDL (DL-0.5)
		25/10/2023	52.4	17.6	9.0	18.9	BDL (DL-0.5)
28/10/2023			60.6	24.7	10.5	28.1	BDL (DL -0.5
	Monthly Average Val	lue	58.9	21.9	9.8	21,3	BDL (DL - 0.5
		04/10/2023	65.8	26.3	11.2	25.5	BDL (DL -0.5
		07/10/2023	64.1	23.4	11.5	19.2	BDL (DL -0.5
	Method Reference    1971   1972   1974   197	10.5	24.4	BDL (DL - 0.5			
AAQMS-10		14/10/2023	70,6	29.7	11.1	μg/m <sup>2</sup> 15.3182 (Part-6) 15.0 16.2 18.0 23.4 26.1 24.7 18.9 28.1 21.3 25.5 19.2 24.4 22.8 24.4 25.0 18.7 26.1	BDL (DL - 0.5
	Backfilling Yard	18/10/2023	72.7	30,5	13.3		BDL (DL - 0.5
		21/10/2023	68.5	27.6	11.2	25.0	BDL (DL-0.5)
		25/10/2023	57,3	33.4	12.9	18.7	BDL (DL-0.5)
			63,1	24.6	10.5	26.1	BDL (DL - 0.5
				and the second s	11.5	23.3	BDL (DL - 0.5

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Verified by

Snehal Raut

Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) 5. D. Garway

Quality Manager

---- End of Report----



#### Anacon Laboratories Pvt. Ltd. Nagpur Lab

◆ FP-34, 35, Food Park, Five Star Industrial Estate. MIDC Butibori, Nagpur, Maharashtra, India - 441 122 4+91 8045685558 ■ Email : info@anacon.in

O https://www.anaconlaboratories.com

### Test Report

Page 1 of 1

Ambient Air Quality Ma

Report No.: AN/AAQ/TS-JEIM/2023/1-11			Date: 03/11/2023		
Name and Address of Industry:-	M/s Bamebari Iron	& Manganese Mine	W. O. No.		
industry:-	(M/s TATA	Steel Limited)	4700098928/962 22,03,2022		
Sample Description/Type	Ambient Air Quality (Buffer Zone)	Sample Ref. No.:-	ALPL/23102023/ENV-261-21/JEIM-BZ/AAQMS-8 8 ALPL/23102023/ENV-261-22/JEIM-BZ/AAQMS-9 8 ALPL/23102023/ENV-261-23/JEIM-BZ/AAQMS-10		
Sample Drawn By:-	Anacon Representative	Sample Inward Date:-	23-October-2023		
Test Started On:-	25-October-2023	Test Completed On:-	26-October-2023		
Sampling Procedure	ANtd/7.2/Mon-01		1 210001-2025		

Sr. No.	LOCATION	Date of sampling	PM <sub>10</sub> μg/m <sup>3</sup>	PM25 µg/m³	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>	CO mg/m³
1	Method Reference		(Part 23)	(Part 50)	I5:5182 (Part-2)	(S:5182 (Part-6)	15:5182
AAQMS-8	Bamebari SSVM School	21/10/2023	52.7	18.3	7.1	16,9	(Part-10) BDL (DL-0.5)
N	Monthly Average Valu	e	52.7	18.3	7.1	16.9	BDL (DL-0.5)
AAQMS-9	Palsa Kha Village	21/10/2023	47.8	160			
	Monthly Averag		47.8	16.2 16.2	5.8	17.3	BDL (DL-0.5)
1 101 to T		6				5.10	DOL (DE GA)
AAQMS-10	Guruda Village	21/10/2023	56.2	21.4	9.2	23.8	BDL (DL-0.5)
	Monthly Average	e Value	56.2	21,4	9.2	23.8	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 lested sample(s) and applicable to tested parameters only. Test report shall not be reproduced except in full without prior written approval of Angeon Labs. • BDL- Below detection limit.

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



#### Anacon Laboratories Pyt. 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 9 https://www.anaconlaboratories.com

Test Report

Fugitive Emission Report-October-2023

Report No.: AN/FE/TS-JEIM	Date: 31/10/2023			
Name and Address of Industry:-		M/s Bamebari Iron & Manganese Mine (M/s TATA Steel Limited)		
Sample Description/Type	Fugitive Emission	Sample Ref. No.:-	ALPL/23102023/ENV-261- /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			

SI. No.	Location Name	Date of sampling	TSPM μg/m³
	-	Method Reference	IS 5182 (Part 23)
FE-1	Haul Road Joribar	10/10/2023	761
FE-2	Sorting Yard Joribar	10/10/2023	536
FE-3	Near weigh Bridge	10/10/2023	821
FE-4	Near Screen Plant	10/10/2023	426
MoEF & CC Norms:		1200	μg/m³

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.

Snehal Raut

Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway

Quality Manager

-End of Report----

# FUGITIVE DUST EMISSION CONTROL MEASURES AT BAMEBARI IRON & MN MINE OF M/S TATA STEEL LIMITED





**Mobile Water Tanker (Dust Control Measures)** 



**Mobile Mist Canon** 



Fixed Sprinkling System-Haul Road



Automatic Wheel Wash Facility / System





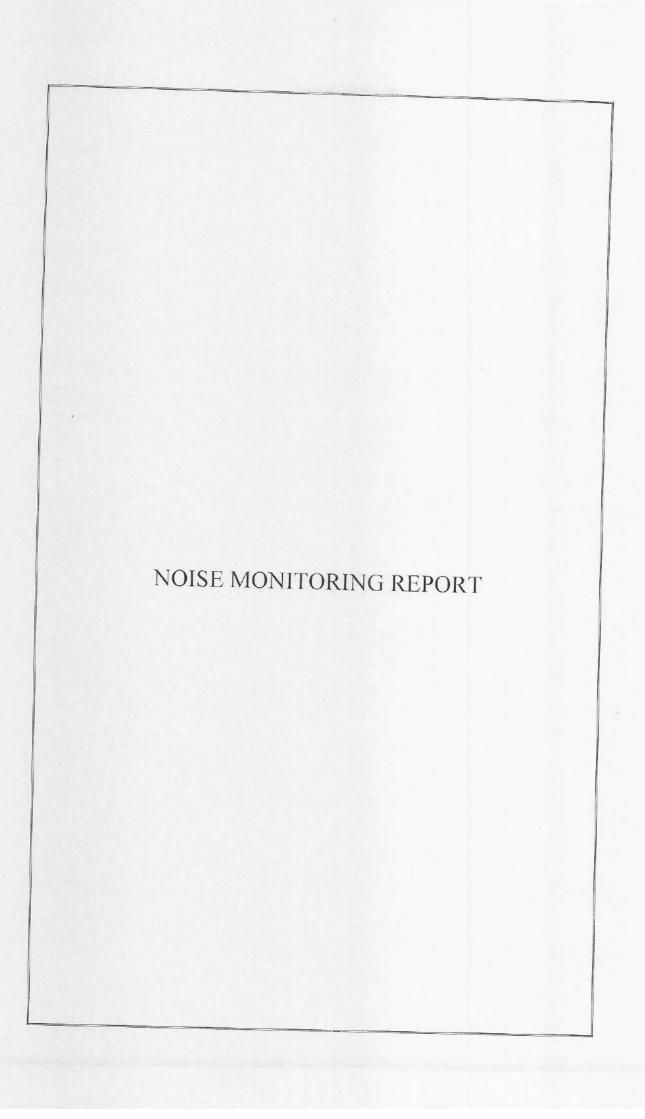
Tarpaulin covering of mineral carrying trucks.

# FUGITIVE DUST EMISSION CONTROL MEASURES AT BAMEBARI IRON & MN MINE OF M/S TATA STEEL LIMITED





BCM Type closed wagons for dispatch of ore from siding and fixed sprinkling system at siding



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



Keport	No. MSKGL/ED/2023-24/0	005058			Date:	29.02.202
	MONITO	ORING	REPORT OF AMBI	ENT NOIS		
Name of the Client M/s. TATA STEEL LIMITED					=	
Name o			RI IRON & MANGANESI	E MINES (BI	MM)	
SL.	Monitoring Locati	on	Date Monitoring	Noise Level in dB (A)		
NO.			- Too Monitoring	Ld	Ln	Ldn
1.	In side Garage		12/13.02.2024	56.2	48.2	54.4
2.	In Front of Admin Office		12/13.02.2024	56.5	58.8	57.5
3.	Near Weigh Bridge		12/13.02.2024	69.2	55.7	66.9
4.	Shorting Yard Rest Shelter		12/13.02.2024	58.7	51.8	52.9
5.	250 meter from Screen Plant		13/14.02.2024	69.2	55.7	66.9
6.	In Side of School Area		13/14.02.2024	65.0	53.8	62.9

Note: Day Time: 6.00 AM -10.00 PM, Night Time: 10.00 PM- 6.00 AM

## 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	
В	COMMERCIAL AREA	65	55	
C	RESIDENTIAL AREA	55	45	
D	SILENE ZONE	50	40	

Checked by: 100

For Mitra S. K. Private Limited

**Authorised Signatory** 

Bhandhary

# 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/2023-24/	004662	2		Date:	10.02.2024
	MONIT	FORIN	G REPORT OF AMB	IENT NOIS	The second secon	
Name of the Client M/s. TATA STEEL LIMITED						
Name of the Mines BAMEBARI IRON & MANGANESE MINES (BIMM)						
SL.	Monitoring Location	on	Date Monitoring	Noise Level in dB (A)		
NO.			- act monitoring	Ld	Ln	Ldn
1.	In side Garage		19/20.01.2024	61.8	41.9	60.4
2.	In Front of Admin Office		19/20.01.2024	64.2	41.6	62.4
3.	Near Weigh Bridge		19/20.01.2024	65.4	59.3	64.1
4.	Shorting Yard Rest Sh	elter	19/20.01.2024	60.9	42.8	59.2
5	In Side of School Area		25/26.01.2024	49.7	38.8	48.1

Note: Day Time: 6.00 AM -10.00 PM, Night Time: 10.00 PM - 6.00 AM

# 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	
A	INDUSTRIAL AREA	75	70
В	COMMERCIAL AREA	65	55
С	RESIDENTIAL AREA	55	45
D	SILENE ZONE	50	40

Checked by:-

For Mitra S. K. Private Limited

**Authorised Signatory** 



# Anacon Laboratories Pvt. Ltd. Nagpur Lab

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

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Noise Monitoring Report-November-2023

Report No.: AN/NE/TS-J	EIM/2023/1-17	Date:30/11/2023	
Name and Address of M/s Bamebari 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/22112023/ENV-283TN/JEIM/NE-7 to 12
Sample Drawn By:-	Anacon Representative	Data Inward date:-	20/11/2023
Sampling Procedure	ANtd/7.2/Mon-01	Sampling Method	IS 9989:1981(R2001)

Sampling Date: 13/11/2023 to 18/11/2023.

0.2000 - 0.1000	1	Results dB(A)		
Sl. No.	Location Name	Day Time (6:00 am to 10:00pm)	Night Time (10:00 pm to 06:00am)	
NE-1	Inside Garage –BIMM	63.7	43.9	
NE-2	Infront of Admin Office -BIMM	51.6	42.1	
NE-3	Near Weigh Bridge-BIMM	68.3	56.2	
NE-4	Sorting Yard Rest Sheltor-BIMM	59.1	48.7	
NE-5	250 Mtr From Screen Plant-BIMM	61.3	52.8	
NE-6	School Area-BIMM	48.2	37.7	
Nor	Industrial Area	75.0	70.0	
ms:	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

Remark: - All Results are within Limit as per CPCB Standards.

Snehal Raut

Deputy Technical Manager

Authorized Signatory

Dr. (Mrs.) S. D. Garway

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Quality Manager

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Noise Monitoring Report-November-2023

Report No.: AN/NE/TS-J	EIM/2023/1-18	Date:30/11/2023		
Name and Address of Industry:-	M/s Bamebari Iron (M/s TATA S	& Manganese Mine Steel Limited)	W. O. No. 4700098928/962 date: 22.03.2022	
Sample Description/Type	Noise Monitoring	Sample Ref. No.:-	ALPL/22112023/ENV-283 <sup>-</sup> N/JEIM/NE-13 to 18	
Sample Drawn By:-	Anacon Representative	Data Inward date:-	27/11/2023	
Sampling Procedure	ANtd/7.2/Mon-01	Sampling Method	IS 9989:1981(R2001)	

Sampling Date: 21/11/2023 to 25/11/2023.

Sl. No.	500 20 F 1000 F	Results dB(A)		
	Location Name	Day Time (6:00 am to 10:00pm)	Night Time (10:00 pm to 06:00am)	
NE-7	School Area – BIMM	56.4	43.9	
NE-8	Inside Garage -BIMM	61.7	52.8	
NE-9	Infront of Admin Office -BIMM	48.3	37.6	
NE-10	Near Weighing Birdge BIMM	71.9	64.2	
NE-11	Sorting Yard Rest Sheltor -BIMM	62.8	53.7	
NE-12	250 Mtrs from Screen Plant -BIMM	64.2	56.1	
Nor ms:	Industrial Area	75.0	70.0	
	Commercial Area	65.0	55.0	
	Residential Area	55.0	45.0	

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Verified by

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Noise Monitoring Report-October-2023

Report No.: AN/NE/TS-J	EIM/2023/1-17	Date:31/10/2023		
Name and Address of M/s Bamebari Iron & Manganese Mine		W. O. No.		
Industry:-	(M/s TATA S	teel Limited)	4700098928/962 date: 22.03.2022	
Sample Description/Type	Noise Monitoring	Sample Ref. No.:-	ALPL/23102023/ENV-261~N/JEIM/NE-7 to 12	
Sample Drawn By:-	Anacon Representative	Data Inward date:-	16/10/2023	
Sampling Procedure	ANtd/7.2/Mon-01	Sampling Method	IS 9989:1981(R2001)	

Sampling Date: 09/10/2023 to 12/10/2023.

0100 - 550000		Results dB(A)		
Sl. No.	Location Name	Day Time (6:00 am to 10:00pm)	Night Time (10:00 pm to 06:00am)	
NE-1	Inside Garage -BIMM	47.3	38.1	
NE-2	Infront of Admin Office -BIMM	51.2	42.9	
NE-3	Near Weigh Bridge-BIMM	59.1	52.8	
NE-4	Sorting Yard Rest Sheltor-BIMM	64.3	57.1	
NE-5	250 Mtr From Screen Plant-BIMM	72.6	64.7	
NE-6	School Area-BIMM	64.9	48.2	
Nor	Industrial Area	75.0	70.0	
	Commercial Area	65.0	55.0	
ms:	Residential Area	55.0	45.0	

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----End of Report----



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Noise Monitoring Report-October-2023

Report No.: AN/NE/TS-J	EIM/2023/1-18	Date:31/10/2023		
Name and Address of Industry:-	M/s Bamebari Iron (M/s TATA S	& Manganese Mine 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-13 to 18	
Sample Drawn By:-	Anacon Representative	Data Inward date:-	23/10/2023	
Sampling Procedure	ANtd/7.2/Mon-01	Sampling Method	IS 9989:1981(R2001)	

Sampling Date: 16/10/2023 to 20/10/2023.

SI. No.	4	Results dB(A)		
	Location Name	Day Time (6:00 am to 10:00pm)	Night Time (10:00 pm to 06:00am)	
NE-7	School Area – BIMM	47.3	38.1	
NE-8	Inside Garage -BIMM	56.3	43.1	
NE-9	Infront of Admin Office -BIMM	51.1	42.9	
NE-10	Near Weighing Birdge BIMM	68.3	57.1	
NE-11	Sorting Yard Rest Sheltor -BIMM	72.9	68.3	
NE-12	250 Mtrs from Screen Plant -BIMM	64.7	52.8	
Nor	Industrial Area	75.0	70.0	
ms:	Commercial Area	65.0	55.0	
	Residential Area	55.0	45.0	

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Verified by

Spenal Raut

Deputy Technical Manager

**Authorized Signatory** 

Dr. (Mrs.) S. D. Garway

Quality Manager

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# MANGANESE TESTING (Blood & Urine) for Mining Employees

work order by



# **Tata Steel Limited**

**MANGANESE GROUP OF MINES | FAMD** 

# **COMPREHENSIVE REPORT**

Dated: 25th July 2023

Dr. Madhusudhan Reddy, PhD Director, DRPL

Dr. Ramesh, MBBS
Consultant & Occupational Health Specialist

Dr. Raman Singh, PhD
Vice President-Grad Women in Science (USA)
TA-Research & Corporate Services, DRPL

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Dr Reddys Path Labs Private Limited Hyderabad

# **Background**

Manganese (Mn) is a naturally occurring metal and ranks as the fourth most widely used metal globally. In humans, it plays a crucial role as an essential trace element, acting as a co-factor for important metalloenzyme activities within our cells. These metalloenzymes contribute to various vital functions, including the formation of connective tissues and bones, clotting factors, lipid and carbohydrate metabolism, and they also play a significant role in maintaining normal brain and nerve activity within the central nervous system (CNS).

A deficiency in manganese can lead to health issues related to bone, joint, and collagen functions. Conversely, excess manganese can be toxic, resulting in disorders of the nervous system, as reported in various toxicological and pathological studies.

For adults, the recommended dietary intake is 2.3 mg/day for men and 1.8 mg/day for women. To ensure safety, a Tolerable Upper Intake Level (UL) of 11 mg/day has been established for adults, based on a no-observed-adverse-effect level for Western diets. This information serves as a guideline to maintain a balanced manganese intake and avoid potential adverse effects associated with either deficiency or excessive consumption.

Manganese exposure can arise from various sources, such as diet, where it naturally occurs in water, grains, and green leafy vegetables. Additionally, air can also be a source of manganese, with contributions from both natural and man-made sources. Notably, mining and milling activities involving manganese are significant man-made sources of exposure. Another potential route of manganese exposure is through long-term parenteral nutrition, which can lead to manganese toxicity.

The body can take in manganese through enteral (oral ingestion), parenteral (injection), or inhalation routes, but for occupational relevance, ingestion and inhalation are the primary routes of concern. According to the National Institute for Occupational Safety and Health (NIOSH), the respiratory system, central nervous system, liver, and kidneys are potentially affected organs when it comes to manganese exposure.

Overall, understanding the diverse sources and routes of manganese exposure is crucial for effectively managing potential health risks associated with this essential trace element. A safety

margin exists between the daily requirement levels of manganese and the amounts that can cause damage. Excessive ingestion or inhalation of manganese beyond the daily requirements can lead to cell damage. Current evidence suggests that in large quantities, manganese increases oxidative stress within cells. Oxidative stress occurs when there is an imbalance between free radicals and antioxidants, resulting in potential harm to cells. Free radicals are unstable molecules that can react with other substances in the body, causing cell damage. This process can lead to various effects, including mitochondrial dysfunction, glutamate-mediated excitotoxicity, and protein aggregation within the cells. Understanding these mechanisms is essential for recognizing the potential risks associated with excessive manganese exposure and safeguarding against adverse health effects.

Excessive exposure to manganese is known to cause a major neurodegenerative effect called manganism. The clinical manifestations of manganism are well-documented, and its differentiation from other movement disorders, particularly idiopathic Parkinson's disease, which shares similarities, has been extensively studied. However, formal application of clinical criteria in epidemiological research is limited.

Confidence in diagnosing manganism is bolstered by the use of MRI and PET scans, as well as tests of response to dopaminomimetic drugs and EDTA chelation. Both manganism and Parkinson's disease exhibit abnormal features and pathophysiology in the basal ganglia, a brain region associated with voluntary motor control, where manganese tends to accumulate. However, in Parkinson's disease, the abnormalities are related to dopaminergic dysfunction of the nigrostriatal system, as evidenced by FDOPA uptake in PET imaging and positive response to levodopa treatment. These features are either lacking or less apparent in manganism.

Recent reports of frank manganese poisoning have become scarce, likely due to declining occupational exposures. Instead, researchers now study more subtle adverse nervous system effects using highly sensitive but non-specific psychometric tests and functional brain imaging. These effects are termed "subclinical" as they are believed to be present before overt disease symptoms appear. Researchers compare findings from these sensitive methods against a control group.

In addition to neuronal damage, extensive exposure to high levels of manganese can harm the liver and kidneys, as these organs are involved in the metabolism and excretion of manganese.

Impaired clearance of manganese from the body can also occur in cases of liver disease, leading to elevated levels of the metal in the body. Understanding these complex mechanisms is crucial for early detection and effective management of manganese-related health issues.

After removal of exposure to manganese, cognitive function is reported to improve, but motor, sensory, and mood disturbances may persist or worsen, though the specific timeframe for these events remains unclear. Therefore, the key to prevention and treatment lies in minimizing or completely ceasing exposure.

To address occupational exposure, the US National Institute for Occupational Safety and Health (NIOSH) recommends an occupational exposure limit of 1 mg/m3 as an 8-hour time-weighted average, and 3 mg/m3 for short-term exposures lasting 15 minutes or less. For the general public, the US Agency for Toxic Substances and Disease Registry (ATSDR) recommends an Inhalation Minimal Risk Level (MRL) of 0.04  $\mu$ g/m3 for chronic exposure, which is considered safe for inhalation over an extended period.

Adhering to these exposure limits is essential to safeguarding the health of workers and the general population from potential adverse effects of manganese exposure. Both the US Department of Labor and a recent meta-analysis, considering individual participant data, identified the lowest observed adverse effect limit for manganese exposure to be 0.05 mg/m3. However, assessing exposure to manganese can be challenging due to variations in particle size and shape. This complexity means that adverse effects may be more likely to occur in mining environments where dust contains larger particle sizes. Careful monitoring and control of manganese exposure are crucial in such settings to protect workers from potential neurological deficits associated with this metal.

Studies dating back to the 1970s have demonstrated severe adverse health effects resulting from very high manganese exposure. Even before overt clinical manifestations of manganese toxicity resembling Parkinson's-like features, early signs of nervous system impairment may manifest as poor neurological function, as measured by neuropsychological tests like finger tapping. These effects are often referred to as 'sub-clinical,' indicating that they are at a stage where patients or workers may not yet notice them.

It is assumed that if exposure continues, these sub-clinical symptoms could progress to the stage

of diagnosable clinical manganese toxicity. However, the transition from sub-clinical to clinical disease has not been definitively established.

Motor function test performance may begin to show deterioration at mean concentrations of inhalable manganese ranging from 0.05 mg/m3 to 0.30 mg/m3. However, the relationship between airborne exposure levels, corresponding blood manganese levels, and their association with adverse health outcomes remains unclear. Further research is necessary to better understand these relationships and to establish reliable exposure guidelines to protect the health of workers and individuals at risk of manganese exposure.

Dose-dependent effects are commonly associated with exposure, implying that certain low levels may not pose significant harm. Consequently, having accurate knowledge of exposure levels that do not result in health effects is crucial for the safety and protection of workers in their workplaces. Employers and workplaces must prioritize this information to adequately safeguard their workers' well-being.

To ensure the health and safety of employees, many countries have implemented policies that enforce low occupational and environmental exposure limits for manganese. These regulations state that employers are responsible for ensuring that work-related exposure does not lead to illness among their workers. By adhering to these guidelines, we can effectively protect workers from potential adverse health effects associated with manganese exposure in the workplace.

Despite the considerable research conducted on manganese (Mn) exposure, several critical questions remain unanswered. It is still uncertain what range of health effects may arise, at which specific exposure levels, and over what duration. Additionally, the strength of these relationships is yet to be fully understood.

Furthermore, the outcome and prognosis of toxic effects from manganese exposure are influenced by various individual factors, including genetic profiles, which add complexity to the overall picture.

Finally, exposure to manganese often occurs in combination with other exposures within the same industries or due to non-occupational factors, such as liver disease or iron deficiency. These confounding factors can make it challenging to isolate the specific effects of manganese

exposure, making the assessment and interpretation of results more intricate.

To gain a comprehensive understanding of the health effects of manganese exposure, future research needs to address these uncertainties and consider the various contributing factors. Only by doing so can we develop well-informed strategies to protect individuals from the potential adverse effects of manganese exposure in various settings.

To prevent manganese exposure and safeguard workers from potential occupational diseases and disabilities, it is crucial to identify risk levels and competing factors. Additionally, clear criteria are essential to determine the occupational origin of symptoms, serving as a basis for fair financial compensation in case of exposure.

Conducting a systematic appraisal of the literature can yield valuable insights into several key aspects, including the types and nature of exposure, the health effects resulting from exposure, the influence of competing factors, and the prognosis after exposure has ceased.

By thoroughly examining these factors, we can obtain clear and well-founded findings that will aid in developing effective preventive measures and providing proper support to workers who may have been affected by manganese exposure. Such insights are essential for promoting worker safety and well-being in industries where manganese exposure is a concern.

The objectives of the study to conduct occupational surveillance of mine workers in the Manganese Group of Mines of FAMD, Tata Steel, Joda, to assess their exposure to Manganese and identify the possibility of Manganese Poisoning. We will summarize the symptoms, analyze test results, and evaluate existing evidence on the potential adverse health effects of manganese for these workers. The ultimate objective is to provide a comprehensive report detailing the available evidence related to exposure, its consequences, and potential contributing factors. Additionally, if any cases of manganese poisoning are identified, the report will include appropriate recommendations and remedial measures to address the issue effectively.

The scope of the study encompasses a wide range of aspects related to Manganese Poisoning among mine workers in the Manganese Group of Mines of FAMD. The key components include:

1. Occupational surveillance of Manganese Poisoning among mine workers in the specified

mines.

- 2. Analysis of symptoms and/or medical history of Manganese Poisoning in the mine workers.
- 3. Collection of blood and urine samples on-site for further examination.
- 4. Sampling criteria comprising 90% uncontrolled samples and 10% controlled samples for comparison.
- 5. Thorough testing and individual reports generated, along with a comprehensive overall report.
- 6. Recommendations for preventive and remedial measures, adhering to WHO guidelines and other Indian Standards.

By covering these diverse elements, the study aims to provide valuable insights and practical recommendations to address Manganese Poisoning effectively in the mining workforce.

To achieve our study objectives, we conducted sample collections at four specific mine locations: Joda West Iron & Manganese Mine, Bamebari Iron & Manganese Mine, Tiringpahar Iron & Manganese Mine, and Khondbond Iron & Manganese Mine. A total of 300 samples were gathered from these mine locations and categorized as uncontrolled samples. Additionally, we collected about fifteen controlled samples from employees who had minimal or no exposure to manganese mines.

To enhance the reliability of our study, we conducted an extensive review of existing literature, including meta-analyses, pertaining to manganese exposure in occupational settings. We carefully compared the data from these studies with our test results to evaluate the causal association between manganese exposure and its potential health effects. By combining evidence from various sources, we aimed to gain deeper insights into the impact of manganese exposure on health.

# Methods

- a) Specified a question consisting of previous illness, present disease condition, use of regular medication, symptoms, location of exposure (yard, mines and open sites) and outcome (e.g. neurological function deficits).
- b) Random Sample Collection (Blood and Urine), Uncontrolled Samples: 170 (Blood-85,

Urine-85), Controlled Samples: 30 (Blood-15, Urine-15)

Uncontrolled samples were collected from four different mine locations-

1. Joda West Iron & Manganese Mine:

a. HQUARRY: No. of Samples: 20

b. GGQ: No. of Samples: 22

c. DQUARRY: No. of Samples: 16

2. Bamebari Iron & Manganese Mine: Joribari Block: No. of Samples: 26

3. Tiringpahar Iron & Manganese Mine: 26

4. Khondbond Iron & Manganese Mine: No. of Samples: 25

**Participants and Comparison** 

Our study encompassed both male and female mine workers, as well as administrative staff of

all age groups. We carefully compared the test results of blood and urine samples from mine

workers who were occupationally exposed to manganese with those of the unexposed

administrative staff. This allowed us to assess the potential differences in manganese exposure

levels between the two groups and draw relevant conclusions from our findings.

Searching and including studies:

In our quest to gather comprehensive information, we conducted an extensive search using

multiple databases and non-electronic sources, without imposing any date or language

restrictions. Our thorough approach involved utilizing PubMed to develop a sensitive search,

which was later translated and applied to other databases.

We focused on identifying all relevant systematic reviews and empirical studies available to date.

Two independent reviewers meticulously assessed the fulfillment of inclusion criteria first by

examining titles and abstracts, and later by evaluating the full text. Any disagreements that arose

during the review process were resolved through constructive discussions between the reviewers.

This meticulous approach ensured that we collected a comprehensive and reliable body of

evidence for our research.

Gender, Age, Mine Locations, controlled and uncontrolled Subgroup analysis

Our evaluation was structured to consider the following aspects:

1. Age, gender, and the outcomes of blood and urine samples.

2. Comparison of results between controlled and uncontrolled samples of blood and urine.

3. Analysis based on mine location site, gender, age, and the outcomes of blood and urine

samples.

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By organizing our assessment in this manner, we aimed to gain a comprehensive understanding of the various factors that could potentially impact the results of the study and draw meaningful conclusions from the data.

# **Results**

Our findings are organized in a clear manner, categorized by sample collection method and the location of Manganese exposure in the mines. Subsequently, we provide a comprehensive synthesis summarizing the overall study, encompassing all mine locations, ages, and genders for both sample groups. For our analysis, we employed the ICPMS test method and used the reference values for Blood (4-15 ug/L) and Urine (0.50-9.80 ug/L) in males and females.

The conclusive summary of the laboratory analysis comprised a total of 300 samples, equally split into 150 blood samples and 150 urine samples. In order to assess the significance of positive results related to manganese exposure, we employed a sampling approach that involved both controlled and uncontrolled random sampling methodologies. Out of the total samples, 270 were uncontrolled and derived from mine workers, comprising 135 blood samples and 135 urine samples. Additionally, we collected 30 controlled samples, consisting of 15 blood samples and 15 urine samples, from staff members who had no exposure to manganese.

We conducted a thorough questionnaire and discussions with both the controlled and uncontrolled groups to gather information on their previous illnesses, medication usage, and the nature of their manganese exposure (whether in mines, yards, or open sites). Additionally, we inquired about the duration and frequency of their duties in manganese mines, as well as their drinking water sources and overall water consumption patterns.

To ensure the validity of our findings, we excluded mine workers and controlled groups who had a history of consuming Gadolinium or Iodine-containing contrast media, vitamins, minerals, or herbal supplements within the 7 days leading up to the sampling, or within 96 hours (4 days) prior to the administration. This was done to eliminate any potential interference with the study results.

An encouraging discovery from our investigation was that all mining site locations maintained a high standard of cleanliness and hygiene, offering proper filtered water for drinking. Moreover, the washroom facilities for both genders in the mining sites were well-maintained and clean. For

detailed results, please refer to Annexure-A.

In our comprehensive study, we conducted age and gender-specific comparisons across all six mine locations. Our findings revealed that the Bamebari Iron & Manganese Mine, Joribari Block (n=6), had the youngest female mine workers, while the Joda West Iron & Manganese Mine, HQUARRY (n=12), had the oldest female workers. Among male mine workers, the youngest were observed in Joda West Iron & Manganese Mine, GGQ (n=6), while the oldest were in Joda West Iron & Manganese Mine, HQUARRY (n=8).

The data indicates a notable trend, with the oldest mine workers found in Joda West Iron & Manganese Mine, HQUARRY, for both genders. As a result, this specific mine location demands closer attention and regular periodic medical examinations (PME), including X-rays (Chest PA), to ensure the health and well-being of its workers. As for the controlled group, the average age was 32.70 (n=15) for males and 44.20 (n=15) for females.

The comparison of average results for the male population in blood samples revealed that the Khondbond Iron & Manganese Mine workers' values were nearly identical to those of the controlled group. Similarly, among the female mine workers from the Khondbond Iron & Manganese Mine, the blood values were also very similar to those of the controlled group. This indicates that the Khondbond Iron & Manganese Mine workers are exposed to lower levels of manganese compared to others.

It's noteworthy that no single mine worker, male or female, tested positive for manganese exposure in their blood across all six mine locations.

In the study comparing urine samples between mine workers and the controlled group for both genders, it was observed that the Joda West Iron & Manganese Mine, HQUARRY group, exhibited values close to those of the controlled group among males. On the other hand, among females in the uncontrolled group from all six mine locations, the values were also in close proximity to the controlled group.

The overall summary of results indicates that the mean blood value among male and female mine workers was 5.36 (n=135), while for urine, it was 4.25 (n=135). Comparatively, the controlled group's blood value was 2.51 (n=15), and urine value was 2.95 (n=15).

# **Final Conclusion & Recommendations**

The overall level of evidence in our study, encompassing the data from all 300 samples from both controlled and uncontrolled groups, along with systematic reviews and meta-analyses, indicates a low likelihood of manganese exposure. Our findings provide sufficient evidence to conclude that there is no manganese contamination detected in any of the six mine locations, whether through oral intake in the yards, air circulation near open sites, or the source of drinking water.

However, despite the lack of current health effects on mine workers from manganese exposure within the established limits, we highly recommend conducting regular periodic medical examinations (PME) to continuously evaluate any potential risks over time. Such assessments could include other health function tests to ensure the well-being of the mine workers. In summary, our study suggests that the current manganese exposure limits have not impacted the health of mine workers, as evidenced by cross-sectional and data studies. Nevertheless, it is prudent to conduct ongoing evaluations to monitor and safeguard the health of these workers.

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# Annexure-A

**Results for the Joda West Iron & Manganese Mine:** 

# **HQUARRY:**

Average Age Males (n=8): 44.5

Average Age Females (n=12): 42.75

Males Blood Samples Report Analysis Mean Value (n=8): 5.34

Females Blood Samples Report Analysis Mean Value (n=12): 7.45

Males Urine Samples Report Analysis Mean Value (n=8): 3.70

Females Urine Samples Report Analysis Mean Value (n=12): 3.44

Both Male & Female Blood Samples Report Analysis Mean Value (n=20): 6.18

Both Male & Female Urine Samples Report Analysis Mean Value (n=20): 3.60

# GGQ:

Average Age Males (n=6): 32.50

Average Age Females (n=16): 38.50

Males Blood Samples Report Analysis Mean Value (n=6): 5.84

Females Blood Samples Report Analysis Mean Value (n=16): 6.64

Males Urine Samples Report Analysis Mean Value (n=6): 4.60

Females Urine Samples Report Analysis Mean Value (n=16): 4.42

Both Male & Female Blood Samples Report Analysis Mean Value (n=22): 6.42

Both Male & Female Urine Samples Report Analysis Mean Value (n=22): 4.47

# **DQUARRY:**

Average Age Males (n=12): 37.10

Average Age Females (n=4): 39.25

Males Blood Samples Report Analysis Mean Value (n=12): 5.36

Females Blood Samples Report Analysis Mean Value (n=4): 6.61

Males Urine Samples Report Analysis Mean Value (n=12): 3.81

Females Urine Samples Report Analysis Mean Value (n=4): 2.57

Both Male & Female Blood Samples Report Analysis Mean Value (n=16): 5.56

Both Male & Female Urine Samples Report Analysis Mean Value (n=16): 3.50

# Lab report analysis results for the Bamebari Iron & Manganese Mine: Joribari Block:

Average Age Males (n=20): 39.5

Average Age Females (n=6): 35.10

Males Blood Samples Report Analysis Mean Value (n=20): 5.29

Females Blood Samples Report Analysis Mean Value (n=6): 5.82

Males Urine Samples Report Analysis Mean Value (n=20): 4.81

Females Urine Samples Report Analysis Mean Value (n=6): 3.96

Both Male & Female Blood Samples Report Analysis Mean Value (n=26): 5.41

Both Male & Female Urine Samples Report Analysis Mean Value (n=26): 4.61

# Lab report analysis results for the Tiringpahar Iron & Manganese Mine:

Average Age Males (n=16): 36.06

Average Age Females (n=10): 42.4

Males Blood Samples Report Analysis Mean Value (n=16): 6.31

Females Blood Samples Report Analysis Mean Value (n=10): 6.77

Males Urine Samples Report Analysis Mean Value (n=16): 4.86

Females Urine Samples Report Analysis Mean Value (n=10): 4.22

Both Male & Female Blood Samples Report Analysis Mean Value (n=26): 6.48

Both Male & Female Urine Samples Report Analysis Mean Value (n=26): 4.61

# Lab report analysis results for the Khondbond Iron & Manganese Mine:

Average Age Males (n=20): 39.35

Average Age Females (n=5): 44.20

Males Blood Samples Report Analysis Mean Value (n=20): 2.51

Females Blood Samples Report Analysis Mean Value (n=5): 1.93

Males Urine Samples Report Analysis Mean Value (n=20): 4.27

Females Urine Samples Report Analysis Mean Value (n=5): 4.38

Both Male & Female Blood Samples Report Analysis Mean Value (n=25): 2.49

Both Male & Female Urine Samples Report Analysis Mean Value (n=25): 4.49

# Lab report analysis results for Controlled Samples:

Average Age Males (n=15): 32.70

Average Age Females (n=15): 44.2

Males Blood Samples Report Analysis Mean Value (n=15): 2.47

Females Blood Samples Report Analysis Mean Value (n=15): 1.93

Males Urine Samples Report Analysis Mean Value (n=15): 2.90

Females Urine Samples Report Analysis Mean Value (n=15): 4.38

Both Male & Female Blood Samples Report Analysis Mean Value (n=15): 2.51

Both Male & Female Urine Samples Report Analysis Mean Value (n=15): 2.95

# REPORT ON ASSESSMENT OF WHOLEBODY AND HAND ARM VIBRATION EXPOSURE AT WORKPLACE

Duration of Study: 28th April 2022-30th April 2022

Report No.: STL/IH/E02/055/22

# Bamebari 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)







# 1-58/7, Ilnd 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
НЕММ	Heavy Earth Moving Machineries
HAV	Hand Arm Vibration
WBV	Whole Body Vibration
ISO	International Organization for Standardization
Km	Kilometer
m/s²	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



# 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 Bamebari 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 m/s<sup>2</sup> and 0.5m/s2 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 deals 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 Bamebari Iron & Manganese Mine operated over mine lease area of 464.0ha. The mining history of Bamebari Mine is since 1930 when the first lease was granted by the then Maharaja of



Keonjhar. The Bamebari mining lease is located at Bamebari, Boneikela and Joribar villages at Barbil tahasil in Champua sub-division of Keonjhar district in the state of Odisha. The entire lease of 464.0 ha consists of three discrete blocks viz. Bamebari (140 ha) i.e bounded within Latitude from 21053'38.89" to 21054'44.02" & Longitude from 85025'23.37" to 85025'52.06", Boneikela (233 ha) i.e bounded within Latitude from 22002'00.42" to 22003'21.47" & Longitude from 85024'36.41" to 85025'47.40" and Joribar (91 ha) i.e bounded within Latitude from 21055'41.52" to 21056'25.84" & Longitude from 85024'10.74" to 85025'06.64". The area falls under survey of India Topo sheet Nos. 73 G/5 & 73 F/8 (New Topo sheet Nos. F 45N5 & F45N8). The location of the Bamebari Mines INDEX MAP follows: indicated the in as

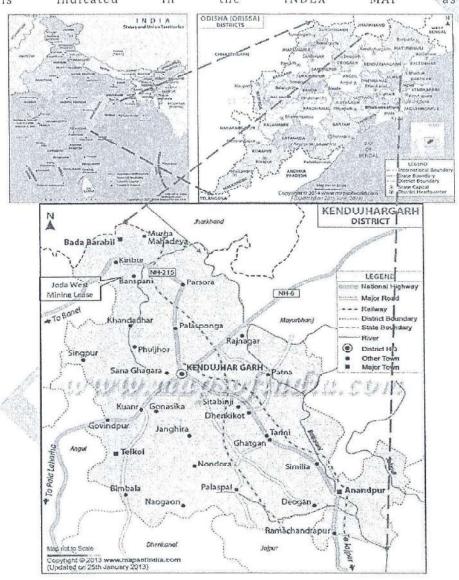


Fig.1 INDEX MAP

Per Annum.

Buch

The Bamebari 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 83200 Tonnes

Table.1: Salient Features of Bamebari Iron & Mn Mine

	Project Location
Village	Bamebari, Jadibahal, Bonekela.
Tehsil	Barbil (Champua Sub Division)
District	Kendujhar
State	Odisha
Latitude	21°53'38.89" to 21°54'44.02" North
Longitude	85°25'23.37" to 85°25'52.06" East
Elevation / Altitude	561 metres (1,841 feet) Approx.
Nearest Town	Barbil
Nearest City	Kendujhar 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 Bamebari 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.
- ❖ 11th 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 it's 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  $m/s^2$ ,
- B) Daily Vibration Dose Value (VDV) in m/s1.75,

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

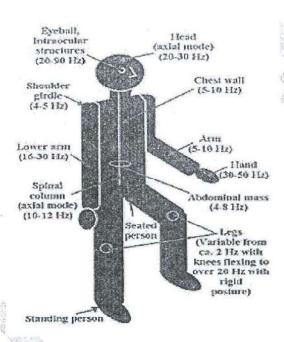
Hand-Arm Vibration is defined as the transmission of sinusoidal vibration from a tool to a worker's hand and arm. The amount of HAV is characterized by the acceleration level of the tool when grasped by the worker and in use. The vibration is typically measured on the handle of tool while in use to determine 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.

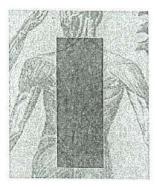
#### 3.1 Health effects

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	Rock Breaker (RB-01)	Mr. Nilambar Mahanta GP- TSP/944599/0522	36	Joribar Pit
02	Shovel (VOLVO- 19)	Mr. Jitendra Patra GP- TSP/905647/0322	39	Joribar Pit
03	Dumper (VOLVO-02)	Mr. Singray Lohar GP- TSP/654667/1121	45	Joribar Pit
04	Loader- OD09 K 1792	Mr. Basanta Singh GP- TSP/862802/0222	29	Joribar Pit
05	Ripper-01	Mr. Pradeepta Mahanta GP- TSP/944598/0422	30	Joribar Pit

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 S 3.34, 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/s2 to 500 m/s2, dependent upon gain setting W-B Peak Range: 0.2 m/s2 to 700 m/s2, dependent upon gain setting

#### 5.2 Measurements:

Whole body Vibration: Arms, Amin, Amax, Aeq, Amp, PEAK, CFmp, 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

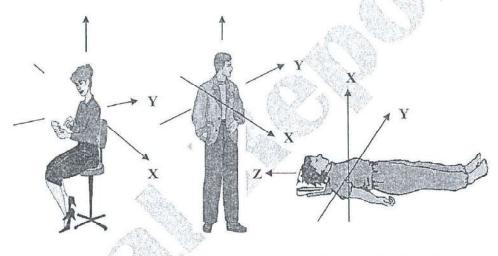




5.3 Frequency Weighting: Whole-Body: Wb, Wc, Wd, We, Wg, Wj, Wk, WB
MEMORY STORAGE: Setups: Up to 10 User-defined setup files, Data Files: Up to 100
data files, Time History: Interval lengths of 1, 2, 5, 10, 20, 30 or 60 seconds. Up to
120 intervals per data file with Arms and PEAK/interval. Up to 240 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/s2	5 m/s2		
Whole-Body	0.5 m/s2	1.15 m/s2		
Whole-Body (vibration dose)	9.1 m/s1.75	21 m/s1.75		

# 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/s1.75, 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/s², or a workers daily VDV of 21m/s1.75, above which workers should not be exposed.

VDV: Vibration Dose Value. VDV has units of m/s 1.75.

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  $(m/s^2)$ 

# 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/s1.75 and Exposure limit Value is 21m/s1.75 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/s²	A <sub>min</sub> m/s²	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>
	Rock Breaker (RB-01)	Breaker Nilambar	Rock	X	0.1018	0.0441	0.1886	0.0258	1.3543
1			Breaker	Y	0.0802	0.0420	0.1654	0.0203	1.1388
			Operator	Z	0.2362	0.0631	0.4840	0.0589	2.7343

Vibration	Manitorina	Donort
vioration	Monitoring	Kepon

April 2022

TAYA

							variation examination in the	CAPTURE BOOK SHOW THE	TATA S
AMPLE D	Location	- Operator Name	Activity	Axis	Aeq m/s²	A <sub>min</sub> m/s²	A <sub>max</sub> m/s <sup>2</sup>	A <sub>(B)</sub> m/s <sup>2</sup>	VDV m/s <sup>1.75</sup>
				SUM	0.2978	0.1512	0.5075	0.0756	2.9456
				Х	0.0270	0.0063	0.1593	0.0076	0.8949
2	Shovel	Mr.	Shovel	Y	0.0170	0.0041	0.0978	0.0048	0.5866
2	(V-19)	Jitendra Patra	Operator	Z	0.0150	0.0084	0.0440	0.0042	0.2820
				SUM	0.04703	0.01357	0.2649	0.0133	1.3078
	Dumper - 02	Mr. Singray Lohar	Dumper Operator	Χ	0.2041	0.0086	0.0298	0.0573	11.38
2				Y	1.5632	0.0069	0.0288	0.4390	77.98
3				Z	0.1176	0.0136	0.0269	0.0330	8.63
				SUM	2.2102	0.0207	0.0639	0.6207	109.19
	Loader -	Mr. Basanta Singh	Loader Operator	Х	0.4320	0.0611	0.6235	0.1125	4.6865
×	01, (OD09 K			Y	0.4337	0.0476	0.6345	0.1130	4.6423
4	1792)			Z	0.5321	0.0335	0.7753	0.1386	5.9636
				SUM	1.0088	1.4315	0.1210	0.2627	8.3675
			Į.	X	0.0666	0.0081	0.3662	0.0169	2.2439
-	Ripper -	Mr. Pradeepta	Ripper	Y	0.0656	0.0064	0.3613	0.0167	2.2137
5	01	Kumar Mahanta	Operator	Z	0.0340	0.0139	0.1688	0.0086	1.0372
		Mananta		SUM	0.1352	0.7394	0.0203	0.03	3.7167

Table. 5: Hand Arm Vibration Results

Case No.	Location	Operator Name	Activity	Axis	Aeq m/s²	Amax m/s²	Amin m/s²	A(8) m/s <sup>2</sup> E4V- 2.5m/s <sup>2</sup>
		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Rock Breaker Operator	X	0.0878	0.3763	0.0320	0.0222
40	Rock Breaker (RB-01)	Mr. Nilambar Mahanta		Y	0.7285	2.4972	0.0068	0.1846
1				Z	0.0879	0.3768	0.0321	0.0223
				SUM	1.0310	3.555	0.057	0.2612
	Shovel (V-19)		Shovel Operator	X	0.0878	0.3763	0.0320	0.0222
				Y	0.7285	2.4972	0.0068	0.1846
2				Z	0.0879	0.3768	0.0321	0.0223
				SUM	1.0310	3.5556	0.0577	0.2612



Case No.	Location	Operator Name	Activity	Axis	Aeq m/s²	Amax m/s²	Amin m/s²	TAVA STEE A(8) m/s <sup>2</sup> EAV- (2.5m/s <sup>2</sup>
				X	0.1751	0.4103	0.0399	0.0478
3	Dumper -	Mr. Singray	Dumper Operator	Y	0.1707	0.3526	0.0380	0.0465
J	02	)2 Lohar		Z	0.1735	0.3450	0.0311	0.0473
				SUM	0.3838	0.8151	0.0933	0.1047
		9 K Mr. Basanta	Loader Operator	X	0.0877	0.1277	0.0484	0.0228
4	Loader -01, (OD09 K			Y	0.0754	0.1131	0.0512	0.0196
4	1792)			Z	0.0637	0.0981	0.0284	0.0166
				SUM	0.1740	0.2537	0.1095	0.0453
		Mr. Pradeepta	Ripper	X	0.0591	0.0813	0.0350	0.0158
5	Ripper -01			Y	0.0730	0.0986	0.0354	0.0195
J	Kipper -01	Mahanta	Operator	Z	0.0887	0.1449	0.0279	0.0237
				SUM	0.1587	0.1983	0.0749	0.0423

### 11.0 OBSERVATIONS:

# 11.1 CASE 1: SAMPLE ID-01

The subject sample was tested for exposure assessment to both HAV & WBV. Mr. Nilambar Mahanta, operator of Rock Breaker (RB-01) engaged in rock breaking operations at Joribar quarry of Bamebari 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.  $0.5 \, \text{m/s}^2$ . 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/s2. 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 RB-01 (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. Jitendra Patra, operator of Shovel (VO-19) engaged in shoveling operations at Joribar quarry of Bamebari 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. 0.5m/s2, 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 Shovel (VO-19) (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. Singray Lohar, operator of Dumper (VO-02) engaged in transportation of ore and overburden material at Joribar quarry of Bamebari 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 dumper (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. Basant Singh, operator of Front-End Loader engaged in loading of ore material at Joribar quarry of Bamebari 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. Pradeepta Mahanta, operator of Ripper engaged ripping of soft strata/topsoil at Joribar quarry of Bamebari 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 ripper (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  $2.9456 \text{ m/s}^{1.75}$ , which is below Exposure Action Value of  $9.1 \text{ m/s}^{1.75}$ . However, since no one is allowed to work beyond shift duration of 8 hr / day, thus this won't be of much consideration for the current assessment. VDV is an indicative of predicted exposure level if someone can work for 24 hours with the current level of exposure.

- > Sample ID 02: VDV is observed to be 1.3078 m/s<sup>1.75</sup>, which is well within the Exposure Action Value of 9.1 m/s1.75.
- > Sample ID 03: VDV is observed to be 109.195 m/s<sup>1.75</sup>, This sample indicates that no one should be allowed to work with the current level of exposure for anything beyond 8hr in any case. The mine management must undertake a reassessment of such HEMM. Though A(8) value is in conformance with the DGMs standard still then attention for taking care of ergonomics of the HEMM is a must for the subject sample.
- > Sample ID 04: VDV is observed to be 8.3675 m/s<sup>1.75</sup>, which is within the Exposure Action Value of 9.1 m/s<sup>1.75</sup>. However, the subject HEMM must be considered by the management for a detailed ergonomic assessment so that if any changes in the design of seats and other components is required then the same is ensured.
- > Sample ID 05: VDV is observed to be 3.7167 m/s<sup>1.75</sup>, which much above than that of prescribed Exposure Action Value of 9.1 m/s1.75.

### **CERTIFIED BY**

Name	G. Naveen	Y. Raghavendra Chary
Signature	61.00-0	YPan
Date	01.09.2022	01.04.2022

## **PHOTOGRAPHS**



SAMPLE-01 (Mr. Nilambar Mahanta)



SAMPLE-02 (Mr. Jitendra Patra)



SAMPLE-03 (Mr. Singray Lohar)



SAMPLE-04 (Mr. Basanta Singh)



SAMPLE-05 (Mr. Pradeepta Kumar Mahanta)



## 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 Bamebari 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. Pranakrushna Mahanta, Mines Manager (Bamebari) and Mr. Alok Singh Sardar (Safety Officer) of Bamebari Iron & Mn Mine for supporting us in every stage of the study and extending their cooperation 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. (Bamebari 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.

TATA STEEL

Annexures-1

## Certificate of Calibration

Calibration of HAVPro Monitor: 3rd Dec 2021

Valid Till: 1 Year from the Date of Issuance



TSUNCORPORATED - OCONOMOWOC

1000 Capping Chatte Dive. Organization Wishest Last
Tel 051 099 2811 - 10/15/cm 000 240 0779 + Web Way To char

Meyork and Company

## Certificate of Calibration

Certificate Number: 356489659HAV06011

Model:

HAVPro Vibration Monitor

Date of Issue:

03-December -2021

S/N:

06011

Instrument ID: ST-EQ-III-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:

\$972-001

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:

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 TSIS. Inc.

098-659 Rev F





## ISHNCORPORATED - OCONOMOWOC

609 Corporate Centre Dave, Occumentation 6460066 USA Tel 651 498 2811 \* toll free 800 235 HZZE + evels were tel con-

Registered Company

## **EU Declaration of Conformity**

Certificate Number: 356489659HAV06011

Product Line: Vibration Monitor

Model: HAVPro

s/N:06011

#### Directive Covered:

- > EMC/ Council Directive 2014BUeU on Electromagnetic Compatibility
- > Safety / Council Oirective 20141351EU on Low Voltage Equipment Safety
- > RoHS / Council Directive 201116518U on the restriction and use of certain hazardous substances
- > WEEE / Council Directive 201211918/J 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 51326-1 (2005) Electrical equipment for measurement control and laboratory use - EMG requirements Industrial location immunity

IEC 01010-1 (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 51,40-2006 (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 Ocenomowoe, Wi USA

Tom Jacobson - Vice Present - Engineering, TSI, Inc.



TSLINCORPORATED - OCONOMOWOC

PegaMean Congary

## Certificate of Calibration

Certificate Number: 356489658HAV07123

Medel:

HAVPro Vibration Monitor

Date of Issue: 03-December -2021

SON

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)

Test Conditions:

Temperature:

18-25°C

Humidity: Bacometrie Pressure: 20-80% R.H. 950-1050 mBar

Test Procedure:

S072-001

Subassembliest

H-A Pro - PCB 356A67 S/N: 66819

Reference Standard(s) Device

Measurement Uncertainty:

University extinuted at 95% Confidence level (k=2)

Cal Due Date

Kistler 8076K

## 1.8 % Vibration

2-March-2022

Flake 45

+/- 1.4 % AC Voltage, +/-0.1% DC Voltage

2-March-2022

Calibrated By:

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 FSIS, inc.

098-659 Rev F



Annexures-1



To the ideal of the proof

## **EU Declaration of Conformity**

Certificate Number: 356489658HAV07123

Product Line: Vibration Monitor

Model: HAVPia

5/N: 07123

#### Directive Covered:

- > EMC/ Council Directive 20148UeU on Electromagnetic Compatibility
- > Safety / Council Directive 20141351EU on Low Voltage Equipment Safety
- > RoHS / Council Directive 201116518U on the restriction and use of certain hazardous substances
- > WEEE / Council Directive 201211918U on Waste Electrical and Electronic Equipment

#### The basis on which conformity is being declared:

EN 61326-1 (2005) Electrical aggistment for measurement, control and laboratory use - EMC requirements - Group 1, Class 8 Equipment (emissions)

EN 61326-1 (2005) Electrical equipment for measurement control and laboratory use - EMG requirements industrial location immunity

IEC 01010-1 (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 Rediators

ANSI 51.40-2006 (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 cartification 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 Present - Engineering, Tol. 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. Nilambar Mahanta (Rock Breaker Operator)	Whole Body Vibration Hand Arm Vibration
02	SAMPLE ID-02	Mr. Jitendra Patra, Shovel Operator	Whole Body Vibration Hand Arm Vibration
03	SAMPLE ID-03	Mr. Singray Lohar, Dumper Operator	Whole Body Vibration Hand Arm Vibration
04	SAMPLE ID-04	Mr. Basanta Singh, Loader Operator	Whole Body Vibration Hand Arm Vibration
05	SAMPLE ID-05	Mr. Pradeepta Mahanta, Ripper Operator	Whole Body Vibration Hand Arm Vibration



# Whole Body Vibration Study Report 5/3/2022

## Information Panel

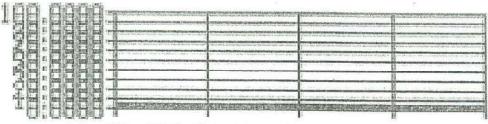
Location Name Comments Start Time Stop Time

Rock Breaker Mr. Nilambar Mahenta Operator Thursday, April 28, 2022 10:46:30 Thursday, April 28, 2022 11:17:58

## General Data Panel

Description VDV	Meter X	Value 1.354256 m/s^1.75	Description Amin	Meter X	Value 0.044134 m/
s^2					
Amax	X	0.188646 m/s^2	Aeq	X	0.101752 m/
s^2 Amp s^1./5	X	1.453028 m/s^2	VDV	Υ	1.138789 m/
Amin s^2	Υ	0.041978 m/s^2	Amax	Υ	0.165430 m/
Aeq s^2	Υ	0.080179 m/s^2	Amp	Υ	1.129576 m/
VDV s^2	Z	2.734301 m/s^1.75	Amin	Z	0.063095 m/
Amax s^2	Z	0.484125 m/s^2	Aeq	Z	0.236182 m/
Amp s^1.75	Z	2.021635 m/s^2	VDV	Sum	3.109578 m/
Amin s^2	Sum	0.151152 m/s^2	Amax	Sum	0.507502 m/
Aeq s^2	Sum	0.297302 m/s^2	Amp	Sum	2.134281 m/
Gain Weighting Sensitivity SumFactor Output	X X X Y	20dB Wd 1.000000e+002 1.40 AC Weighted	SumFactor Output Gain Weighting Sensitivity	X X Y Y	1.40 AC Weighted 20dB Wd 1.000000e
+002 Gain Weighting Sensitivity Averaging Accelerometer DBReference Auto Save PrintLoggingOn Calibration Level	Z Z Z	20dB Wk 1.000000e+002 60s ICP 1e^-6 True False 1.000000e+000	SumFactor Output Mode StoreTime DisplayUnits Integration SecondHistory SetupFileName ExposureReference	Z Z	1.00 AC Weighted WholeBody 1 s m/s None None

## Logged Data Chart



10:47:47.0:54:47.1:01:47.1:06:47.1:15:47 202時28/202時28/202928/202年28/2022 Date/Time

III RMS X

RMS Y

RMSZ

RMG Sum

**Exposure Calculator** 

( \* measurements use k factor )

Run Time 00:31:28

Measurement	X	Υ	Z	Sum	Units
VDV	1.3543	1.1388	$\overline{2}$ .7343	2.9456*	m/s^1.75
Amin	0.0441	0.0420	0.0631	-10.100	m/s²
Amax	0.1886	0.1654	0.4840		m/s <sup>2</sup>
Aeq	0.1018	0.0802	0.2362	0.2978*	m/s²
Amp	1.4530	1.1296	2.0218	0.2070	m/s <sup>2</sup>
A(1)	0.0729	0.0575	0.1693	0.2134*	m/s²
A(2)	0.0516	0.0406	0.1197	0.1509*	m/s²
A(4)	0.0365	0.0287	0.0846	0.1067*	m/s²
A(8)	0.0258	0.0203	0.0589	0.0756*	m/s²
CFmp	14.2801	14.0881	8.5603	0.0700	111/3
K Factor	1.4	1.4	1.0		
Max RMS			0.2362*		m/s <sup>2</sup>
A(8), Max RMS			0.0598*	0.0755*	m/s <sup>2</sup>
Max VDV			2.7343*	57.00	m/s^1.75

RMS Calculated Values
Action Value Criterion 0.50 m/s² (8 hours)
Limit Value Criterion 1.15 m/s² (8 hours)
Exposure Time 08:00 hh:mm

EAV	<u>×</u> >24*	<u>Y</u> >24*	<u>Z</u> >24*	Sum 22:33*	Units hh:mm
ELV	>24*	>24*	>24*	>24*	hh:mm
A(8)	0.1425*	0.1123*	0.2362*	0.2978*	m/s²

VDV Calculated Values
Action Value Criterion 9.10 m/sec^1.75
Limit Value Criterion 21.00 m/sec^1.75
Exposure Time 08:00 hh:mm

(8 hours) (8 hours)

Sum >24\* >24\* 5.4310\* <u>X</u> >24\* >24\* 1.8557 Y >24\* >24\* 1.4623 Z >24\* >24\* 4.3075 EAV ELV eVDV

Units hh:mm hh:mm m/s^1.75

# Hand Arm Vibration Study Report

## Information Panel

Location Name Comments Start Time Stop Time

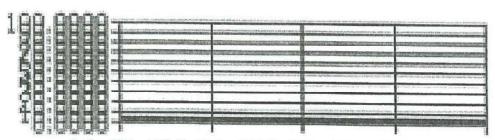
Rock Breaker Mr. Nilambar Mahenta Operator Thursday, April 28, 2022 10:46:47 Thursday, April 28, 2022 11:17:36

## General Data Panel

Description Gain Weighting Sensitivity SumFactor Output +002	Meter X X X Y Y	<u>Value</u> 20dB Wh 1.000000e+002 1.40 AC Weighted	Description SumFactor Output Gain Weighting Sensitivity	Meter X X Y Y	Value 1.40 AC Weighted 20dB Wh 1.000000e
Gain Weighting Sensitivity Averaging Accelerometer DBReference Auto Save PrintLoggingOn Calibration Level Amin s^2	Z Z Z	20dB Wh 1.000000e+002 60s ICP 1e^-6 True False 1.000000e+000 0.032021 m/s^2	SumFactor Output Mode StoreTime DisplayUnits Integration SecondHistory SetupFileName ExposureReference Amax	Z Z	1.00 AC Weighted HandArm 1 s m/s None None 2.8 m/s 0.376271 m/
Aeq s^2	X	0.087792 m/s^2	Amin	Υ	0.006823 m/
Amax s^2	Y	2.497202 m/s^2	Aeq	Υ	0.728484 m/
Amin s^2	Z	0.032064 m/s^2	Amax	Z	0.376781 m/
Aeq s^2	Z	0.087911 m/s^2	Amin	Sum	0.057702 m/
Amax s^2	Sum	3.555563 m/s^2	Aeq	Sum	1.031627 m/

## **Logged Data Chart**





10:47:47.0:54:47.1:01:47.1:08:47.1:15:47 4/28/2020/28/2020/28/2020/28/2020/28/2020 Date/Time

■ RM5 X

RM5 Y

**RM5** Z

RM5 Sum

Exposure Calculator (\* measurements use k factor)

## Run Time 00:30:49

Measurement Amin Amax Aeq A(1) A(2) A(4) A(8) CFmp	X 0.0320 0.3763 0.0878 0.0629 0.0445 0.0315	Y 0.0068 2.4972 0.7285 0.5221 0.3692 0.2610 0.1846	Z 0.0321 0.3768 0.0879 0.0630 0.0445 0.0315 0.0223	Sum  1.0310* 0.7389* 0.5225* 0.3694* 0.2612*	Units m/s² m/s² m/s² m/s² m/s² m/s² m/s²
A(8) CFmp K Factor Max RMS A(8), Max RMS	0.0222 1.4	1.4 1.0199* 0.3618*	1.0	0.2612*	m/s² m/s²
RMS Calculated Va Action Value Criterion Limit Value Criterion Exposure Time 08:0	on 0.50 m/s² (8 n 1.15 m/s² (8 h				
EAV ELV A(8)	X >24* >24* 0.1229*	Y 01:55* 10:10* 1.0199*	Z >24* >24* 0.0879*	<u>Sum</u> 01:52* 09:57* 1.0310*	Units hh:mm hh:mm m/s²

## Whole Body Vibration Study Report

## Information Panel

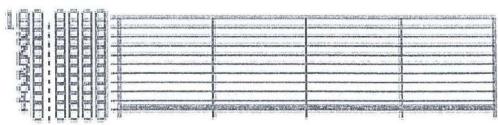
Location Name Comments Start Time Stop Time Shovel (V-19) Mr. Jitendra Patra Operator Thursday, April 28, 2022 10:46:50 Thursday, April 28, 2022 11:18:10

## General Data Panel

Description Gain Weighting Sensitivity SumFactor Output +002	Meter X X X Y Y	<u>Value</u> 20dB Wd 1.000000e+002 1.40 AC Weighted	Description SumFactor Output Gain Weighting Sensitivity	Meter X X Y Y	Value 1.40 AC Weighted 20dB Wd 1.000000e
Gain Weighting Sensitivity Averaging Accelerometer DBReference Auto Save PrintLoggingOn	Z Z Z	20dB Wk 1.000000e+002 60s ICP 1e^-6 True False	SumFactor Output Mode StoreTime DisplayUnits Integration SecondHistory SetupFileName	Z Z	1.00 AC Weighted WholeBody 1 s m/s None None
Calibration Level VDV s^2	X	1.000000e+000 0.894928 m/s^1.75	ExposureReference Amin	Х	2.8 m/s 0.006257 m/
Amax s^2	X	0.159277 m/s^2	Aeq	X	0.026999 m/
Amp s^1.75	X	0.894928 m/s^2	VDV	Υ	0.586608 m/
Amin s^2	Υ	0.004101 m/s^2	Amax	Υ	0.097834 m/
Aeq s^2	Υ	0.017016 m/s^2	Amp	Υ	0.629392 m/
VDV s^2	Z	0.282012 m/s^1.75	Amin	Z	0.008394 m/
Amax	Z	0.044015 m/s^2	Aeq	Z	0.014963 m/
s^2 Amp	Z	0.325970 m/s^2	VDV	Sum	1.519415 m/
s^1.75 Amin	Sum	0.013573 m/s^2	Amax	Sum	0.264985 m/
s^2 Aeq s^2	Sum	0.047034 m/s^2	Amp	Sum	1.542211 m/

## Logged Data Chart

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4/28/2026/2026/2026/2026/2026/2026/2028

Date/Time

■ RMS X

B RMS Z

RMS Sum

## **Exposure Calculator**

( \* measurements use k factor )

Run Time 00:31:20

Measurement	X	Y	Z	Sum	Units
VDV	$\overline{0.8949}$	0.5866	0.2820	1.3078*	m/s^1.75
Amin	0.0063	0.0041	0.0084		m/s²
Amax	0.1593	0.0978	0.0440		m/s <sup>2</sup>
Aeq	0.0270	0.0170	0.0150	0.0471*	m/s <sup>2</sup>
Amp	0.8949	0.6294	0.3260		m/s <sup>2</sup>
A(1)	0.0215	0.0135	0.0119	0.0375*	m/s <sup>2</sup>
A(2)	0.0152	0.0096	0.0084	0.0265*	m/s <sup>2</sup>
A(4) A(8)	0.0107	0.0068	0.0060	0.0187*	m/s <sup>2</sup>
A(8)	0.0076	0.0048	0.0042	0.0133*	m/s <sup>2</sup>
CFmp	33.1464	36.9880	21.7857		
K Factor	1.4	1.4	. 1.0		
Max RMS	0.0378*				m/s <sup>2</sup>
A(8), Max RMS	0.0149*		79	0.0133*	m/s <sup>2</sup>
Max VDV	1.2529*				m/s^1.75

RMS Calculated Values
Action Value Criterion 0.50 m/s² (8 hours)
Limit Value Criterion 1.15 m/s² (8 hours)
Exposure Time 08:00 hh:mm

	X	<u>Y</u>	Z	Sum	<u>Units</u>
EAV	>24*	>24*	≥ >24*	>24*	hh:mm
ELV	>24*	>24*	>24*	>24*	hh:mm
A(8)	0.0378*	0.0238*	0.0150*	0.0471*	m/s <sup>2</sup>

VDV Calculated Values
Action Value Criterion 9.10 m/sec^1.75
Limit Value Criterion 21.00 m/sec^1.75
Exposure Time 08:00 hh:mm

(8 hours) (8 hours)

<u>X</u> >24\* >24\* 0.4924 EAV ELV eVDV

Y >24\* >24\* 0.3103

<u>Z</u> >24\* >24\* 0.2729

Sum >24\* >24\* 0.8593\* Units hh:mm hh:mm m/s^1.75

## Hand Arm Vibration Study Report

5/3/2022

## Information Panel

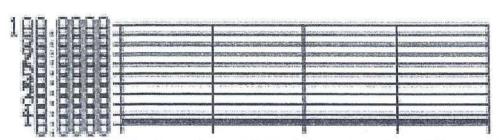
Location Name Comments Start Time Stop Time Shovel (V-19) Mr. Jitendra Patra Operator Thursday, April 28, 2022 10:46:47 Thursday, April 28, 2022 11:17:36

## General Data Panel

Description Gain Weighting Sensitivity SumFactor Output +002	Meter X X X Y Y	Value 20dB Wh 1.000000e+002 1.40 AC Weighted	Description SumFactor Output Gain Weighting Sensitivity	Meter X X Y Y Y	Value 1.40 AC Weighted 20dB Wh 1.000000e
Gain Weighting Sensitivity Averaging Accelerometer DBReference Auto Save PrintLoggingOn Calibration Level Amin	Z Z Z	20dB Wh 1.000000e+002 60s ICP 1e^-6 True False 1.000000e+000 0.032021 m/s^2	SumFactor Output Mode StoreTime DisplayUnits Integration SecondHistory SetupFileName ExposureReference Amax	Z Z X	1.00 AC Weighted HandArm 1 s m/s None None 2.8 m/s 0.376271 m/
s^2 Aeq	X	0.087792 m/s^2	Amin	Υ	0.006823 m/
s^2 Amax s^2	Υ	2.497202 m/s^2	Aeq	Υ	0.728484 m/
Amin	Z	0.032064 m/s^2	Amax	Z	0.376781 m/
s^2 Aeq s^2	Z	0.087911 m/s^2	Amin	Sum	0.057702 m/
Amax s^2	Sum	3.555563 m/s^2	Aeq	Sum	1.031627 m/

## Logged Data Chart





10:47:4710:54:4711:01:4711:08:4711:15:47 4/28/2029/28/2029/28/2029/28/2029

Date/Time



RM5 Y

RMS Z

RM5 Sum

# Exposure Calculator (\* measurements use k factor)

Run Time 00:30:49

Measurement Amin Amax Aeq A(1) A(2) A(4) A(8) CFmp K Factor Max RMS A(8), Max RMS  RMS Calculated Va	X 0.0320 0.3763 0.0878 0.0629 0.0445 0.0315 0.0222 1.4	Y 0.0068 2.4972 0.7285 0.5221 0.3692 0.2610 0.1846 1.4 1.0199* 0.3618*	Z 0.0321 0.3768 0.0879 0.0630 0.0445 0.0315 0.0223	1.0310* 0.7389* 0.5225* 0.3694* 0.2612*	Units m/s² m/s² m/s² m/s² m/s² m/s² m/s²
Action Value Criterion Limit Value Criterion Exposure Time 08:0	on 0.50 m/s <sup>2</sup> (8 h				
EAV ELV A(8)	X >24* >24* 0.1229*	Y 01:55*- 10:10* 1.0199*	Z >24* >24* 0.0879*	Sum 01:52* 09:57* 1.0310*	Units hh:mm hh:mm m/s²

# Whole Body Vibration Study Report 5/3/2022

## Information Panel

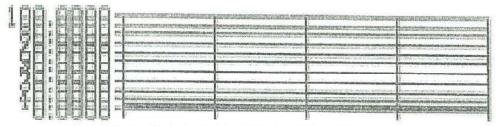
Location Name Comments Start Time Stop Time

Dumper -02 Mr. Singray Lohar Operator Thursday, April 28, 2022 11:26:01 Thursday, April 28, 2022 12:02:21

## General Data Panel

Description Gain Weighting	Meter X X X X Y	<u>Value</u> 20dB Wd	<u>Description</u> SumFactor Output	Meter X X Y	Value 1.40 AC Weighted
Sensitivity	X	1.000000e+002	Gain	Y	20dB
SumFactor	Y	1.40	Weighting	Υ	Wd
Output	Y	AC Weighted	Sensitivity	Y	1.000000e
+002	1220	00.10			4.00
Gain	Z Z Z	20dB	SumFactor	Z Z	1.00
Weighting	Z	Wk	Output	2	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		0.0 - 1
Calibration Level	**	1.000000e+000	ExposureReference		2.8 m/s
VDV	X	11.375141 m/s^1.75	Amin	X	0.008647 m/
s^2	**	0.000011 (-00	A	~	0.204055
Amax	X	0.029844 m/s^2	Aeq	X	0.204055 m/
s^2	~	18.073215 m/s^2	VDV	Υ	77.986703
Amp	×	10.073215 III/S"Z	VDV	1	11.900103
m/s^1.75	Υ	0.006851 m/s^2	Amax	Υ	0.028812 m/
Amin	Y	0.006651 11/5*2	Amax	1	0.020012 111/
s^2	Y	1.563231 m/s^2	VDV	Z	8.630086 m/
Aeq	1	1.50525111/5 2	VDV	_	0.030000 111/
s^1.75	Z	0.013647 m/s^2	Amax	Z	0.026890 m/
Amin	4	0.013047 11/3 2	Alliax	_	0.020030 111/
s^2	Z	0.117612 m/s^2	Amp .	Z	18.771457
Aeq m/s^2	~	0.117012111/3 2	Amp .	_	10.77 1437
VDV	Sum	109.694224 m/s^1.75	Amin	Sum	0.020763 m/
s^2	Guin	100.00422411113 1.70	Parini	Cum	0.020700111
Amax	Sum	0.063955 m/s^2	Aea	Sum	2.207752 m/
s^2	Curi	5.000000 III/0 Z	1104	Juin	2.207 702 110
3 4					

## Logged Data Chart



11:25:471:33:321:41:171:49:021:56:47 4/28/20至28/20至28/20至28/20至28/2022 Date/Time

RMSX

RMSZ

RM5 Sum

RM5 Y

## **Exposure Calculator**

( \* measurements use k factor )

Run Time 00:36:20

Measurement VDV Amin Amax	X 11.3751 0.0086 0.0298	<u>Y</u> 77.9867 0.0069 0.0288	Z 8.6301 0.0136 0.0269	<u>Sum</u> 109.1948*	Units m/s^1.75 m/s² m/s²
Aeq Amp	0.2041 18.0732	1.5632 18.7715	0.1176	2.2102* m/s²	m/s²
A(1) A(2) A(4) A(8) CFmp	0.1621 0.1146 0.0810 0.0573 88.5702	1.2416 0.8779 0.6208 0.4390 159.6047	0.0934 0.0661 0.0467 0.0330	1.7555* 1.2413* 0.8777* 0.6207*	m/s <sup>2</sup> m/s <sup>2</sup> m/s <sup>2</sup> m/s <sup>2</sup>
K Factor Max RMS A(8), Max RMS Max VDV	1.4	1.4 2.1885* 0.8604* 109.1814*	1.0	0.6207*	m/s² m/s² m/s^1.75

RMS Calculated Values
Action Value Criterion 0.50 m/s² (8 hours)
Limit Value Criterion 1.15 m/s² (8 hours) Exposure Time 08:00 hh:mm

EAV	<u>X</u>	<u>Y</u>	<u>Z</u>	<u>Sum</u>	<u>Units</u>
	>24*	00:25*	>24*	00:24*	hh:mm
ELV	>24*	02:12*	>24*	02:09*	hh:mm
A(8)	0.2857*	2.1885*	0.1176*	2.2102*	m/s²

VDV Calculated Values
Action Value Criterion 9.10 m/sec^1.75
Limit Value Criterion 21.00 m/sec^1.75
Exposure Time 08:00 hh:mm

(8 hours) (8 hours)

	X	Υ	Z	Sum	Units
EAV	00:04*	00:00*	oo:46*	00:00*	hh:mm
ELV	01:54*	00:00*	22:07*	00:00*	hh:mm
eVDV	3.7215	28.5101	2.1450	40.3099*	m/s^1.75

# Hand Arm Vibration Study Report 5/3/2022

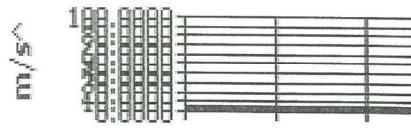
## Information Panel

Location Name Comments Start Time Stop Time Dumper -02 Mr. Singray Lohar Operator Thursday, April 28, 2022 11:25:47 Thursday, April 28, 2022 12:01:29

### General Data Panel

Description Gain Weighting Sensitivity SumFactor Output +002	Meter X X X Y Y	<u>Value</u> 20dB Wh 1.000000e+002 1.40 AC Weighted	Description SumFactor Output Gain Weighting Sensitivity	Meter X X Y Y	Value 1.40 AC Weighted 20dB Wh 1.000000e
Gain Weighting Sensitivity Averaging Accelerometer DBReference Auto Save PrintLoggingOn Calibration Level Amin s^2	Z Z Z	20dB Wh 1.000000e+002 60s ICP 1e^-6 True False 1.000000e+000 0.039927 m/s^2	SumFactor Output Mode StoreTime DisplayUnits Integration SecondHistory SetupFileName ExposureReference Amax	Z Z	1.00 AC Weighted HandArm 1 s m/s None None 2.8 m/s 0.410326 m/
Aeq s^2	X	0.175109 m/s^2	Amin	Υ	0.038028 m/
Amax s^2	Υ	0.352597 m/s^2	Aeq	Υ	0.170663 m/
Amin s^2	Z	0.031123 m/s^2	Amax	Z	0.345042 m/
Aeq s^2	Z	0.173458 m/s^2	Amin	Sum	0.093307 m/
Amax s^2	Sum	0.815116 m/s^2	Aeq	Sum	0.383470 m/

## Logged Data Chart



11:25:47.1:33:321:41:17.1:49:02:1:56:47 4/28/2024/28/2024/28/2024/28/2024/28/2022 Date/Time

RM5 X

RMS Z

RMS Sum

RM5 Y

Exposure Calculator (\* measurements use k factor)

Run Time 00:35:42

Measurement Amin Amax Aeq A(1) A(2) A(4) A(8) CFmp K Factor Max RMS A(8), Max RMS  RMS Calculated Vi		Y 0.0380 0.3526 0.1707 0.1316 0.0931 0.0658 0.0465 1.4	Z 0.0311 0.3450 0.1735 0.1338 0.0946 0.0669 0.0473	Sum  0.3838* 0.2960* 0.2093* 0.1480* 0.1047*	Units m/s² m/s² m/s² m/s² m/s² m/s² m/s²
Limit Value Criterion Exposure Time 08:0	n 1.15 m/s² (8 h	ours)			
EAV ELV A(8)	X >24* >24* 0.2452*	<u>Y</u> >24* >24* 0.2389*	Z >24* >24* 0.1735*	<u>Sum</u> 13:34* >24* 0.3838*	Units hh:mm hh:mm m/s²

# Whole Body Vibration Study Report 5/3/2022

## Information Panel

Location Name Comments Start Time Stop Time

Loader -1 Mr. Basanta Singh Operator Thursday, April 28, 2022 14:11:49 Thursday, April 28, 2022 14:44:56

## General Data Panel

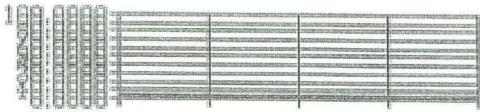
Description Gain Weighting Sensitivity SumFactor Output +002	Meter X X X Y Y	Value 20dB Wd 1.000000e+002 1.40 AC Weighted	<u>Description</u> SumFactor Output Gain Weighting Sensitivity	Meter X X Y Y Y	Value 1.40 AC Weighted 20dB Wd 1.000000e
Gain Weighting Sensitivity Averaging Accelerometer DBReference Auto Save PrintLoggingOn	Z Z Z	20dB Wk 1.000000e+002 60s ICP 1e^-6 True False	SumFactor Output Mode StoreTime DisplayUnits Integration SecondHistory SetupFileName	ZZ	1.00 AC Weighted WholeBody 1 s m/s None None
Calibration Level VDV s^2	X	1.000000e+000 4.686515 m/s^1.75	ExposureReference Amin	X	2.8 m/s 0.061078 m/
Amax s^2	X	0.623456 m/s^2	Aeq	X	0.431988 m/
Amp s^1.75	X	5.490857 m/s^2	VDV	Υ	4.642313 m/
Amin s^2	Υ	0.047610 m/s^2	Amax	Υ	0.634525 m/
Aeq s^2	Y	0.433746 m/s^2	Amp	Υ	4.362031 m/
VDV	Z	5.963552 m/s^1.75	Amin	Z	0.033529 m/
s^2 Amax	Z	0.775292 m/s^2	Aeq	Z	0.532127 m/
s^2 Amp	Z	4.874169 m/s^2	VDV	Sum	9.449476 m/
s^1.75 Amin	Sum	0.121004 m/s^2	Amax	Sum	1.431550 m/
s^2 Aeq s^2	Sum	1.006792 m/s^2	Amp	Sum	9.748338 m/

Exposure Calculator (\* measurements use k factor)

Run Time 00:33:07

Measurement VDV Amin Amax Aeq Amp A(1)	X 4.6865 0.0611 0.6235 0.4320 5.4909 0.3182	Y 4.6423 0.0476 0.6345 0.4337 4.3620 0.3195	Z 5.9636 0.0335 0.7753 0.5321 4.8742 0.3919	Sum 8.3675* 1.0088* 0.7430*	Units m/s^1.75 m/s² m/s² m/s² m/s² m/s²
A(2) A(4) A(8) CFmp K Factor	0.2250 0.1591 0.1125 12.7107 1.4	0.2259 0.1597 0.1130 10.0567 1.4	0.2771 0.1960 0.1386 9.1598 1.0	0.5254* 0.3715* 0.2627*	m/s² m/s² m/s²
Max RMS A(8), Max RMS Max VDV RMS Calculated Va	6.5611*	0.6072* 0.2214*		0.2627*	m/s² m/s² m/s^1.75
Action Value Criterion Limit Value Criterion Exposure Time 08:0	on 0.50 m/s² (8 h 1.15 m/s² (8 ho 0 hh:mm	urs)			
EAV ELV A(8)	X 05:28* >24* 0.6048*	Y 05:25* >24* 0.6072*	Z 07:03* >24* 0.5321*	Sum 01:57* 10:23* 1.0088*	<u>Units</u> hh:mm hh:mm m/s²
VDV Calculated Va Action Value Criterion Limit Value Criterion Exposure Time 08:0	on 9.10 m/sec^1. 21.00 m/sec^1.				
EAV ELV eVDV	X 02:00* >24* 7.8786	Y 02:05* >24* 7.9106	<b>Z</b> 02:56* >24* 9.7049	<u>Sum</u> 00:45* 21:31* 18.3984*	<u>Units</u> hh:mm hh:mm m/s^1.75

## Logged Data Chart



14:11:514:19:214:26:514:34:214:41:51 4/28/203/28/203/28/203/28/203/28/2032

Date/Time

國民附近以

■ RMS Y

II RMS Z

RMS Sum

# Hand Arm Vibration Study Report 5/3/2022

## Information Panel

Location Name Comments Start Time Stop Time

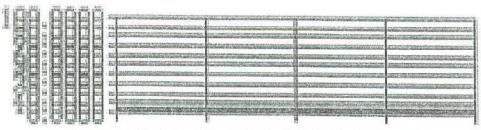
Loader -1 Mr. Basanta Singh Operator Thursday, April 28, 2022 14:11:51 Thursday, April 28, 2022 14:44:19

## General Data Panel

Description	Meter	Value	Description	Meter	<u>Value</u>
Gain	X X X	20dB	SumFactor	X X Y	1.40
Weighting	X	Wh	Output	X	AC Weighted
Sensitivity	X	1.000000e+002	Gain	Υ	20dB
SumFactor		1.40	Weighting	Y	Wh
Output	Y	AC Weighted	Sensitivity	Y	1.000000e
+002					
Gain	Z	20dB	SumFactor	Z Z	1.00
Weighting	Z	Wh	Output	Z	AC Weighted
Sensitivity	Z Z Z	1.000000e+002	Mode	1000	HandArm
Averaging	- from	60s	StoreTime		1 s
Accelerometer		ICP	DisplayUnits		m/s
DBReference		1e^-6	Integration		None
		True	SecondHistory		None
Auto Save					None
PrintLoggingOn		False	SetupFileName		2.0
Calibration Level	382	1.000000e+000	ExposureReference		2.8 m/s
Amin	X	0.048390 m/s^2	Amax	X	0.127737 m/
s^2			Ukanama Sa		
Aeq	X	0.087673 m/s^2	Amp	X	2.738005 m/
s^2					
Amin	Y	0.051221 m/s^2	Amax	Y	0.113084 m/
s^2					
Aeq	Y	0.075441 m/s^2	Amp	Y	2.246951 m/
s^2					
Amin	Z	0.028425 m/s^2	Amax	Z	0.098100 m/
s^2					
Aeq	Z	0.063696 m/s^2	Amp	Z	1.814252 m/
s^2	_			-	
Amin	Sum	0.109469 m/s^2	Amax	Sum	0.253751 m/
s^2	Guill	0.105405 III/9 Z	Allax	Sulli	0.2007011117
	Sum	0.173693 m/s^2	Amn	Sum	3.946213 m/
Aeq	Sum	0.173053 11/5 2	Amp	Sum	3.5402 (3 111/
s^2					

## Logged Data Chart





4/28/2024/28/2024/28/2024/28/2022 Date/Time

RMS V

RMS Z

## Exposure Calculator (\* measurements use k factor)

Run Time 00:32:28

Measurement	X	<u>Y</u>	Z	Sum	Units
Amin	0.0484	0.0512	0.0284		m/s²
Amax	0.1277	0.1131	0.0981		m/s²
Aeq	0.0877	0.0754	0.0637	0.1740*	m/s <sup>2</sup>
Amp	2.7380	2.2470	1.8143	0.17.10	m/s²
A(1)	0.0645	0.0555	0.0469	0.1280*	m/s <sup>2</sup>
A(2)	0.0456	0.0392	0.0331	0.0905*	m/s <sup>2</sup>
A(4)	0.0322	0.0277	0.0234	0.0640*	m/s <sup>2</sup>
A(8)	0.0228	0.0196	0.0166	0.0453*	m/s <sup>2</sup>
CFmp	31.2296	29.7844	28.4830	0.0400	111/5
K Factor	1.4	1.4	1.0		
Max RMS	0.1227*		1.0		m/s <sup>2</sup>
A(8), Max RMS	0.0447*			0.0453*	m/s <sup>2</sup>

RMS Calculated Values
Action Value Criterion 0.50 m/s² (8 hours)
Limit Value Criterion 1.15 m/s² (8 hours)
Exposure Time 08:00 hh:mm

EAV ELV A(8)	<u>X</u> >24* >24* 0.1227*	<u>Y</u> >24* >24* 0.1056*	Z >24* >24* 0.0637*	<u>Sum</u> >24* >24* 0.1740*	Units hh:mm hh:mm
A(0)	0.1221	0.1036	0.0637	0.1740*	m/s²

# Whole Body Vibration Study Report 5/3/2022

## Information Panel

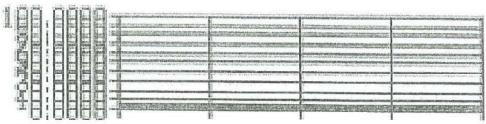
Location Name Comments Start Time Stop Time

Ripper -01 Mr. Pradeepta Kumar Mahanta Operator Thursday, April 28, 2022 14:53:52 Thursday, April 28, 2022 15:27:52

## General Data Panel

Description Gain Weighting Sensitivity SumFactor Output +002	Meter X X X Y Y	Value 20dB Wd 1.000000e+002 1.40 AC Weighted	Description SumFactor Output Gain Weighting Sensitivity	Meter X X Y Y Y	Value 1.40 AC Weighted 20dB Wd 1.000000e
Gain Weighting Sensitivity Averaging Accelerometer DBReference Auto Save PrintLoggingOn	Z Z Z	20dB Wk 1.000000e+002 60s ICP 1e^-6 True False	SumFactor Output Mode StoreTime DisplayUnits Integration SecondHistory SetupFileName	Z Z	1.00 AC Weighted WholeBody 1 s m/s None None
Calibration Level VDV	X	1.000000e+000 2.243911 m/s^1.75	ExposureReference Amin	Χ	2.8 m/s 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	Υ	2.213738 m/
s^1.75 Amin	Y	0.006411 m/s^2	Amax	Υ	0.361295 m/
s^2 Aeq	Y	0.065622 m/s^2	Amp	Υ	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 s^2	Sum	0.135028 m/s^2	Amp	Sum	4.887384 m/

## Logged Data Chart



14:53:515:02:085:10:235:18:385:26:53 4/28/20到28/20到28/20到28/20到28/2022

Date/Time

RM5 X

III RMS Y

RMS Z

RMS Sum

Exposure Calculator (\* measurements use k factor )

Run Time 00:34:00

Measurement VDV Amin Amax Aeq Amp A(1) A(2) A(4) A(8) CFmp K Factor	X 2.2439 0.0081 0.3662 0.0666 2.4108 0.0479 0.0339 0.0240 0.0169 36.1954 1.4	Y 2.2137 0.0064 0.3613 0.0656 2.3913 0.0472 0.0334 0.0236 0.0167 36.4412 1.4	Z 1.0372 0.0139 0.1688 0.0340 1.1481 0.0244 0.0173 0.0122 0.0086 33.7806 1.0	Sum 3.7167* 0.1352* 0.0973* 0.0688* 0.0486* 0.0344*	Units m/s^1.75 m/s² m/s² m/s² m/s² m/s² m/s² m/s² m/s²
Max RMS A(8), Max RMS Max VDV	0.0932* 0.0332* 3.1415*	2002		0.0344*	m/s <sup>2</sup> m/s <sup>2</sup> m/s^1.75

RMS Calculated Values
Action Value Criterion 0.50 m/s² (8 hours)
Limit Value Criterion 1.15 m/s² (8 hours)
Exposure Time 08:00 hh:mm

EAV	<u>X</u> >24*	<u>Y</u> >24*	<u>Z</u> >24*	<u>Sum</u> >24*	<u>Units</u> hh:mm
ELV	>24*	>24*	>24*	>24*	hh:mm
A(8)	0.0932*	0.0919*	0.0340*	0.1352*	m/s²

VDV Calculated Values
Action Value Criterion 9.10 m/sec^1.75
Limit Value Criterion 21.00 m/sec^1.75
Exposure Time 08:00 hh:mm

(8 hours) (8 hours)

Y >24\* >24\* 1.1968 X >24\* >24\* 1.2148 EAV ELV eVDV

Sum 18:35\* >24\* 2.4665\* Z >24\* >24\* 0.6198

Units hh:mm hh:mm m/s^1.75

# Hand Arm Vibration Study Report

## Information Panel

Location Name Comments Start Time Stop Time

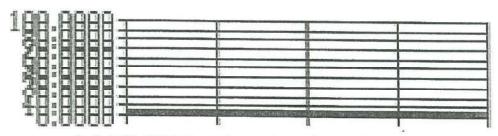
Ripper -01 Mr. Pradeeta Kumar Mahanta Operator Thursday, April 28, 2022 14:53:53 Thursday, April 28, 2022 15:27:59

## General Data Panel

Description Gain Weighting Sensitivity SumFactor Output +002	Meter X X X X Y Y	Value 20dB Wh 1.000000e+002 1.40 AC Weighted	<u>Description</u> SumFactor Output Gain Weighting Sensitivity	Meter X X Y Y Y	Value 1.40 AC Weighted 20dB Wh 1.000000e
Gain Weighting Sensitivity Averaging Accelerometer DBReference Auto Save PrintLoggingOn Calibration Level Amin	Z Z Z	20dB Wh 1.000000e+002 60s ICP 1e^-6 True False 1.000000e+000 0.035014 m/s^2	SumFactor Output Mode StoreTime DisplayUnits Integration SecondHistory SetupFileName ExposureReference Amax	Z Z X	1.00 AC Weighted HandArm 1 s m/s None None 2.8 m/s 0.081272 m/
s^2 Aeq, s^2	Χ	0.059125 m/s^2	Amin	Υ	0.035395 m/
Amax s^2	Y	0.098632 m/s^2	Aeq	Υ	0.073029 m/
Amp s^2	Y	1.546392 m/s^2	Amin	Z	0.027891 m/
Amax s^2	Z	0.144876 m/s^2	Aeq	Z	0.088748 m/
Amin s^2	Sum	0.074932 m/s^2	Amax	Sum	0.198336 m/
Aeq	Sum	0.158417 m/s^2			

## Logged Data Chart





14:53:535:02:035:10:235:18:335:26:53 4/28/2024/28/2024/28/2024/28/2022

Date/Time

RMS Y

RMS Z

RMS Sum

Exposure Calculator (\* measurements use k factor)

## Run Time 00:34:06

EAV >24* >24* >24* >24* hh:mr ELV >24* >24* >24* >24* hh:mr	Measurement Amin	<u>X</u> 0.0350	<u>Y</u> 0.0354	<u>Z</u> 0.0279	Sum	Units m/s²
A(1) 0.0446 0.0551 0.0669 0.1196* m/s² A(2) 0.0315 0.0389 0.0473 0.0846* m/s² A(4) 0.0223 0.0275 0.0335 0.0598* m/s² A(8) 0.0158 0.0195 0.0237 0.0423* m/s² CFmp 21.1751 K Factor 1.4 1.4 1.0 Max RMS 0.1022* A(8), Max RMS 0.0382* 0.0423* m/s²  RMS Calculated Values Action Value Criterion 0.50 m/s² (8 hours) Limit Value Criterion 1.15 m/s² (8 hours) Exposure Time 08:00 hh:mm   X Y Z Sum Units EAV >24* >24* >24* >24* hh:mr ELV >24* >24* >24* >24* hh:mr					0.1597*	
CFmp	Aeq					
CFmp	A/2\					
CFmp	A(4)					
CFmp	Δ(8)					
K Factor 1.4 1.4 1.0  Max RMS 0.1022* A(8), Max RMS 0.0382* 0.0382* 0.0423* m/s²  RMS Calculated Values Action Value Criterion 0.50 m/s² (8 hours) Limit Value Criterion 1.15 m/s² (8 hours) Exposure Time 08:00 hh:mm   X Y Z Sum Units EAV >24* >24* >24* >24* hh:mr ELV >24* >24* >24* >24* hh:mr	CEmp		0.0100	0.02.01	0.0120	11113
Max RMS       0.1022*       m/s²         A(8), Max RMS       0.0382*       0.0423*       m/s²         RMS Calculated Values         Action Value Criterion 0.50 m/s² (8 hours)         Limit Value Criterion 1.15 m/s² (8 hours)       Exposure Time 08:00 hh:mm         EAV       >24*       >24*       >24*       hh:mr         ELV       >24*       >24*       >24*       hh:mr         ELV       >24*       >24*       >24*       hh:mr			1.4	1.0		
A(8), Max RMS 0.0382* 0.0423* m/s²   RMS Calculated Values Action Value Criterion 0.50 m/s² (8 hours) Limit Value Criterion 1.15 m/s² (8 hours) Exposure Time 08:00 hh:mm   X Y Z Sum Units EAV >24* >24* >24* >24* hh:mr ELV >24* >24* >24* hh:mr						m/s <sup>2</sup>
Action Value Criterion 0.50 m/s² (8 hours) Limit Value Criterion 1.15 m/s² (8 hours) Exposure Time 08:00 hh:mm   X Y Z Sum Units EAV >24* >24* >24* >24* hh:mr ELV >24* >24* >24* >24* hh:mr					0.0423*	
ELV >24* >24* >24* >24* hh:mr	Action Value Criter Limit Value Criterio	ion 0.50 m/s² (8 on 1.15 m/s² (8 h	hours) ours)			
ELV >24* >24* >24* >24* hh:mr		X	Y	Z		Units
	EAV	>24*	>24*	>24*		hh:mm
						hh:mm
A(8) 0.0828* 0.1022* 0.0887* 0.1587* m/s <sup>2</sup>	A(8)	0.0828*	0.1022*	0.0887*	0.1587*	m/s²