



Letter No. - TSTD/EC/2026/MAY/01

18th May' 2026

To,

Deputy Director General of Forests (C),
Ministry of Environment, Forest and Climate Change,
Integrated Regional Office, 2nd Floor,
Headquarter- Jharkhand State Housing Board,
Harmu Chowk, Ranchi, Jharkhand - 834002

Subject: - Half yearly environmental compliance report of Tata Steel Limited, Tinsplate Division, Golmuri, Jamshedpur for the Period October 2025 to March 2026

Reference: - (i) EC letter No.- EC/SEIAA/2020-21/2480/2021/367 dated 30/01/2023
(ii) EC Corrigendum Letter No. EC/SEIAA/2022-23/265& EC2/453 dated 24.03.2023
(iii) EC Transfer Memo No. 153 dated 16.07.2024 issued on 24.07.2024

Sir,

With reference to the above, please find enclosed our half yearly compliance report of Tata Steel Limited, Tinsplate Division for Operation of current plant of capacity 415,000 TPA and proposed phase-wise expansion to 1,015,000 TPA capacity of Electrolytic Tinsplate and Tin-Free Steel material including 28,000 TPA Printed and Lacquered sheets at Golmuri, Jamshedpur, East Singhbhum, Jharkhand to the period from October 2025 to March 2026.

Thanking you,

Yours Faithfully,

For Tata Steel Limited, Tinsplate Division

Dr. Sourajyoti Dey
Chief - Tinsplate

Arunjems

Cc:

1. The Member Secretary, SEIAA, Dhurwa Nursery Complex, Dhurwa Bus Stand, Ranchi, Jharkhand – 834004
2. The Zonal Head, CPCB Kolkata, 'South end Conclave' Block-502, 5th and 6th Floor, 1582, Razidanga, Main Road, Kolkata-700107
3. The Member Secretary, JSPCB, H.E.C., Dhurwa, Ranchi-834004 (Jharkhand)
4. The Regional Officer, JSPCB, M 15, New Housing Colony, Adityapur - 839018

TATA STEEL LIMITED

Tinsplate Division Golmuri Works Jamshedpur 831 003 Jharkhand India
Registered Office Bombay House 24 Homi Mody Street Fort Mumbai 400 001 India Tel 91 22 6665 8282 Fax 91 22 6665 7724 Website www.tatasteel.com
Corporate Identity Number L27100MH1907PLC000260

Operation of current plant of capacity 415,000 TPA and proposed phase-wise expansion to 1,015,000 TPA capacity of Electrolytic Tinplate and Tin-Free Steel material including 28,000 TPA Printed and Lacquered sheets of M/s Tata Steel Limited, Tinplate Division at Golmuri Works, Jamshedpur, East Singhbhum, Jharkhand for the Period October 2025 to March 2026

Date: 18.05.2026

Sl. No.	Compliance Conditions	Compliance Status
I	Specific Conditions:	
i	This Environmental Clearance is valid subject to the following conditions below- That this project has - (a) Obtained all legal rights to operate at concerned place (b) Complied with all existing concerned laws of the land and (c) Complied with the decisions of SEIAA on the issue of Environmental clearance till date	Agreed and complied.
ii	Environment Management System including organisation structure to be drawn to ensure compliance of EC conditions stipulated based on principles of continual improvement and periodic management review.	Tata Steel Limited has a well-constituted Environment Management Department / Cell comprising of Senior Management Executives, engineers, and officers to monitor the environmental performance and the relevant statutory compliance. The Performance and compliance of Environment Management is reviewed by higher management on regular basis.
iii	All raw materials having possibility of generation of fugitive emission to be stored under a covered shed	Major raw material in our operation is Hot Rolled Coil and Tin ingot which has no potential to generate fugitive emission arises from loading and unloading of the same. Further, ROM coal is kept in coal yard of boiler with provision of dry fog system, water sprinklers, Wind barriers etc. However, crushed coal which is used in process boiler for steam generation are kept under shed to control fugitive emission. Photograph enclosed in annexure 1 (a).
iv	Project Authority (PAs) to offset (3-5 %) consumption of conventional energy sources by promoting use of solar energy, passive energy utilization, and optimum fenestration, Shading effect and heat islands.	The major energy requirements at Tinplate Division are power and fuel for operating the plant and its auxiliary units. Power is sourced from Tata Steel Limited, Jamshedpur Works, who has purchased renewable energy content in the form of Renewable Energy Certificates. Further to the above, solar panels have been installed on rooftop (1.3 MWp) of all plant buildings for utilization of solar energy. LED lights of lower wattage installed for all bay lighting and plant area lighting. Turbo-ventilators are installed at plant buildings as per requirement to reduce heat loads. Photographs enclosed in annexure 1 (b). Existing buildings are designed with openings, louvers, transparent doors, and sufficient no. of windows for utilizing natural light. Similar arrangements for use of renewable energy and passive energy utilisation will be considered for upcoming facilities.

v	Developers to promote energy conservation measures such that it offsets not less than 2% of connected load. It is to be achieved by solar panels etc meeting ECBC norms (Energy Conservation Building Code)	<p>Existing buildings are designed with openings, louvers, transparent doors, and sufficient no. of windows for utilizing natural light. Solar panels have been installed on rooftop of all plant buildings for utilization of solar energy. LED lights of lower wattage installed for all bay lighting and plant area lighting. Turbo-ventilators are installed at plant buildings as per requirement to reduce heat loads. (Photograph are shown).</p> <p>Offices in upcoming plants will be built in accordance with ECBC (Energy conservation Building Code) and solar panel will be installed in the rooftop to conserve energy requirement of offices. Arrangements for use of renewable energy and passive energy utilisation will be considered for upcoming facilities. The Office buildings will be built with openings, louvers, transparent doors, and sufficient no. of windows for utilizing natural light in accordance with existing plants.</p>
vi	Trees should be planted and maintained not less than 15% of project area	<p>Green cover is maintained more than 15% of the project area, for which we adopted Miyawaki Plantation for developing dense tree plantation. Drive for plantation is being carried out inside plant and its proximity with different indigenous species viz. Arjun, Putranjiva, Bakul, Peltophorum, Karanj, Shisham, Saal, Tabebuia, Plash, Ashok etc.</p> <p>Photograph enclosed in annexure 1 (c).</p>
vii	Organic Waste Converter (OWC) to be installed of sufficient capacity such that all organic waste (biodegradable) generated is used as compost manure.	<p>Compost making machine has been installed for using organic waste for preparation of compost in our premises.</p> <p>Photograph enclosed in annexure 1 (d).</p>
viii	Developers/Company to install STP of sufficient capacity such that all sewer produced is treated and reused	<p>Sewage from existing plant and different zones of township are routed to Bara STP of Tata Steel Limited for its treatment and reuse.</p> <p>Photograph enclosed in annexure 1 (e)</p>
ix	Developers/Company to install Rainwater harvesting including reuse on 100% basis	<p>In our existing plant, 4 no. of rainwater harvesting structures has been constructed for recharge of groundwater.</p> <p>Photograph enclosed in annexure-1 (f)).</p>
x	Developers/Company to conduct and submit carbon footprint and carbon sequestration study report including mitigation measures as a part of EC compliance	<p>Accounting of Carbon footprint (GHG accounting) is being done based on established Protocol. M/s SGS, Mumbai was engaged initially for study and audit of Carbon footprint/GHG accounting of the plant. Presently, it is being done on a yearly basis internally and is being validated through third party.</p> <p>Summary report of the study of FY26 is mentioned below:</p> <p>Scope 1 GHG emission: 102862 tCO₂e Scope 2 GHG emission: 126848 tCO₂e</p> <p>Carbon sequestration / Mitigation measures for reduction of carbon footprint: -</p> <p>a. Around 5000 no. of trees has been planted in and around plant premises from FY'22 till date as a part of carbon sequestration measure to mitigate the impact of GHG emission.</p> <p>b. Solar panels installed of 1.3 MWp capacity for plant</p>

		<p>buildings.</p> <p>c. Buildings designed with specially designed translucent sheets to allow natural light.</p> <p>d. LED lights of lower wattage installed for all bay lighting and plant area lighting.</p> <p>e. High power consuming Conduction reflow converted to 100% Induction reflow in both Tinning Lines.</p> <p>f. Variable Frequency Drives installed for drives with high KW motors, auxiliary systems, fume exhaust motors.</p>
Xi	Water runoff originating from open non constructed areas of project premises to be harvested/guided in such a way that it does not create water logging condition in vicinity	The Storm water drains of existing plant has been constructed to ensure no water logging condition in and around the plant. Similar considerations made for upcoming plant.
Xii	Sufficient number of EV fast charging points to be installed	EV fast charging station has been installed at prominent locations in township.
xiii	No mining/activity shall be undertaken in the forest land or deemed forest without obtaining requisite prior forestry clearance.	Not applicable since no mining activity will be undertaken in expansion project.
xiv	This Environmental clearance is granted subject to final outcome of Hon'ble supreme court of the India, Hon'ble High Court, Hon'ble NGT, MOEF & CC and any other court of law, if any, as may be applicable to this project.	Noted.
xv	Environmental clearance is subject to obtaining prior clearance from forestry and Wildlife angle including clearance from standing committee of NBWL, as may be applicable to this project (in case any fauna occurs /is found in the project area or if the area involves forest land or Wildlife habitat i.e., core zone of elephant /tiger reserve etc. and or located within 10 km. of protected area)	There is no forest clearance and NBWL clearance from standing committee is applicable. Site Specific Wildlife Plan has been approved from PCCF, Wildlife-cum-Chief Wildlife Warden, Jharkhand vide office order no. 36 dated 08.08.2025.
xvi	The project proponent may apply simultaneously for forest and NBWL clearance, in order to complete the formalities without undue delay, which till process on their respective merits, no rights will vest in or accrue to them unless all clearance are obtained.	Not applicable.
xvii	As proposed, Gaseous fuel (Natural gas/ Propane) will be used as fuel, as both are environmentally friendly fuel and produce insignificant particulate emissions.	Gaseous fuel (Natural gas/ Propane) will be used as fuel for our process line & boiler in expansion project.
xviii	Efforts shall be made to reduce PM levels in the ambient air. Ambient air quality monitoring stations shall be set up in the downwind direction as well as where maximum ground level concentration of PM are anticipated in consultation with the state pollution control board (SPCB). Data on ambient air, stack and fugitive	Several measures are being taken on regular basis to reduce PM level inside plant premises. Fixed type sprinklers are deployed at required locations for suppression of fugitive dust. Sprinkling of water on road is being done through dedicated Tankers. Road sweeping is done through mechanised vacuum sweeping vehicle. Dry fog system and water sprinklers are installed in boiler area. Paver block and green patches are placed on loose soil

	emission shall be submitted to the SEIAA Office, JSPCB and CPCB.	<p>area. Tata Steel Limited has installed one CAAQMS inside our plant premises at Works Gate, and other outside plant premises in Bara, Indranagar Telco and Bistupur area for continuous monitoring of ambient air quality and data is being transferred to Jharkhand State Pollution Control Board. In addition, manual monitoring of ambient air quality is also being done at four different locations inside plant.</p> <p>Photographs enclosed in annexure 1 (g).</p> <p>Pollution control equipment along with stack arrangements are provided in Mills and Boilers. Regular monitoring is being done to control stack emission.</p> <p>Data of ambient air quality, stack and fugitive emission is enclosed in annexure 2.</p>
xix	Online ambient air quality monitoring and continuous stack monitoring facilities with sufficient air pollution control devices shall be provided for the stacks that using fuel having potential to produce significant particulate emission. The emission of particulate matter from various process units shall conform to the standards prescribed by concerned authorities from time to time.	<p>Continuous Ambient Air Quality Monitoring System has been provided inside Plant premises near Works Gate. Air pollution control systems such as ESPs, Fume Exhaust System and scrubbers are installed in process boiler and Mills as per the process requirement. Online stack monitoring facilities has been provided in boiler stacks. The emission of particulate matter is conformed to the prescribed standards.</p> <p>Photographs enclosed in annexure 1 (h))</p>
xx	The company shall monitor the raw and treated wastewater quality for trace metals and air quality at sources and including routine parameters and the reports shall be submitted regularly with six monthly compliance report.	<p>Monitoring of inlet quality of wastewater treatment plant, treated quality of wastewater treatment plant and air quality at sources i.e., stack emission is being done and reports are enclosed.</p> <p>Monitoring reports of above enclosed in annexure 2.</p>
xxi	The company shall connect the pollution control equipment to DG set to ensure operation of these equipment's during power failure. The company shall also provide interlocking system with the process equipment so that the plant automatically stops in case the pollution load exceeds the guaranteed limits.	<p>All the pollution control equipment and production process are connected to same power source. In case of power failure, no production takes place. DG sets are only used during emergency power failures. The boiler stacks are provided with ESPs and Continuous Emission Monitoring Systems to control and monitor the emission level on continuous basis and prompt action is being taken for any deviation.</p>
xxii	The industry shall ensure that the treated effluent and stack emission in the unit are within the norms stipulated under the EP Rules or JSPCB whichever is more stringent. In case of process distribution/failure of pollution control equipment adopted in the unit, the respective unit shall be shut down and shall not be restarted until the control measures are rectified to achieve the desired efficiency.	<p>Preventive maintenance of pollution control equipment and Effluent Treatment Plants are being done on regular basis to control emissions and effluent quality. The boiler stacks are provided with ESPs and Continuous Emission Monitoring Systems to control and monitor the emission level on continuous basis. We are regularly monitoring the quality of stack and effluent, and prompt corrective actions are being taken for any abnormal observations.</p>
xxiii	In-plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Dust suppression and dust extraction systems shall be provided to control fugitive	<p>Fixed type water sprinklers and Dry fog system are provided in coal handling area of boiler area to control fugitive emission. Sprinkling of water on road is being done through dedicated Tankers. Road sweeping is done through mechanised vacuum sweeping vehicle to control</p>

	emission at material handling points. Fugitive emissions shall be controlled by providing closed storages, water sprinkling systems, etc. to arrest the suspended particles.	fugitive emission. Plantation is done on regular basis. Paver blocks are placed on loose soil area. Photograph enclosed in annexure 1 (g)
xxiv	Secondary fugitive emission from all the sources shall be controlled within the latest permissible limits issues by the Ministry and regularly monitored. Guidelines/ code of Practice issued by the CPCB shall be followed. The emission standards issue by the Ministry in May,2008 shall be followed.	Fugitive emission monitoring is being carried out on regular basis. Work environment monitoring of fumes based on process of different mills are being done. We follow the latest guidelines/ code of practice issued by CPCB for secondary fugitive emission monitoring.
xxv	Vehicular pollution due to transportation of raw material and finished product shall be controlled. Proper arrangements shall also be made to control dust emission during loading and unloading of the raw materials and finished product.	Regular sweeping of metallic road take place through mechanised road sweeping vehicle and mobile water sprinkling is being done to reduce fugitive emission from roads. Our major raw material in the process is HR coil and Tin Ingots. Wind barrier (sheets), dry fog system and water sprinklers are placed in the coal handling area of boiler to control fugitive emission during unloading of coal. Crushed Coal are kept inside shed.
xxvi	Total water requirement (12000 m3/day) for plant purpose will be met through surface water and no ground water shall be extracted for plant use. All the wastewater generated from the process shall be treated in the effluent treated plant (ETP) and recycled and reduce in the process and/ or used for dust suppression, green belt development and for various activities at the project site. No effluent shall be discharge outside the premises. 'Zero' discharge shall be strictly adopted.	Raw water is taken through M/s TSUIL (Formerly JUSCO) for plant operation and Domestic use. No ground water is extracted for plant use. Existing plants are equipped with dedicated Effluent Treatment Plants to treat the effluent generated from the processes and maintain the treated effluent quality as per the prescribed standard. The existing effluent treatment plants are further augmented to take care of the additional effluent treatment and its sludge handling systems. Wastewater Recycling Systems are installed, and the treated water is recycled back in the process. Photograph enclosed in annexure 1 (i) Order for construction of Zero Effluent Discharge (ZED) project is placed. Civil Job is in progress. Construction of ZED unit will be completed by 1 st Quarter FY'28.
xxvii	Total water requirement for plant purpose will be met through surface water and no ground water shall be extracted for plant use. Prior permission to be taken from concerned department in case of withdrawal of Ground water and a copy of the letter shall be submitted to this office within 6 months of issues of the environment clearance.	Raw water is taken through M/s TSUIL (Formerly JUSCO) for plant and Domestic use. No ground water is extracted for plant use.
xxviii	As proposed, all the metal scrap, iron oxide and dust shall be disposed for recycle /reuse in furnaces. The domestic waste including sewage sludge shall be treated biologically and used as manure for green belt. Used/spent oil shall be to authorized recyclers as per the Hazardous waste (Management, Handling & Transboundary Movement) Rules 2016	As proposed, Steel scraps are sold to other industry for reuse/recycling purpose. Iron oxide from ARP unit is sold to paint industry. Similar practice will be adopted in expansion project. Domestic sewage water is pumped to Bara STP for treatment and reuse. Waste Oil/Emulsion/process residues wastes are disposed through authorized recyclers/CHWTSDF.

	and subsequent amendments.	
xxix	A time bound action plan shall be submitted to reduce solid waste, its proper utilization and disposal.	Solid wastes are handled as per solid waste management plan which is primarily based on the concept of reduce/recycle/reuse.
xxx	Proper handling, storage, utilization, and disposal of all the solid waste shall be ensure and regular report regarding end use of solid/hazardous waste shall be submitted to the SEIAA, JSPCB and CPCB.	Proper handling, storage, utilization, and disposal of for solid/hazardous waste is implemented for existing plant and the records of the same for FY'26 is given below- (i) Iron oxide (2497.71MT) from ARP unit is sold to paint industry. (ii) Fly ash (17310.3 MT) generated from process boiler are reused outside through vendor (iii) Steel scrap generated from process plant (68067.038 MT) is sold to other industries for its reuse. (iv) CRM sludge (1575.86 MT) is being disposed through M/s Adityapur Waste Management Pvt. Ltd., CHWTSDF. (v) Tin dross (11.5095 MT) is sold to outside industries. (vi) ETL sludge (1340.62 MT) is disposed through M/s Adityapur Waste Management Pvt. Ltd., CHWTSDF. (vii) Waste Emulsion (254.31MT) is disposed through M/s Adityapur Waste Management Pvt. Ltd., CHWTSDF. (viii) Waste Oil (245.13 MT) is disposed through authorised recyclers. (ix) Process residue (5.92 MT) is disposed through authorised recyclers. (x) Waste Pickling Liquor (15714.29 KL) is recycled internally at ARP and reused back in pickling process line (xi) Alkali residue (3877.78 KL) is treated internally at Waste Water Treatment Plant.
xxxii	Plantation should be done over an area equal to 33% of plant area including Green Belt inside and Plantation outside the premises. Local species trees should be planted as per the CPCB guidelines.	Plantation has been done in and around plant premises which collectively constitute more than 33% of green cover. We adopted Miyawaki plantation method for developing dense plantation. Plants with different species viz. Arjun, Putranjiva, Bakul, Peltophorum, Karanj, Shisham, Saal, Tabebuia, Plash, Ashok etc are planted in and around plant premises. Photograph enclosed in annexure 1 (c).
xxxiii	Proper care shall be taken in structural design to protect against earthquake if the site falls under earthquake zone and implemented during construction phase.	Building design of plants are considered to take care of the effect of earthquake.
xxxiii	The company shall provide housing for construction labour within the site all necessary infrastructure and facility such as fuel for cooking, mobile toilets, mobile STP/Soak pit, safe drinking water. Medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Necessary infrastructures have been planned with use of Porta cabins along with amenities to the labour involved in construction work as per requirement of the site. Laborers shall be from adjacent areas and nearby villages for construction activities during expansion project. There is no provision to stay at the site. Safe drinking water, medical health care, mobile toilets, creche etc. will be provided at site.
II	Statutory compliance	
i	The project proponent shall obtain forest clarence under the provisions Forest (Conservation) Act , 1986, in case of the division of Forest land for non-forest purpose involved in the project	Not Applicable
ii	The project proponent shall obtain	Not Applicable

	clearance from the National Board for Wildlife, if applicable	
iii	The project proponent shall prepare a site- specific conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendation of the approved site-Specific Conservation Plan/ Wildlife Management Plan shall be implemented with the state Forest Department. The implementation report shall be furnished along with the six-monthly compliance report.(in case of the presence of schedule-1 species in the study area	Site Specific Wildlife Plan has been approved from PCCF, Wildlife-cum-Chief Wildlife Warden, Jharkhand vide office order no. 36 dated 08.08.2025.
iv	In the writ petition (Civil) no. 202/1995, T.N. Gadaverman Thirumulpad vs union of India and others the Hon'ble Supreme court passed an order 03.06.2022". National Park or Wildlife Sanctuary must have an ESZ of minimum 01 km in which the activities prescribed in the guidelines of 09th February 2011 shall be strictly adhered to"	Not applicable
v	The project proponent shall obtain consent to Establish / Operate under the provisions of Air (Prevention & Control of pollution) Act ,1981 and the water (Prevention & control of Pollution) Act, 1974 from the concerned State Pollution Control Board/Committee.	Consent to establish for expansion project has been granted by JSPCB. Construction job is in progress. Consent to Operate will be taken prior to operation.
vi	The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of groundwater and a copy of the same shall be submitted to SEIAA.	Not applicable since no ground water is extracted.
vii	The project proponent shall obtain authorization under the Hazardous and other Waste Management Rules 2016 as amended from time to time.	Existing plant have authorization under the Hazardous and other Waste Management Rules 2016 and is valid till 2026.
viii	It shall be mandatory for the project management to submit six (06) monthly compliance report in report in respect of the stipulated prior environmental clearance terms and conditions in hard copies and soft copies to the regulatory authority concerned regional office of MoEF & CC at Ranchi and Jharkhand State Pollution Control Board (J.S.P.C.B), Ranchi/SEIAA/CPCB	Half yearly compliance report is being submitted in the mentioned offices.
ix	Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environmental (Protection) Act, 1986	Noted.
x	The SEIAA, Jharkhand or any other	Noted.

	competent Authority may alter modify the above conditions or stipulate any further condition in the interest of Environment Protection	
III	Air quality monitoring and preservation	
i	The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environmental (Protection) Rules 1986 vide G.S.R 277 (E) dated 31st March 2012 (applicable to IF/EAF) as amended from time to time; S.O. 3305 (E) dated 7th December 2015 (Thermal Power Plants) as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.	It is not applicable since Tinplate Division does not have IF/EAF or Thermal Power Plant and there is no proposal to install IF/EAF and Thermal Power Plant in upcoming expansion project.
ii	The Project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through laboratories recognized under Environmental (Protection) Act, 1986 or NABL accredited laboratories.	Fugitive emission monitoring inside the plant premises is being done on regular basis through NABL accredited laboratories. Fugitive emission report enclosed in annexure - 2.
iii	The Project proponent shall install system carryout Continuous Ambient Air Quality Monitoring for common/criterion parameters relevant to the main pollutants released (e.g. PM10 and PM2.5 in reference to the PM emission, and SO2 and NOx in reference to SO2 and NOx emissions) within and outside the plant area (at least four locations one within and three outside the plant area at an angle of 120° each), covering upwind and downwind directions (case to case basis, small plants: Manual, Large Plants: Continuous)	Tata Steel Limited has installed one CAAQMS inside our plant premises at Works Gate, and other outside plant premises in Bara, Indranagar Telco and Bistupur area for continuous monitoring of ambient air quality and data is being transferred to Jharkhand State Pollution Control Board.
iv	The Project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality/fugitive emissions to the Regional office of MoEF&CC, Zonal Office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.	Monthly summary report of continuous and manual monitoring of stack and ambient air is enclosed in annexure-2 along with six-monthly compliance report.
v	Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources.	Air pollution control systems such as ESPs, Fume Exhaust System and scrubbers are installed in process boiler and Mills as per the process. Periodic maintenance of pollution control equipment is being done during preventive maintenance & annual shutdowns to maintain the performance of the devices. Dry fog system and Sprinklers

		are provided in coal handling area.
vi	The Project proponent shall provide leakage detection and mechanised bag cleaning facilities for better maintenance of bags	Not applicable
vii	Sufficient number of mobile or stationery vacuum cleaners shall be provided to clean plant roads, shop floors, roofs, regularly	Regular sweeping of metallic road is being done on daily basis through mechanised vacuum sweeping vehicle. Cleanliness of shopfloor is being maintained on daily basis.
viii	Recycle and reuse iron fines, coal and coke fines, lime fines and such other fines collected in the pollutant control devices and vacuum cleaning devices in the process after briquetting/agglomeration	Iron oxide from ARP unit is sold to paint industry for its reuse. Coal fines generated inside coal handling area is reused in boiler. Similar practice will be adopted in expansion project. However, Gaseous fuel (Natural gas/ Propane) based boiler will be installed in expansion project.
ix	The Project Proponent shall use leak proof trucks/dumpers carrying coal and other raw materials and covered them with tarpaulin	Trucks/dumpers carrying coal which is used in process boiler for steam generation are covered with tarpaulin.
x	The Project proponent shall provide covered sheds for raw materials like scrap and sponge iron, lump ore, coke, coal, etc.	Sponge iron, lump ore and Scrap are not used in our process. Raw material for process boiler i.e., crushed coal is kept under shed.
xi	The Project proponent shall provide primary and secondary fume extraction system at all melting furnaces.	Not applicable since no melting furnace is proposed in expansion project.
xii	Design the ventilation system for adequate air changes as per ACGIH document for all tunnels, motor houses, Oil cellars.	Ventilation system for adequate air changes will be consider in project execution stage for the design of motor houses, Cellars etc. as per ACGIH.
IV	Water quality monitoring and preservation	
i	The project proponent shall install 24*7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 vide G.S.R 277 (E) dated 31st March 2012 (applicable to IF/ EAF) as amended from time to time; S.O 3305 (E) dated 7th December 2015 (Thermal Power Plants) as amended from time to time) and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection)Act, 1986 or NABL accredited laboratories.(case to case basis small plants: Manual :Large plants :continuous).	It is not applicable since Tinplate Division does not have IF/EAF or Thermal Power Plant and there is no proposal to install IF/EAF and Thermal Power Plant in upcoming expansion project.
ii	The project proponent shall monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/	Ground water quality is being monitored twice in a year by NABL accredited laboratories. Ground water reports enclosed in annexure-2.

	sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) act, 1986 and NABL accredited laboratories.	
iii	The project proponent shall submit monthly summary report of continuous effluent monitoring and results of manual effluent testing and manual monitoring of ground water quality to regional office of MoEF & CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.	Monthly summary report of continuous effluent monitoring and manual effluent is enclosed in annexure-2 along with six-monthly compliance report.
iv	Adhere to "Zero Liquid Discharge".	Zero Effluent Discharge plan will be implemented in a phase-wise manner to take care of the treated effluent discharge. Order for construction of Zero Effluent Discharge (ZED) project is placed. Civil Job is in progress. Construction of ZED unit will be completed by 1 st Quarter FY'28.
v	Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet prescribe standard.	Sewage from existing plant and different zones of township are routed to Bara STP of Tata Steel Limited for its treatment as per prescribed standard and reuse.
vi	The project Proponent shall provide the ETP for effluents of rolling mills to meet the standards prescribe in G.S.R 277 (E) 31st March 2012 (applicable to IF/EAF) as amended from time to time.	Cold Rolling Mill & Electrolytic Tinning Line of existing plant are equipped with dedicated Effluent Treatment Plants to ensure the proper treatment of effluent and discharge within stipulated norms. The treated effluent would be recycled back after installation of Zero Effluent Discharge System for the existing operation as per the plan.
vii	Garland drains and collection pits shall be provided for each stockpile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.	Garland drains and collection pits will be provided for stockpile during construction phase to arrest the run-off in the event of heavy rains to check the water pollution due to surface run off.
viii	The project proponent shall practice rainwater harvesting to maximum possible extent.	In our existing plant, 4 no. of rainwater harvesting structures has been constructed for recharge of groundwater. We will construct the rainwater harvesting structures in the expansion project to harvest the rainwater from rooftop of upcoming plants.
ix	The project proponent shall make efforts to minimise water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water.	We have wastewater recycling systems in our existing units. Waste Pickle liquor which is generated during pickling process, and it is recovered as regenerated acid in Acid Regeneration Plant. The rinse water of Electrolytic Cleaning Line and Electrolytic Tinning Line are recovered as DM water at its dedicated Wastewater Recycling Plants and reuse back in the process. Boiler blowdown water is channelised in a collection tank and reuse back in ash conditioning purpose.
V	Noise Monitoring and Prevention	
i	Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Office of the Ministry as a part of six-monthly compliance report.	Noise level is monitored as per prescribed standard on regular basis. Noise monitoring report enclosed in annexure-2.
ii	The ambient noise levels should confirm to the standards prescribed under E(P)A Rules,1986 viz. 75dB (A) during day time	Ambient noise level is monitored, and it conforms the prescribed standard. Noise monitoring report enclosed in annexure 2.

	and 70 dB (A) during night time.	
VI	Energy Conservation measures:	
i	The project proponent shall provide waste heat recovery system (pre-heating of combustion air) at the flue gases of reheating furnaces.	Not applicable
ii	Practice hot charging of slabs and billets/booms as far as possible.	Not applicable
iii	Ensure installation of regenerative type burns on all reheating furnaces.	Not applicable
iv	Provide solar power generation on rooftops of building, for solar light system for all common areas, streetlights/parking around project area and maintain the same regularly.	We have installed 1.3 MWp of Solar Rooftop in our plant.
v	Provide the project proponent for LED lights in their offices and residential areas.	LED light has been provided in offices, Plant & streetlight.
VII	Waste management:	
i	Used refractories shall be recycled as far as possible.	Used refractories are in reused as road grading material, pedestal etc. inside plant.
ii	Oily scum and metallic sludge recovered from rolling ETP shall be mixed, dried, and briquetted and reused melting Furnaces.	Oily scums are disposed through Recyclers and CHWTSDF (M/s Ramky). Same practice will be done by in the facilities installed in expansion project.
iii	100% utilization of fly ash shall be ensured. All the fly ash shall be provided to cement and bricks manufactures for further utilization and Memorandum of Understanding in this regard shall be submitted to the Ministry's Regional Office.	Fly ash generated from process boiler are reused outside through vendor.
iv	The waste oils, grease and other hazardous waste shall be disposed of as per Hazardous & others waste (Management & Transboundary Movement) Rules.2016.	The waste oils, grease and other hazardous waste are being disposed of as per Hazardous & others waste (Management & Transboundary Movement) Rules 2016.
v	Kitchen waste shall be composted or converted to biogas for further use. (to be decided on case basis depending on type and size plant)	Compost making machine is installed to convert kitchen waste into compost which is used further in plantation and gardening purpose.
VIII	Green Belt	
i	Green belt shall be developed in an area equal to 33% of the plant area with a native tree species in accordance with CPCB guidelines. The green belt shall inter alia cover the entire periphery of the plant.	Green cover has been developed in and around 27% of the project area which would be further increase to 33% post expansion. Considering space constraint, we have also planted trees in our close proximity such as truck parking area and Golf course which collectively constitute around 40% of green cover. We adopted Miyawaki plantation method for developing dense plantation. Plants with different species viz. Arjun, Putranjiva, Bakul, Peltophorum, Karanj, Shisham, Saal, Tabebuia, Plash, Ashok etc are planted in and around plant premises. Photograph enclosed in annexure 1 (c).
ii	The project proponent shall carry prepare GHG emission inventory for the plant and shall submit the programme for the same including carbon sequestration including	Accounting of Carbon footprint (GHG accounting) is being done as per establish Protocol. M/s SGS, Mumbai was engaged initially for study and audit of Carbon footprint/GHG accounting of the plant. Presently, it is being

	plantation.	<p>done on a yearly basis internally. Summary report of the study of FY26 is mentioned below:</p> <p>Scope 1 GHG emission: 102862 tCO₂e Scope 2 GHG emission: 126848 tCO₂e</p> <p>Carbon sequestration / Mitigation measures for reduction of carbon footprint: -</p> <p>a. Around 5000 no. of trees has been planted in and around plant premises from FY'22 till date as a part of carbon sequestration measure to mitigate the impact of GHG emission. b. Solar panels installed of 1.3 MWp capacity for plant buildings. c. Buildings designed with specially designed translucent sheets to allow natural light. d. LED lights of lower wattage installed for all bay lighting and plant area lighting. e. High power consuming Conduction reflow converted to 100% Induction reflow in both Tinning Lines. f. Variable Frequency Drives installed for drives with high KW motors, auxiliary systems, fume exhaust motors. g. Gaseous fuel (Natural gas/ Propane) has been considered as fuel for boilers of expansion project.</p>
IX	Public hearing and Human health issues:	
i	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.	Hazard identification and Risk Assessment (HIRA) is being done and based on that Emergency Preparedness plan has been prepared and approved by Chief Factory Inspector.
ii	The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.	We are providing PPEs as per the nature and requirement of the job inside our plant premises., CRM and ETL units are provided with exhaust fans, the bay is cross ventilated and the PPEs such as Safety shoe, Safety Helmet, Florescent jacket, Safety googles, ear plug, hand gloves, Shin guard etc. are provided to the employees working on shop floor.
iii	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Laborers shall be from adjacent areas and nearby villages for construction activities during expansion project. There is no provision to stay at the site. Safe drinking water, medical health care, mobile toilets, creche etc. is being provided at site. All other facilities are being provided as and when required.
X	Corporate Environment Responsibility:	
i	The project proponent shall comply with the provisions contained in this Ministry's OM vide F.NO 22-65/2017-1A.III dated 1st May 2018, as applicable regarding corporate Environment Responsibility.	Corporate Environment Responsibility is being done through our dedicated CSR team focusing the social need of nearby villages, township, school, drinking water and power requirement, health care facility, skill development programs, sports, livelihood enhancement, encouraging tribal welfare etc.
ii	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard	Tata Steel Limited have well defined environmental Policy duly approved by the Board. Environmental policy is attached as annexure 3 .

	operating procedures to have proper checks and balances and to bring into focus any infringements/violation of the environmental/ forest/wildlife norms/condition. The company shall have define system of reporting infringements/ deviation/violation of the environmental/forest/wildlife norms/ conditions and/ or/shareholders/stock holders. The copy of the board resolution in this regard shall be submitted to the MOEF & CC as a part of Six- monthly report.	
iii	A separate Environmental cell both at the project and company head quarter level, with qualified personnel shall be up under the control of senior Executive, who will directly to the head of the organization.	Tata Steel Limited has a well-constituted Environment Management Department / Cell comprising of Senior Management Executives, engineers, and officers to monitor the environmental performance and the relevant statutory compliance. The Performance and compliance of Environment, Health & Safety is reviewed on regular basis by higher management.
iv	Action plan for implementing EMP and Environmental condition along with responsibility matrix of the company shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/ Regional office along wise the six-Monthly compliance Report.	Progress on implementation of environment management plan as included in environment impact assessment report has been mentioned below- (i) Order for construction of Zero Effluent Discharge (ZED) project is placed. Civil Job is in progress. Construction of ZED project will be completed by 1 st Quarter FY'28. (ii) Mechanised Road sweeping vehicle and Water sprinkling is done on regular basis. (iii) Pollution Control Equipment will be provided as per recommendation of plant supplier/OEMs and proper stack height will be maintained. (iv) Plantation is being done in and around plant premises. (v) Environmental Monitoring is being done on periodic basis.
v	Self-environmental audit shall be conduct annually. Every three years third party environmental audit shall be carried out.	The company has a well-defined Integrated Management System (IMS) which covers all aspect of Environment Management System, Occupational Health & Safety Management System and Quality Management System. Internal audit (Self-environment audit) and third-party environmental audit of the Environment Management System is being done as a part of integrated management system on half yearly and annual basis respectively.
vi	All the recommendations made into the charter on corporate Responsibility for Environment Protection (CREP) for the plants shall be implemented.	For the process of Cold rolling mill and Tinning, there is no specific recommendation has been made under CREP.
vii	Occupational health surveillance of the workers shall be done on a regular basis and record maintained as per the Factories Act.	Occupational health surveillance of the workers is being done on a regular basis and record maintained as per the Factories Act.
XII	Miscellaneous:	
i	The project proponent shall make public the environmental clearance granted for their project along with the environmental condition and safeguards at their cost by providentially advertising it at least in two local newspapers of the	Advertisement was published in two local newspapers i.e., Chamaktaaina and The Avenue Mail on dated 05.02.2023 in Hindi and English language respectively in view of grant of Environmental Clearance. Environmental Clearance letter is also displayed on company's website. However, Prabhat Khabar and The Times of India is used for

	District or State, of which one shall be in the vernacular language within seven days and in addition this shall also displayed in the project proponent; website permanently.	advertisement of public hearing during environmental clearance process.
ii	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant officers of the Governmental who in turn has to display the same for 30 days from the date of receipt.	Copies of Environmental Clearance were submitted to local bodies and government offices to display for public notice.
iii	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and upload the same on half-yearly basis.	Half yearly compliance of environment clearance along with monitoring report is uploaded on website on half yearly basis.
iv	The project proponent shall monitoring the criteria pollutants level namely:PM10, SO2, NOx (ambient level as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convent location for the projects and display the same at a convenient location for disclosures to the public and put on the website of the company.	Ambient air quality and stack emission information is displayed at company gate for disclosure to public and the same is also put up on company's website.
v	The project proponent shall submit six monthly report on the data of the compliance of the stipulated environmental condition on the website of the ministry of environment, forest, climate change and environmental clearance porta.	Being Complied.
vi	The project proponent shall submit the environmental statement for each financial layer in Form -V to the concerned state pollution Control Board as prescribed under the Environment Protection rules, 1986, as amended subsequently and put on the website of the company	Environmental Statement (Form-V) is submitted to Jharkhand State Pollution Control Board before 30 th of September every year and it is uploaded on company's website.
vii	The project proponent shall inform the regional office as well as the ministry, the date of financial closure and financial final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.	Financial approval of expansion project from TCIL Board and Tata Steel Limited Board was done in Aug' 2021 and Feb'2022 respectively. TCIL has merged with Tata Steel Limited on 15 th Jan'2023 and the EC transfer has been obtained via. Memo No. 153 dated 16.07.2024 and issued on 24.07.2024. Civil and structural erection job of plant under expansion project is in progress at site.
viii	The project authorities must strictly adhere to the stipulations made by the state pollution Control Board and the state government	Noted.
ix	The project proponent shall abide by all the commitments and recommendations	Being complied.

	made in the EIA/EMP report, commitment made during public hearing and also that during their presentation to the expert appraisal committee	
x	No further expansion or modifications in the plant shall be carried out without prior approval of the ministry of environment forest and climate change (MoEF&CC)	Noted.
xi	Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986	Noted.
xii	The ministry may revoke or suspend the clearance, if implementation of any of the above condition is not satisfactory	Noted.
xiii	The ministry reserves the right to stipulate additional conditions if found necessary. The company in a time bound manner shall implement these conditions	Noted.
xiv	The regional office of this ministry 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.	Full cooperation will be felicitated to the officer(s) of the regional office.
xv	The above conditions shall be in forced inter alia under the provisions of the Water (Prevention and control of pollution) Act 1974, the Air (Prevention and control of pollution) Act 1981, the Environment(Protection) Act 1986, Hazardous and other waste (Management and Transboundary Movement)Rules 2016 and the public Liability Insurance Act along with their amendments and Rules and any other orders passed by the honourable Supreme Court of India / High Courts and any other court of law relating to the subject matter.	All applicable acts are being complied.
xvi	Any appeal against the environmental clearance shall lie with the National Green Tribunal, if preferred within a period of 30 days as prescribed under section 16 of the National Green Tribunal Act ,2010	Noted.
XII	Other Conditions	
i	The Authority reserves the right to add and any new conditions or modify the above conditions or to revoke the clearance if conditions stipulated above are not implemented to the satisfaction of Authority or for that matter for any	Noted.

	other administrative reason.	
ii	In view of the latest MOEF notification dated-12.04.2022, validity of EC shall be for a period of 10 Years.	Noted.
iii	In case of any deviation or alteration in the project post from those submitted to SEIAA ,Jharkhand for clearance, a fresh reference should be made to SEIAA to access the adequacy of the conditions in post and to incorporate any new conditions if required	Noted.

Annexure1 (a) Covered Shed for Storage of Crushed Coal



Annexure1 (b) Solar panels at mills rooftop & energy conservation measures



Solar panel at Printing & Lacquering Line



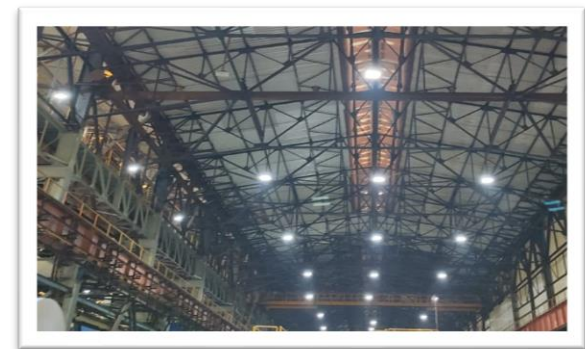
Solar panel at Cold Rolling Mill



Solar panel at Temper



Solar panel at Coil Preparation Line



LED light at all Mill & Process Bays



Vergola Air Ventilation



Variable Frequency Drive for all Mill and process line motors



Capacitor Bank

Annexure 1 (c) Plantation inside works and its Surroundings.



Fig 1 – Behind Propane Yard Area



Fig 2 – Behind Propane Yard Area



Fig. 3 Truck Parking Area



Fig. 4 – Timplate Golf Course (Miyawaki Plantation)



Fig 5 – Township (Tinplate Sports Complex Road)

Annexure 1 (d) Compost Making Machine



Annexure 1 (e) Tinsplate Sewage Pumping Station (4.25 MLD)



Annexure 1 (f) Rainwater Harvesting Structures



(4 No. Recharging pit of size 8 m x 5.5 m x 3 m with 4 No. of desilting chamber of size 4 m x 1 m x 1.2 m along with 14 no. of recharging borewells)

Annexure 1 (g) Measures to control fugitive emissions



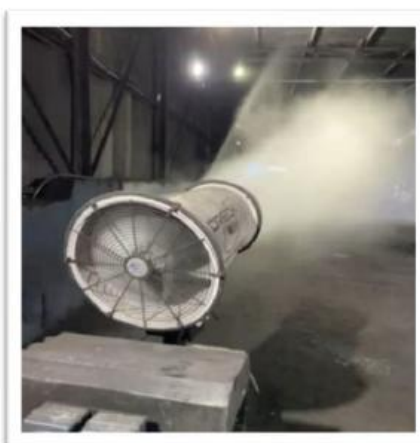
Mechanized Vacuum Cleaning Vehicle



Mobile Water Sprinkling



Water Sprinkler



Dry fog system



Paver Blocks on loose soil

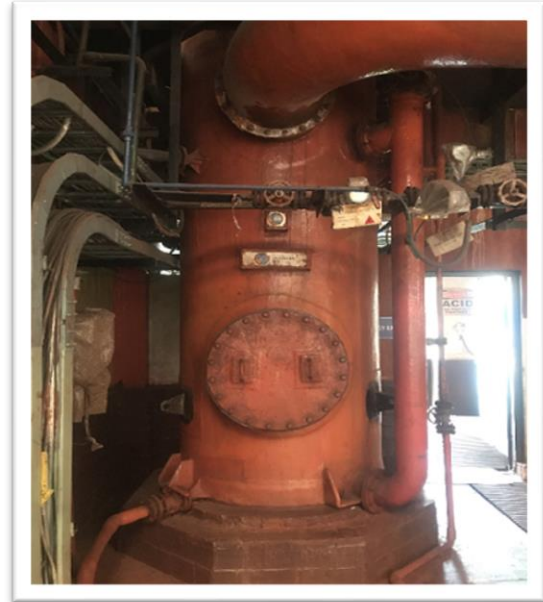


Plantation Drives

Annexure 1 (h) Pollution Control Equipment & Continuous Emission Monitoring System (CEMS)



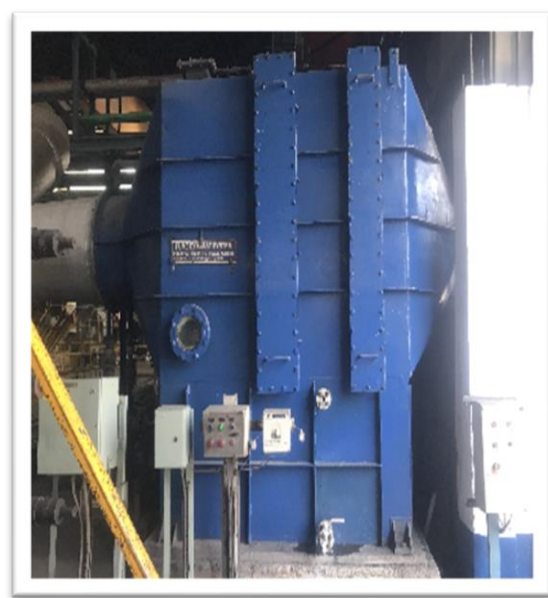
Scrubber at Pickling



Scrubber at ARP



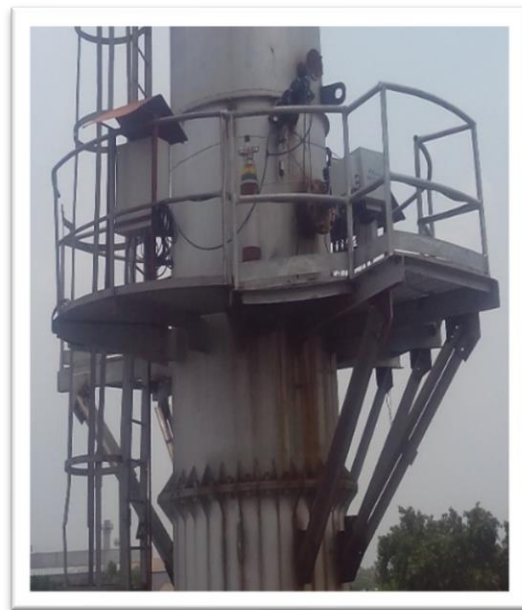
FES at CRM



Scrubber at ECL



Electrostatic Precipitator (ESPs)
at Boiler Stack



Continuous Emission Monitoring
System at Boiler Stack (CEMS)

← → ↻ jsacjarkhand.gov.in/pollution/index.aspx

Click PM10 Analyzer

Jharkhand State Pollution Control Board

Home Dashboard Day Wise Data Month Wise Data Industry Detail Industry Category Star Registration Add Category/Parameter Login

Logout

Vendor: Forbes Marshall Industry: The Tinsplate Compar Station ID: UNIT81 Analyzer ID: D001 Select Date: 2023-11-12

Get Data Export

42 Records Found

Sl. No	Industry Name	stationId	analyserId	Parameter	Process Value	Unit	Submitted Date	Timestamp of Analyser
1	The Tinsplate Company of India Ltd	UNIT81	D001	nox	97.00	ppm	13-11-2023 04:14:04	2023-11-12 05:45:00
2	The Tinsplate Company of India Ltd	UNIT81	D001	so2	223.42	ppm	13-11-2023 04:02:20	2023-11-12 05:45:00
3	The Tinsplate Company of India Ltd	UNIT81	D001	nox	97.00	ppm	13-11-2023 03:23:56	2023-11-12 05:30:00
4	The Tinsplate Company of India Ltd	UNIT81	D001	so2	226.18	ppm	13-11-2023 03:14:25	2023-11-12 05:30:00
5	The Tinsplate Company of India Ltd	UNIT81	D001	PM	49.42	mg/Nm3	12-11-2023 23:48:37	2023-11-12 23:30:00
6	The Tinsplate Company of India Ltd	UNIT81	D001	so2	110.00	ppm	12-11-2023 23:04:15	2023-11-12 22:45:00
7	The Tinsplate Company of India Ltd	UNIT81	D001	so2	168.10	ppm	12-11-2023 22:48:58	2023-11-12 22:30:00
8	The Tinsplate Company of India Ltd	UNIT81	D001	PM	49.40	mg/Nm3	12-11-2023 22:03:33	2023-11-12 21:15:00
9	The Tinsplate Company of India Ltd	UNIT81	D001	PM	50.58	mg/Nm3	12-11-2023 21:04:31	2023-11-12 20:45:00
10	The Tinsplate Company of India Ltd	UNIT81	D001	PM	48.21	mg/Nm3	12-11-2023 20:48:31	2023-11-12 20:30:00

Online data transfer from CEMS of Boiler stack

Annexure1 (i) Effluent Treatment Plants & Wastewater Recycling System

Effluent Treatment Plants



WWTPs at CRM



ETP at ETL

Wastewater Recycling Systems



ARP



ECL Rinse based DM Plant



ETL Rinse based DM Plant

Annexure-2 (Monitoring Report)
AMBIENT AIR QUALITY MONITORING REPORT

Location 1: Analyser room, Near Gate No-6

(Based on NABL accredited Laboratory report)

Parameter	Unit	Oct' 25	Nov '25	Dec '25	Jan '26	Feb '26	Mar '26
Particulate Matter,PM 10	ug/m3	78	80	118	132	124	133
Particulate Matter,PM 2.5	ug/m3	42	45	67	73	70	66
Sulphur Dioxide (SO2)	ug/m3	16.7	17.4	18.4	20.8	24.8	24.7
Nitrogen Dioxide (NO2)	ug/m3	32.6	32.9	33.7	35.1	42.4	36.5
OZONE (O3)	mg/m3	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Ammonia (NH3)	ug/m3	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Carbon Monoxide (CO)	ug/m3	1.22	1.26	1.08	1.02	1.05	1.08
Nickel(Ni)	ng/m3	0.038	0.035	0.031	0.027	0.032	0.038
Arsenic (As)	ng/m3	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
Lead (Pb)	ug/m3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Benzene (C6H6)	ug/m3	<2.5	<3.5	<3.5	<3.5	<3.5	<3.5
Benzo alpha Pyrene (BaP)	ng/m3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Location 2: Near CRM Solar Pond

Parameter	Unit	Oct' 25	Nov '25	Dec '25	Jan '26	Feb '26	Mar '26
Particulate Matter,PM 10	ug/m3	71	75	98	113	107	116
Particulate Matter,PM 2.5	ug/m3	38	40	56	64	61	60
Sulphur Dioxide (SO2)	ug/m3	11.5	11.8	14.5	15.3	13.7	14.4
Nitrogen Dioxide (NO2)	ug/m3	27.2	28.1	29.2	26.2	30.1	24.3
Carbon Monoxide (CO)	mg/m3	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Ammonia (NH3)	ug/m3	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
OZONE (O3)	ug/m3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel(Ni)	ng/m3	0.017	0.014	0.018	<0.002	<0.002	<0.002
Arsenic (As)	ng/m3	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
Lead (Pb)	ug/m3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Benzene (C6H6)	ug/m3	<2.5	<2.5	<3.5	<3.5	<3.5	<3.5
Benzo alpha Pyrene (BaP)	ng/m3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Tata Steel Limited, Tinplate Division

Annexure-2 (Monitoring Report)

Location 3: Near General Office Lawn

Parameter	Unit	Oct' 25	Nov '25	Dec '25	Jan '26	Feb '26	Mar '26
Particulate Matter,PM 10	ug/m3	67	62	81	91	86	104
Particulate Matter,PM 2.5	ug/m3	34	30	45	52	49	57
Sulphur Dioxide (SO2)	ug/m3	10.2	9.7	9.3	11.7	12.2	12.5
Nitrogen Dioxide (NO2)	ug/m3	22.5	21.3	22.7	23.5	22.8	20.8
Carbon Monoxide (CO)	mg/m3	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Ammonia (NH3)	ug/m3	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
OZONE (O3)	ug/m3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel(Ni)	ng/m3	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Arsenic (As)	ng/m3	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
Lead (Pb)	ug/m3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Benzene (C6H6)	ug/m3	<2.5	<2.5	<3.5	<3.5	<3.5	<3.5
Benzo alpha Pyrene (BaP)	ng/m3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Location 4: Expansion Area

Parameter	Unit	Oct' 25	Nov '25	Dec '25	Jan '26	Feb '26	Mar '26
Particulate Matter,PM 10	ug/m3	89	84	128	147	139	140
Particulate Matter,PM 2.5	ug/m3	49	51	74	82	77	74
Sulphur Dioxide (SO2)	ug/m3	18.8	19.3	20.1	23.4	21.5	29.6
Nitrogen Dioxide (NO2)	ug/m3	35.9	36.5	37.4	39.3	38.7	36.8
Carbon Monoxide (CO)	mg/m3	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Ammonia (NH3)	ug/m3	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
OZONE (O3)	ug/m3	1.12	1.15	1.12	1.07	1.02	1.04
Nickel(Ni)	ng/m3	0.031	0.028	0.036	0.044	0.038	0.032
Arsenic (As)	ng/m3	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
Lead (Pb)	ug/m3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Benzene (C6H6)	ug/m3	<2.5	<2.5	<3.5	<3.5	<3.5	<3.5
Benzo alpha Pyrene (BaP)	ng/m3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Annexure-2 (Monitoring Report)

CONTINUOUS AMBIENT AIR QUALITY MONITORING REPORT

CAAQM STATION	Parameter	Unit	Oct' 25	Nov '25	Dec '25	Jan '26	Feb '26	Mar '26
Analyser Room, Near gate no-6	Particulate Matter, PM 10	µg/m ³	53	52	82	99	185	150
	Particulate Matter, PM 2.5	µg/m ³	12	9	24	33	56	50
	Sulphur Dioxide (SO ₂)	µg/m ³	47.91	39.65	64.19	49.90	43.26	55.51
	Nitrogen Dioxide (NO ₂)	µg/m ³	55.03	86.17	67.38	57.44	50.70	35.03

Note: Monthly average data

FUGITIVE EMISSION REPORT

(Based on NABL accredited Laboratory report)

Location	Parameter	Unit	Oct' 25	Nov '25	Dec '25	Jan '26	Feb '26	Mar '26
Boiler Coal Storage Area	Particulate Matter	ug/m ³	335	367	389	415	368	361
	Sulphur Dioxide (SO ₂)	ug/m ³	14.9	14.3	15.7	18.9	16.3	15.1
	Nitrogen Dioxide (NO ₂)	ug/m ³	31.5	30.7	31.4	33.1	29.5	28.6
Secondary Product Area/Yard	Particulate Matter	ug/m ³	168	183	183	237	197	192
	Sulphur Dioxide (SO ₂)	ug/m ³	12.7	12.1	12.5	14.3	13.5	14.2
	Nitrogen Dioxide (NO ₂)	ug/m ³	25.1	26.8	27.2	29.5	25.3	26.7

STACK EMISSION MONITORING REPORT

Boiler Stacks (Based on NABL accredited Laboratory report)

Stack Name	Parameter	Unit	Oct' 25	Nov '25	Dec25	Jan'26	Feb '26	Mar '26
Boiler Stack-1	Particulate Matter (PM)	mg/Nm ³	47	45	41	46	43	46
	Sulphur Dioxide (SO ₂)	mg/Nm ³	291	287	268	282	274	168
	Nitrogen Dioxide (NO _x)	mg/Nm ³	76	71	53	62	68	71
Boiler Stack-2	Particulate Matter (PM)	mg/Nm ³	31	40	34	37	33	36
	Sulphur Dioxide (SO ₂)	mg/Nm ³	265	259	245	223	239	216
	Nitrogen Dioxide (NO _x)	mg/Nm ³	59	64	61	54	62	55

Online monitoring report of Boiler Stack

Stack Name	Parameter	Unit	Oct' 25	Nov '25	Dec 25	Jan'26	Feb '26	Mar '26
Boiler Stack-1	Particulate Matter (PM)	mg/Nm ³	66.01	80.92	61.67	68.82	64.73	83.12
	Sulphur Dioxide (SO ₂)	ppm	204.74	431.52	245.31	222.64	178.16	
	Nitrogen Dioxide (NO _x)	ppm	154.08	150.61	199.05	198.04	92.53	
Boiler Stack-2	Particulate Matter (PM)	mg/Nm ³	67	86.88	57.82	72.02	66.13	81.9
	Sulphur Dioxide (SO ₂)	ppm	104.31	220.08	230.42	217.48	217.1	
	Nitrogen Dioxide (NO _x)	ppm	229.91	401.55	197.5	179.38	179.1	

Note: - Monthly Average Data

Tata Steel Limited, Tinplate Division

Annexure-2 (Monitoring Report)

Mills Stack (Based on NABL accredited Laboratory report)

Stack Name	Parameter	Unit	Oct' 25	Nov '25	Dec 25	Jan'26	Feb '26	Mar '26
Pickling-1	Particulate Matter (PM)	mg/Nm ³	20.8	8	7	9	16	8
Pickling-2	Particulate Matter (PM)	mg/Nm ³	18.6	9	7	7	8	11
ARP	Particulate Matter (PM)	mg/Nm ³	<5.0	9	9	10	5	20
6 Hi Mill	Particulate Matter (PM)	mg/Nm ³	14.6	9	8	9	7	10
ECL Mill	Particulate Matter (PM)	mg/Nm ³	20.6	7	8			8
Temper Mill	Particulate Matter (PM)	Mg/Nm ³	12.6	7	7		9	7

Batch Annealing Furnace Stack(Based on NABL accredited Laboratory report)

Stack Name	Parameter	Unit	Oct' 25	Nov '25	Dec 25	Jan'26	Feb '26	Mar '26
Annealing – 1 (Fuel – Propane)	Particulate Matter (PM)	mg/Nm ³	7	8	7	9	8	13
	Sulphur Dioxide (SO ₂)	mg/Nm ³	<3	<3	<3	<3	<3	<3
	Nitrogen Dioxide (NO _x)	mg/Nm ³	<2	<2	<2	<2	<2	<2
Annealing – 2 (Fuel – Propane)	Particulate Matter (PM)	mg/Nm ³	9	6	6	12	10	12
	Sulphur Dioxide (SO ₂)	mg/Nm ³	<3	<3	<3	<3	<3	<3
	Nitrogen Dioxide (NO _x)	mg/Nm ³	<2	<2	<2	<2	<2	<2

Annexure-2 (Monitoring Report)

AMBIENT NOISE MONITORING

(Based on NABL accredited Laboratory report)

Month	Location	Day	Night
Oct'25	Analyser Room	63	49
	CRM solar Pond	61	46
	General Office Lawn	55	43
	Expansion Area	68	50
Nov'25	Analyser Room	64	47
	CRM solar Pond	60	45
	General Office Lawn	54	43
	Expansion Area	66	49
Dec'25	Analyser Room	65	48
	CRM solar Pond	62	46
	General Office Lawn	55	42
	Expansion Area	68	50
Jan'26	Analyser Room	64	49
	CRM solar Pond	63	47
	General Office Lawn	58	44
	Expansion Area	65	52
Feb'26	Analyser Room	66	51
	CRM solar Pond	62	46
	General Office Lawn	59	44
	Expansion Area	67	53
Mar'26	Analyser Room	68	54
	CRM solar Pond	65	49
	General Office Lawn	54	42
	Expansion Area	71	63

Annexure-2 (Monitoring Report)

WASTEWATER INLET & OUTLET QUALITY REPORT

CRM Inlet & Outlet wastewater quality report (Based on NABL accredited Laboratory report)

CRM Water	Parameters	Oct'25	Nov'25	Dec'25	Jan'26	Feb'26	Mar'26
CRM Inlet (Alkali Waste water)	pH	11.2	10.8	12.3	11.7	10.2	11.7
	Total Suspended Solids (TSS)	923	779	830	989	890	925
	Chemical Oxygen Demand (COD)	2300	1885	2178	1828	1920	2309
	Biochemical Oxygen Demand (BOD)	410	382	464	343	423	414
	Oil & Grease	116	134	98	123.6	110	121
CRM Inlet (Emulsified Waste Water)	pH	6.09	5.45	6.4	5.2	5.77	5.93
	Total Suspended Solids (TSS)	1105	1138	890	1201	978	974
	Chemical Oxygen Demand (COD)	3345	2986	2756	3021	2865	2831
	Biochemical Oxygen Demand (BOD)	543	564	421	609	471	480
	Oil & Grease	130	118	138	115	123	128
CRM Inlet (Acidic Rinse Waste Water)	pH	2.5	2.1	1.3	1.7	1.9	2.6
	Total Suspended Solids (TSS)	15.5	17.2	14.6	18.2	16.5	15
	Chemical Oxygen Demand (COD)	1323	1276	1180	1220	1262	1301
	Biochemical Oxygen Demand (BOD)	224	253	189	245	204	220
	Oil & Grease	39	45	43.2	38.2	41.2	40
CRM Outlet (Treated waste water from WWTP)	pH	6.89	7.4	6.1	7.28	7.2	7.2
	Total Suspended Solids (TSS)	69	57	76	58.9	66.4	67
	Chemical Oxygen Demand (COD)	208	237	195.5	237.7	212	226
	Biochemical Oxygen Demand (BOD)	23	19.8	27.5	20.6	21	20
	Oil & Grease	7.9	6.2	8.6	6.5	5.9	6

Annexure-2 (Monitoring Report)

ETL Inlet & Outlet wastewater quality report (Based on NABL accredited Laboratory report)

ETL Water	Parameters	Oct'25	Nov'25	Dec'25	Jan'26	Feb'26	Mar'26
ETL Inlet (C5 Tank Waste Water)	pH	6.8	7.8	8.3	6.4	7.1	7.4
	Total Suspended Solids (TSS)	523	498	612	562.7	560.3	472.5
	Chemical Oxygen Demand (COD)	921	903	832	898	860	912
	Biochemical Oxygen Demand (BOD)	154	132	161	122	118	123
	Oil & Grease	26	23.6	20.6	20.6	22.9	24
	Hexavalent Chromium as Cr+6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Total Chromium as Cr	2.4	1.6	2	1.7	1.5	1.6
ETL Inlet (C6 Tank Waste Water)	pH	2.9	3	1.6	2.43	3.7	3
	Total Suspended Solids (TSS)	62	71	49	66	55.2	62
	Chemical Oxygen Demand (COD)	210	202	178.7	205.4	186	183
	Biochemical Oxygen Demand (BOD)	39	45	43.2	38.45	37.9	39
	Oil & Grease	7.2	7.6	8.7	6.84	7.2	8
	Hexavalent Chromium as Cr+6	0.119	0.107	0.12	0.108	0.105	0.106
	Total Chromium as Cr	9.12	8.78	7.93	8.46	9.1	9.09
ETL Outlet (Treated Waste Water from ETP)	pH	6.99	7.5	7.16	6.58	7.29	7
	Total Suspended Solids (TSS)	64	56	67	55.2	48.8	50
	Chemical Oxygen Demand (COD)	180	201	187	178	189	191
	Biochemical Oxygen Demand (BOD)	22.3	19.8	24.5	20.9	20.1	21
	Oil & Grease	6.3	5.9	5.3	7.01	6.95	6
	Hexavalent Chromium as Cr+6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Total Chromium as Cr	<0.03	<0.03	<0.03	<0.03	<0.03	0.409

Treated Effluent Final Discharge (Based on NABL accredited Laboratory report)

Final Discharge	Parameters	Oct'25	Nov'25	Dec'25	Jan'26	Feb'26	Mar'26
Treated effluent discharge (Kadani drain)	pH	7.5	6.2	6.03	7.12	6.5	7.53
	Total Suspended Solids (TSS)	42	53	63.7	49.6	47.4	42.49
	Chemical Oxygen Demand (COD)	154	173	135.3	145.4	147.5	156.2
	Biochemical Oxygen Demand (BOD)	17	19.4	17.9	20.5	18.6	14.2
	Oil & Grease	5.1	5.7	6.2	5.8	5.3	5.4
	Hexavalent Chromium as Cr+6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Total Chromium as Cr	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03

Online Treated Effluent Final Discharge Report

Parameter	Unit	Oct' 25	Nov '25	Dec '25	Jan '26	Feb '26	Mar '26
pH		6.75	6.64	6.84	6.87	6.95	7.13
TSS	mg/l	13.66	17.8	24.36	17.39	44.85	42.78

Note:- Monthly Average Data

Annexure-2 (Monitoring Report)
GROUNDWATER ANALYSIS REPORT

(Based on NABL accredited Laboratory report)

Sl. No.	Parameters	UOM	Location: Near Kadani Road Sampling Date:	Location: Near Propane Yard Sampling Date:
i	pH		7.27	6.61
ii	Conductivity	uS/cm	662	438
iii	TDS	mg/l	383	297
iv	Total Hardness	mg/l	322	191
v	Colour	Hazen	BLQ	1.9
vi	Chloride	mg/l	42.6	28.3
vii	Sulphate	mg/l	33.7	98
viii	Nitrate	mg/l	28.7	13
ix	Total Alkalinity	mg/l	170	98.8
x	Fluoride	mg/l	0.52	BLQ
xi	Calcium as Ca	mg/l	103	49.1
xii	Oil and Grease	mg/l	BLQ	BLQ
xiii	Magnesium as Mg	mg/l	15.8	17.0
xiv	Sodium as Na	mg/l	43.2	9.2
xv	Potassium as K	mg/l	2.68	2.8
xvi	Total Phosphate	mg/l	0.27	BLQ
xvii	Pesticide	Ug/l	BLQ	BLQ
xviii	Lead as Pb	mg/l	BLQ	BLQ
xix	Cadmium as Cd	mg/l	BLQ	BLQ
xx	Total Cr	mg/l	BLQ	BLQ
xxi	Copper as Cu	mg/l	BLQ	BLQ
xxii	Manganese as Mn	mg/l	BLQ	BLQ
xxiii	Nickel as Ni	mg/l	BLQ	BLQ
xxiv	Zinc as Zn	mg/l	BLQ	BLQ
xxv	Mercury as Hg	mg/l	BLQ	BLQ
xxvi	Arsenic as As	mg/l	BLQ	BLQ
xxvii	Iron as Fe	mg/l	BLQ	0.243
xxviii	Cyanide as CN	mg/l	BLQ	BLQ



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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999MH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02906	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002832F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/AA/03264
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: Near Analyser Room, Gate No.- 6
		Sampling Date	: 23.03.2026 to 24.03.2026
Plant Status	: Operational	Sample Received Date	: 30.03.2026
Period of Analysis	: 30.03.2026 to 06.04.2026	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 86°14'03.15"E	6	Latitude	: 22°47'33.58"N

Discipline : Chemical		Group : Atmospheric Pollution		Regulatory Limit
Parameter	Unit	Test Protocol	Result	As per NAAQS- 2009 (CPCB Notification).
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	133	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	66	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	24.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	36.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.08	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.038	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<3.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)

Lusma Yadav
Reviewed by

****End of Report****

Dr. Deependra Kumar Sinha
Authorised Signatory
Dr. Deependra Kumar Sinha
Ph.D. Environmental Engg.
Technical Manager

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GST NO:- 20AAECE9713D124

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011275

TEST REPORT

Test Report No. : ELES/RNC/2026/02907	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002833F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/AA/03265
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: Near CRM Solar Pond
		Sampling Date	: 23.03.2026 to 24.03.2026
Plant Status	: Operational	Sample Received Date	: 30.03.2026
Period of Analysis	: 30.03.2026 to 06.04.2026	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 86°14'03.56"E	6	Latitude	: 22°47'48.04"N

Discipline : Chemical		Group : Atmospheric Pollution		Regulatory Limit
Parameter	Unit	Test Protocol	Result	As per NAAQS- 2009 (CPCB Notification).
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	116	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	60	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	14.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	24.3	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<3.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Susma Yadav
Reviewed by

****End of Report****

Dr. Deependra Kumar Sinha
Authorized Signatory
Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.

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GST NO:- 20AAECE9713D124

Email: info@elespl.co.in , eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02908	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002834F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/AA/03266
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: Near General Office Lawn
		Sampling Date	: 23.03.2026 to 24.03.2026
Plant Status	: Operational	Sample Received Date	: 30.03.2026
Period of Analysis	: 30.03.2026 to 06.04.2026	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 86°13'39.37"E	6	Latitude	: 22°47'27.47"N

Discipline : Chemical		Group : Atmospheric Pollution		Regulatory Limit
Parameter	Unit	Test Protocol	Result	As per NAAQS- 2009 (CPCB Notification).
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	104	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	57	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	12.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	20.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<3.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Deependra Kumar Sinha
Reviewed by

****End of Report****

Deependra Kumar Sinha
Authorised Signatory
Dr. Deependra Kumar Sinha
Ph.D. Environmental Engg.
Technical Manager

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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles_ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2019PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02909	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002835F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/AA/03267
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: Near Expansion Area
		Sampling Date	: 24.03.2026 to 25.03.2026
Plant Status	: Operational	Sample Received Date	: 30.03.2026
Period of Analysis	: 30.03.2026 to 06.04.2026	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 86°14'07.31"E	6	Latitude	: 22°47'34.07"N

Discipline : Chemical		Group : Atmospheric Pollution		Regulatory Limit
Parameter	Unit	Test Protocol	Result	As per NAAQS- 2009 (CPCB Notification).
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	140	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	74	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	29.6	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	36.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	1.04	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.032	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<3.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Susana Yadav
Reviewed by

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Dr. Deependra Kumar Sinha
Authorised Signatory
Dr. Deependra Kumar Sinha
Technical Manager

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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2013PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02911	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002837F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/FA/03272
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: Coal Storage at Boiler
		Sampling Date	: 24.03.2026
Plant Status	: Operational	Sample Received Date	: 30.03.2026
Period of Analysis	: 30.03.2026 to 02.04.2026	Type of Sample	: Fugitive Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 34	2	Barometric Pressure (mmHg) : 743
3	Relative Humidity (%) : 60	4	Weather Condition : Clear

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result
Suspended Particulate Matter (SPM)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-4): 2019	361
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2/Sec1): 2023	15.1
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2022	28.6


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Ph. D. Environmental Engg.
Technical Manager

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GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



TC-13587

TEST REPORT

Test Report No. : ELES/RNC/2026/02912	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002838F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/FA/03273
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: Secondary Product Area
		Sampling Date	: 24.03.2026
Plant Status	: Operational	Sample Received Date	: 30.03.2026
Period of Analysis	: 30.03.2026 to 02.04.2026	Type of Sample	: Fugitive Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result
Suspended Particulate Matter (SPM)	µg/m ³	IS 5182 (Part-4): 2019	192
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2/Sec1): 2023	14.2
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2022	26.7

Susana Yadav
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Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
Technical Manager

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GST NO:- 20AAECE9713D1Z4

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02913	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002839F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/SM/03274
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: 6Hi-1 Mill Stack
		Sampling Date	: 24.03.2026
Plant Status	: Operational	Sample Received Date	: 30.03.2026
Period of Analysis	: 30.03.2026 to 04.04.2026	Type of Sample	: Flue Gas
		Sampling Procedure	: ELES/DOC/SMPL/02(A)
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

GENERAL INFORMATION- (Data Provided by Customer)

1	Particular of the Plant	: 6Hi-1
2	Emission Due to	: Cold Rolling of Steel Coils
3	Stack Connected to	: FES/Dust Catcher
4	Material of Construction of Stack	: MS
5	Stack Height from Ground Level (m)	: 30
6	Height of Sampling Port from Ground Level (m)	: 25
7	Inner Diameter of Stack at Sampling Point (m)	: 1.9
8	Shape of the Stack	: Circular
9	Working Load of the Stack	: N/A
10	Pollution Control System	: Mist Eliminator/FES
11	Ladder & Platform	: Permanent

FUEL CHARACTERISTICS DETAILS

1	Type of Fuel Used	: N/A
2	Fuel Consumption	: N/A
3	Calorific Value of Fuel (Kcal/Kg)	: N/A



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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



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TEST REPORT

Test Report No. : ELES/RNC/2026/02913	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002839F	

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Results
Particulate Matter (PM)	mg/Nm ³	IS 11255(Part-1): 2019	10
Sulphur Di-Oxide (SO ₂)	mg/Nm ³	US EPA 6C: 2017	BDL (DL: 3.0)
Oxides of Nitrogen (NO _x)	mg/Nm ³	US EPA 7E: 2020	BDL (DL: 2.0)
Flue Gas Temperature	°C	IS 11255 (Part-3): 2018	34
Barometric Pressure	mmHg	IS 11255 (Part-3): 2018	743
Velocity of Flue Gas	m/sec	IS 11255 (Part-3): 2018	7.56
Quantity of Gas Flow	Nm ³ /hr	IS 11255 (Part-3): 2018	68915


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Ph. D. Environmental Engg.
Technical Manager

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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE971301Z4

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website: www.elespl.co.in



TC-13587

TEST REPORT

Test Report No. : ELES/RNC/2026/02914	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002840F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/SM/03275
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: 6Hi-2 Mill Stack
		Sampling Date	: 24.03.2026
Plant Status	: Operational	Sample Received Date	: 30.03.2026
Period of Analysis	: 30.03.2026 to 04.04.2026	Type of Sample	: Flue Gas
		Sampling Procedure	: ELES/DOC/SMPL/02(A)
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

GENERAL INFORMATION- (Data Provided by Customer)	
1	Particular of the Plant : 6Hi-2
2	Emission Due to : Cold Rolling of Steel Coils
3	Stack Connected to : FES/Dust Catcher
4	Material of Construction of Stack : MS
5	Stack Height from Ground Level (m) : 30
6	Height of Sampling Port from Ground Level (m) : 10
7	Inner Diameter of Stack at Sampling Point (m) : 2.15
8	Shape of the Stack : Circular
9	Working Load of the Stack : N/A
10	Pollution Control System : Mist Eliminator/FES
11	Ladder & Platform : Permanent

FUEL CHARACTERISTICS DETAILS

1	Type of Fuel Used	: N/A
2	Fuel Consumption	: N/A
3	Calorific Value of Fuel (Kcal/Kg)	: N/A

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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02914	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002840F	

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Results
Particulate Matter (PM)	mg/Nm ³	IS 11255(Part-1): 2019	8
Sulphur Di-Oxide (SO ₂)	mg/Nm ³	US EPA 6C: 2017	BDL (DL: 3.0)
Oxides of Nitrogen (NO _x)	mg/Nm ³	US EPA 7E: 2020	BDL (DL: 2.0)
Flue Gas Temperature	°C	IS 11255 (Part-3): 2018	36
Barometric Pressure	mmHg	IS 11255 (Part-3): 2018	743
Velocity of Flue Gas	m/sec	IS 11255 (Part-3): 2018	11.91
Quantity of Gas Flow	Nm ³ /hr	IS 11255 (Part-3): 2018	156862

Susmo Yadav
Reviewed by

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Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
Technical Manager

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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAEC97130124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02915	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002841F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Timplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/SM/03276
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: ECL-1
Plant Status	: Operational	Sampling Date	: 27.03.2026
Period of Analysis	: 30.03.2026 to 04.04.2026	Sample Received Date	: 30.03.2026
		Type of Sample	: Flue Gas
		Sampling Procedure	: ELES/DOC/SMPL/02(A)
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

GENERAL INFORMATION- (Data Provided by Customer)

1	Particular of the Plant	: ECL-1
2	Emission Due to	: Cleaning of Steel Coils
3	Stack Connected to	: Scrubber
4	Material of Construction of Stack	: MS
5	Stack Height from Ground Level (m)	: 30.0
6	Height of Sampling Port from Ground Level (m)	: 14.0
7	Inner Diameter of Stack at Sampling Point (m)	: 0.8
8	Shape of the Stack	: Circular
9	Working Load of the Stack	: N/A
10	Pollution Control System	: Scrubber
11	Ladder & Platform	: Permanent

FUEL CHARACTERISTICS DETAILS

1	Type of Fuel Used	: N/A
2	Fuel Consumption	: N/A
3	Calorific Value of Fuel (Kcal/Kg)	: N/A



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GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02915	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002841F	

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Results
Particulate Matter (PM)	mg/Nm ³	IS 11255(Part-1): 2019	8
Sulphur Di-Oxide (SO ₂)	mg/Nm ³	US EPA 6C: 2017	BDL (DL: 3.0)
Oxides of Nitrogen (NO _x)	mg/Nm ³	US EPA 7E: 2020	BDL (DL: 2.0)
Flue Gas Temperature	°C	IS 11255 (Part-3): 2018	53
Barometric Pressure	mmHg	IS 11255 (Part-3): 2018	743
Velocity of Flue Gas	m/sec	IS 11255 (Part-3): 2018	8.12
Quantity of Gas Flow	Nm ³ /hr	IS 11255 (Part-3): 2018	11998


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Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
Technical Manager

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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02916	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002842F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/SM/03277
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: ECL-2
Plant Status	: Operational	Sampling Date	: 25.03.2026
Period of Analysis	: 30.03.2026 to 04.04.2026	Sample Received Date	: 30.03.2026
		Type of Sample	: Flue Gas
		Sampling Procedure	: ELES/DOC/SMPL/02(A)
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

GENERAL INFORMATION- (Data Provided by Customer)

1	Particular of the Plant	: ECL-2
2	Emission Due to	: Cleaning of Steel Coils
3	Stack Connected to	: Scrubber
4	Material of Construction of Stack	: MS
5	Stack Height from Ground Level (m)	: 30.0
6	Height of Sampling Port from Ground Level (m)	: 14.0
7	Inner Diameter of Stack at Sampling Point (m)	: 0.9
8	Shape of the Stack	: Circular
9	Working Load of the Stack	: N/A
10	Pollution Control System	: Scrubber
11	Ladder & Platform	: Permanent

FUEL CHARACTERISTICS DETAILS

1	Type of Fuel Used	: N/A
2	Fuel Consumption	: N/A
3	Calorific Value of Fuel (Kcal/Kg)	: N/A



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ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02916	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002842F	

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Results
Particulate Matter (PM)	mg/Nm ³	IS 11255(Part-1): 2019	7
Sulphur Di-Oxide (SO ₂)	mg/Nm ³	US EPA 6C: 2017	BDL (DL: 3.0)
Oxides of Nitrogen (NO _x)	mg/Nm ³	US EPA 7E: 2020	BDL (DL: 2.0)
Flue Gas Temperature	°C	IS 11255 (Part-3): 2018	54
Barometric Pressure	mmHg	IS 11255 (Part-3): 2018	743
Velocity of Flue Gas	m/sec	IS 11255 (Part-3): 2018	8.33
Quantity of Gas Flow	Nm ³ /hr	IS 11255 (Part-3): 2018	14566


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Ph. D. Environmental Engg.
Technical Manager

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GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02917	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002843F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/SM/03278
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: Temper Mill-1
Plant Status	: Operational	Sampling Date	: 24.03.2026
Period of Analysis	: 30.03.2026 to 04.04.2026	Sample Received Date	: 30.03.2026
		Type of Sample	: Flue Gas
		Sampling Procedure	: ELES/DOC/SMPL/02(A)
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

GENERAL INFORMATION- (Data Provided by Customer)	
1	Particular of the Plant : Temper Mill-1
2	Emission Due to : Temper Rolling of Steel Coils
3	Stack Connected to : FES/Dust Catcher
4	Material of Construction of Stack : MS
5	Stack Height from Ground Level (m) : 30
6	Height of Sampling Port from Ground Level (m) : 24
7	Inner Diameter of Stack at Sampling Point (m) : 1.4
8	Shape of the Stack : Circular
9	Working Load of the Stack : N/A
10	Pollution Control System : FES/Dust Collector
11	Ladder & Platform : Permanent

FUEL CHARACTERISTICS DETAILS	
1	Type of Fuel Used : N/A
2	Fuel Consumption : N/A
3	Calorific Value of Fuel (Kcal/Kg) : N/A

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GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02917	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002843F	

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Results
Particulate Matter (PM)	mg/Nm ³	IS 11255(Part-1): 2019	7
Sulphur Di-Oxide (SO ₂)	mg/Nm ³	US EPA 6C: 2017	BDL (DL: 3.0)
Oxides of Nitrogen (NO _x)	mg/Nm ³	US EPA 7E: 2020	BDL (DL: 2.0)
Flue Gas Temperature	°C	IS 11255 (Part-3): 2018	39
Barometric Pressure	mmHg	IS 11255 (Part-3): 2018	743
Velocity of Flue Gas	m/sec	IS 11255 (Part-3): 2018	6.28
Quantity of Gas Flow	Nm ³ /hr	IS 11255 (Part-3): 2018	32948


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Technical Manager

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GST NO:- 20AAECE97130124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02918	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002844F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/SM/03279
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: Temper Mill-2
		Sampling Date	: 27.03.2026
Plant Status	: Operational	Sample Received Date	: 30.03.2026
Period of Analysis	: 30.03.2026 to 04.04.2026	Type of Sample	: Flue Gas
		Sampling Procedure	: ELES/DOC/SMPL/02(A)
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

GENERAL INFORMATION- (Data Provided by Customer)

1	Particular of the Plant	: Temper Mill-2
2	Emission Due to	: Temper Rolling of Steel Coils
3	Stack Connected to	: FES/Dust Catcher
4	Material of Construction of Stack	: MS
5	Stack Height from Ground Level (m)	: 30
6	Height of Sampling Port from Ground Level (m)	: 24
7	Inner Diameter of Stack at Sampling Point (m)	: 2.0
8	Shape of the Stack	: Circular
9	Working Load of the Stack	: N/A
10	Pollution Control System	: FES/Dust Collector
11	Ladder & Platform	: Permanent

FUEL CHARACTERISTICS DETAILS

1	Type of Fuel Used	: N/A
2	Fuel Consumption	: N/A
3	Calorific Value of Fuel (Kcal/Kg)	: N/A



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GST NO:- 20AAECE97130124

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Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011123

TEST REPORT

Test Report No. : ELES/RNC/2026/02918	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002844F	

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Results
Particulate Matter (PM)	mg/Nm ³	IS 11255(Part-1): 2019	11
Sulphur Di-Oxide (SO ₂)	mg/Nm ³	US EPA 6C: 2017	BDL (DL: 3.0)
Oxides of Nitrogen (NO _x)	mg/Nm ³	US EPA 7E: 2020	BDL (DL: 2.0)
Flue Gas Temperature	°C	IS 11255 (Part-3): 2018	42
Barometric Pressure	mmHg	IS 11255 (Part-3): 2018	743
Velocity of Flue Gas	m/sec	IS 11255 (Part-3): 2018	7.09
Quantity of Gas Flow	Nm ³ /hr	IS 11255 (Part-3): 2018	73629



****End of Report****

Handwritten signature of Dr. Deependra Kumar Sinha
Authorised Signatory
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Ph. D. Environmental Engg.
Technical Manager

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GST NO:- 20AAECE9713D1Z4

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02919	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002845F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/SM/03280
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: Annealing-1
		Sampling Date	: 25.03.2026
Plant Status	: Operational	Sample Received Date	: 30.03.2026
Period of Analysis	: 30.03.2026 to 04.04.2026	Type of Sample	: Flue Gas
		Sampling Procedure	: ELES/DOC/SMPL/02(A)
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

GENERAL INFORMATION- (Data Provided by Customer)

1	Particular of the Plant	: Annealing-1
2	Emission Due to	: Burning of Propane
3	Stack Connected to	: Annealing Furnace
4	Material of Construction of Stack	: MS
5	Stack Height from Ground Level (m)	: 30
6	Height of Sampling Port from Ground Level (m)	: 22
7	Inner Diameter of Stack at Sampling Point (m)	: 0.85
8	Shape of the Stack	: Circular
9	Working Load of the Stack	: N/A
10	Pollution Control System	: N/A
11	Ladder & Platform	: Permanent

FUEL CHARACTERISTICS DETAILS

1	Type of Fuel Used	: Propane Gas
2	Fuel Consumption	: 0.22 MT/Hr
3	Calorific Value of Fuel (Kcal/Kg)	: 11943



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ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles_ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



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TEST REPORT

Test Report No. : ELES/RNC/2026/02919	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002845F	

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Results
Particulate Matter (PM)	mg/Nm ³	IS 11255(Part-1): 2019	13
Sulphur Di-Oxide (SO ₂)	mg/Nm ³	US EPA 6C: 2017	BDL (DL: 3.0)
Oxides of Nitrogen (NO _x)	mg/Nm ³	US EPA 7E: 2020	BDL (DL: 2.0)
Flue Gas Temperature	°C	IS 11255 (Part-3): 2018	74
Barometric Pressure	mmHg	IS 11255 (Part-3): 2018	743
Velocity of Flue Gas	m/sec	IS 11255 (Part-3): 2018	8.33
Quantity of Gas Flow	Nm ³ /hr	IS 11255 (Part-3): 2018	13812

Rusme Yadav
Reviewed by

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Dr. Deependra Kumar Sinha
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Ph. D. Environmental Engg.
Technical Manager

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ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



TC-13587

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02920	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002846F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/SM/03281
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: Annealing-2
		Sampling Date	: 25.03.2026
Plant Status	: Operational	Sample Received Date	: 30.03.2026
Period of Analysis	: 30.03.2026 to 04.04.2026	Type of Sample	: Flue Gas
		Sampling Procedure	: ELES/DOC/SMPL/02(A)
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

GENERAL INFORMATION- (Data Provided by Customer)	
1	Particular of the Plant : Annealing-2
2	Emission Due to : Burning of Propane
3	Stack Connected to : Annealing Furnace
4	Material of Construction of Stack : MS
5	Stack Height from Ground Level (m) : 30
6	Height of Sampling Port from Ground Level (m) : 22.5
7	Inner Diameter of Stack at Sampling Point (m) : 1.7
8	Shape of the Stack : Circular
9	Working Load of the Stack : N/A
10	Pollution Control System : N/A
11	Ladder & Platform : Permanent

FUEL CHARACTERISTICS DETAILS	
1	Type of Fuel Used : Propane Gas
2	Fuel Consumption : 0.21 MT/Hr
3	Calorific Value of Fuel (Kcal/Kg) : 11943

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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02920	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002846F	

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Results
Particulate Matter (PM)	mg/Nm ³	IS 11255(Part-1): 2019	12
Sulphur Di-Oxide (SO ₂)	mg/Nm ³	US EPA 6C: 2017	BDL (DL: 3.0)
Oxides of Nitrogen (NO _x)	mg/Nm ³	US EPA 7E: 2020	BDL (DL: 2.0)
Flue Gas Temperature	°C	IS 11255 (Part-3): 2018	82
Barometric Pressure	mmHg	IS 11255 (Part-3): 2018	743
Velocity of Flue Gas	m/sec	IS 11255 (Part-3): 2018	5.46
Quantity of Gas Flow	Nm ³ /hr	IS 11255 (Part-3): 2018	32699


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Ph. D. Environmental Engg.
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HATIA, RANCHI-834003 (JHARKHAND)
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ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02921	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002847F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/SM/03285
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: Boiler Stack-1
		Sampling Date	: 23.03.2026
Plant Status	: Operational	Sample Received Date	: 30.03.2026
Period of Analysis	: 30.03.2026 to 04.04.2026	Type of Sample	: Flue Gas
		Sampling Procedure	: ELES/DOC/SMPL/02(A)
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

GENERAL INFORMATION- (Data Provided by Customer)	
1	Particular of the Plant : Boiler
2	Emission Due to : Combustion of Coal
3	Stack Connected to : Boiler Stack-01
4	Material of Construction of Stack : M.S
5	Stack Height from Ground Level (m) : 45
6	Height of Sampling Port from Ground Level (m) : 25
7	Inner Diameter of Stack at Sampling Point (m) : 1.4
8	Shape of the Stack : Circular
9	Working Load of the Stack : N/A
10	Pollution Control System : ESP
11	Ladder & Platform : Permanent

FUEL CHARACTERISTICS DETAILS	
1	Type of Fuel Used : Coal
2	Fuel Consumption : 2.9 MT/Hr
3	Calorific Value of Fuel (Kcal/Kg) : 3812



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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D1Z4

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02921	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002847F	

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Results
Particulate Matter (PM)	mg/Nm ³	IS 11255(Part-1): 2019	46
Sulphur Di-Oxide (SO ₂)	mg/Nm ³	US EPA 6C: 2017	168
Oxides of Nitrogen (NO _x)	mg/Nm ³	US EPA 7E: 2020	71
Carbon Monoxide (CO)	mg/Nm ³	USEPA 10B: 2017	46
Carbon Di- Oxide (CO ₂)	%	USEPA 3A: 2017	3.2
Oxygen (O ₂)	%	USEPA 3A: 2017	15.9
Flue Gas Temperature	°C	IS 11255 (Part-3): 2018	88
Barometric Pressure	mmHg	IS 11255 (Part-3): 2018	743
Velocity of Flue Gas	m/sec	IS 11255 (Part-3): 2018	7.66
Quantity of Gas Flow	Nm ³ /hr	IS 11255 (Part-3): 2018	31236


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Authorised Signatory
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Ph. D. Environmental Engg.
Technical Manager

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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D124

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02922	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002848F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/SM/03286
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: Boiler Stack-2
		Sampling Date	: 23.03.2026
Plant Status	: Operational	Sample Received Date	: 30.03.2026
Period of Analysis	: 30.03.2026 to 04.04.2026	Type of Sample	: Flue Gas
		Sampling Procedure	: ELES/DOC/SMPL/02(A)
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

GENERAL INFORMATION- (Data Provided by Customer)	
1	Particular of the Plant : Boiler
2	Emission Due to : Combustion of Coal
3	Stack Connected to : Boiler Stack-02
4	Material of Construction of Stack : M.S
5	Stack Height from Ground Level (m) : 45
6	Height of Sampling Port from Ground Level (m) : 22
7	Inner Diameter of Stack at Sampling Point (m) : 1.2
8	Shape of the Stack : Circular
9	Working Load of the Stack : N/A
10	Pollution Control System : ESP
11	Ladder & Platform : Permanent

FUEL CHARACTERISTICS DETAILS	
1	Type of Fuel Used : Coal
2	Fuel Consumption : 2.4 MT/Hr
3	Calorific Value of Fuel (Kcal/Kg) : 3812

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC031125

TEST REPORT

Test Report No. : ELES/RNC/2026/02922	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002848F	

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Results
Particulate Matter (PM)	mg/Nm ³	IS 11255(Part-1): 2019	36
Sulphur Di-Oxide (SO ₂)	mg/Nm ³	US EPA 6C: 2017	216
Oxides of Nitrogen (NO _x)	mg/Nm ³	US EPA 7E: 2020	55
Carbon Monoxide (CO)	mg/Nm ³	USEPA 10B: 2017	54
Carbon Di- Oxide (CO ₂)	%	USEPA 3A: 2017	3.6
Oxygen (O ₂)	%	USEPA 3A: 2017	15.7
Flue Gas Temperature	°C	IS 11255 (Part-3): 2018	82
Barometric Pressure	mmHg	IS 11255 (Part-3): 2018	743
Velocity of Flue Gas	m/sec	IS 11255 (Part-3): 2018	7.22
Quantity of Gas Flow	Nm ³ /hr	IS 11255 (Part-3): 2018	23725


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Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2026/02923	Report Release Date	: 06.04.2026
Work Order No.	: 3000183177/T01	Work Order Date	: 24.07.2025
ULR No.	: TC1358726000002849F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/SM/03282
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: Pickling-1
		Sampling Date	: 26.03.2026
Plant Status	: Operational	Sample Received Date	: 30.03.2026
Period of Analysis	: 30.03.2026 to 04.04.2026	Type of Sample	: Flue Gas
		Sampling Procedure	: ELES/DOC/SMPL/02(A)
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

GENERAL INFORMATION- (Data Provided by Customer)		
1	Particular of the Plant	: Pickling-1
2	Emission Due to	: Pickling of HR Coils
3	Stack Connected to	: Scrubber
4	Material of Construction of Stack	: PP/FRP
5	Stack Height from Ground Level (m)	: 30
6	Height of Sampling Port from Ground Level (m)	: 9
7	Inner Diameter of Stack at Sampling Point (m)	: 0.5
8	Shape of the Stack	: Circular
9	Working Load of the Stack	: N/A
10	Pollution Control System	: Scrubber
11	Ladder & Platform	: Permanent

FUEL CHARACTERISTICS DETAILS		
1	Type of Fuel Used	: N/A
2	Fuel Consumption	: N/A
3	Calorific Value of Fuel (Kcal/Kg)	: N/A



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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles_ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



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TEST REPORT

Test Report No. : ELES/RNC/2026/02923	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002849F	

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Results
Particulate Matter (PM)	mg/Nm ³	IS 11255(Part-1): 2019	16
Sulphur Di-Oxide (SO ₂)	mg/Nm ³	US EPA 6C: 2017	BDL (DL: 3.0)
Oxides of Nitrogen (NO _x)	mg/Nm ³	US EPA 7E: 2020	BDL (DL: 2.0)
Flue Gas Temperature	°C	IS 11255 (Part-3): 2018	52
Barometric Pressure	mmHg	IS 11255 (Part-3): 2018	743
Velocity of Flue Gas	m/sec	IS 11255 (Part-3): 2018	7.38
Quantity of Gas Flow	Nm ³ /hr	IS 11255 (Part-3): 2018	4293


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Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
Technical Manager

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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D1Z4

Email: info@elespl.co.in, eles.ranchi@gmail.com

Phone no.: 0651-2290103

Website : www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2026/02923	Report Release Date	: 06.04.2026
Work Order No.	: 3000183177/T01	Work Order Date	: 24.07.2025

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/SM/03282
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: Pickling-1
		Sampling Date	: 26.03.2026
Plant Status	: Operational	Sample Received Date	: 30.03.2026
Period of Analysis	: 30.03.2026 to 06.04.2026	Type of Sample	: Flue Gas
		Sampling Procedure	: ELES/DOC/SMPL/02(A)
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

GENERAL INFORMATION- (Data Provided by Customer)

1	Particular of the Plant	: Pickling-1
2	Emission Due to	: Pickling of HR Coils
3	Stack Connected to	: Scrubber
4	Material of Construction of Stack	: PP/FRP
5	Stack Height from Ground Level (m)	: 30
6	Height of Sampling Port from Ground Level (m)	: 9
7	Inner Diameter of Stack at Sampling Point (m)	: 0.5
8	Shape of the Stack	: Circular
9	Working Load of the Stack	: N/A
10	Pollution Control System	: Scrubber
11	Ladder & Platform	: Permanent

FUEL CHARACTERISTICS DETAILS

1	Type of Fuel Used	: N/A
2	Fuel Consumption	: N/A
3	Calorific Value of Fuel (Kcal/Kg)	: N/A



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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D1Z4

Email: info@elespl.co.in, eles.ranchi@gmail.com

Phone no.: 0651-2290103

Website : www.elespl.co.in

TEST REPORT

Test Report No. : ELES/RNC/2026/02923	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Results
Hydrogen Chloride (HCl)	mg/Nm ³	USEPA Method- 26	2.20

Remarks: Parameters are outsourced to other Lab.



****End of Report****


Authorized Signatory
Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
Technical Manager



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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D1Z4

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles_ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



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TEST REPORT

Test Report No. : ELES/RNC/2026/02924	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002850F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/SM/03283
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: Pickling-2
		Sampling Date	: 26.03.2026
Plant Status	: Operational	Sample Received Date	: 30.03.2026
		Type of Sample	: Flue Gas
Period of Analysis	: 30.03.2026 to 04.04.2026	Sampling Procedure	: ELES/DOC/SMPL/02(A)
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

GENERAL INFORMATION- (Data Provided by Customer)	
1	Particular of the Plant : Pickling-2
2	Emission Due to : Pickling of HR Coils
3	Stack Connected to : Scrubber
4	Material of Construction of Stack : PP/FRP
5	Stack Height from Ground Level (m) : 30
6	Height of Sampling Port from Ground Level (m) : 9
7	Inner Diameter of Stack at Sampling Point (m) : 0.5
8	Shape of the Stack : Circular
9	Working Load of the Stack : N/A
10	Pollution Control System : Scrubber
11	Ladder & Platform : Permanent

FUEL CHARACTERISTICS DETAILS	
1	Type of Fuel Used : N/A
2	Fuel Consumption : N/A
3	Calorific Value of Fuel (Kcal/Kg) : N/A

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D1Z4

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02924	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002850F	

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Results
Particulate Matter (PM)	mg/Nm ³	IS 11255(Part-1): 2019	14
Sulphur Di-Oxide (SO ₂)	mg/Nm ³	US EPA 6C: 2017	BDL (DL: 3.0)
Oxides of Nitrogen (NO _x)	mg/Nm ³	US EPA 7E: 2020	BDL (DL: 2.0)
Flue Gas Temperature	°C	IS 11255 (Part-3): 2018	56
Barometric Pressure	mmHg	IS 11255 (Part-3): 2018	743
Velocity of Flue Gas	m/sec	IS 11255 (Part-3): 2018	7.61
Quantity of Gas Flow	Nm ³ /hr	IS 11255 (Part-3): 2018	3891


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Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
Technical Manager

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D1Z4

Email: info@elespl.co.in, eles.ranchi@gmail.com

Phone no.: 0651-2290103

Website : www.elespl.co.in

TEST REPORT

Test Report No. : ELES/RNC/2026/02924	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/SM/03283
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: Pickling-2
Plant Status	: Operational	Sampling Date	: 26.03.2026
Period of Analysis	: 30.03.2026 to 06.04.2026	Sample Received Date	: 30.03.2026
		Type of Sample	: Flue Gas
		Sampling Procedure	: ELES/DOC/SMPL/02(A)
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

GENERAL INFORMATION- (Data Provided by Customer)	
1	Particular of the Plant : Pickling-2
2	Emission Due to : Pickling of HR Coils
3	Stack Connected to : Scrubber
4	Material of Construction of Stack : PP/FRP
5	Stack Height from Ground Level (m) : 30
6	Height of Sampling Port from Ground Level (m) : 9
7	Inner Diameter of Stack at Sampling Point (m) : 0.5
8	Shape of the Stack : Circular
9	Working Load of the Stack : N/A
10	Pollution Control System : Scrubber
11	Ladder & Platform : Permanent

FUEL CHARACTERISTICS DETAILS	
1	Type of Fuel Used : N/A
2	Fuel Consumption : N/A
3	Calorific Value of Fuel (Kcal/Kg) : N/A



CIN: U74999JH2018PTC011125

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D124

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in

TEST REPORT

Test Report No. : ELES/RNC/2026/02924	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Results
Hydrogen Chloride (HCl)	mg/Nm ³	USEPA Method- 26	10.54

Remarks: Parameters are outsourced to other Lab.



****End of Report****


Authorized Signatory
Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
Technical Manager

Page 2 of 2

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D1Z4

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02925	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002851F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/SM/03284
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: ARP
		Sampling Date	: 26.03.2026
Plant Status	: Operational	Sample Received Date	: 30.03.2026
Period of Analysis	: 30.03.2026 to 04.04.2026	Type of Sample	: Flue Gas
		Sampling Procedure	: ELES/DOC/SMPL/02(A)
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

GENERAL INFORMATION- (Data Provided by Customer)	
1	Particular of the Plant : ARP
2	Emission Due to : Burning of Propane Gas
3	Stack Connected to : Inbuilt Scrubber attached with Burner
4	Material of Construction of Stack : FRP
5	Stack Height from Ground Level (m) : 31.7
6	Height of Sampling Port from Ground Level (m) : 15.9
7	Inner Diameter of Stack at Sampling Point (m) : 0.6
8	Shape of the Stack : Circular
9	Working Load of the Stack : N/A
10	Pollution Control System : Inbuilt Scrubber
11	Ladder & Platform : Permanent

FUEL CHARACTERISTICS DETAILS	
1	Type of Fuel Used : Propane Gas
2	Fuel Consumption : N/A
3	Calorific Value of Fuel (Kcal/Kg) : N/A

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D1Z4

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles_ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02925	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002851F	

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Results
Particulate Matter (PM)	mg/Nm ³	IS 11255(Part-1): 2019	20
Sulphur Di-Oxide (SO ₂)	mg/Nm ³	US EPA 6C: 2017	BDL (DL: 3.0)
Oxides of Nitrogen (NO _x)	mg/Nm ³	US EPA 7E: 2020	BDL (DL: 2.0)
Flue Gas Temperature	°C	IS 11255 (Part-3): 2018	76
Barometric Pressure	mmHg	IS 11255 (Part-3): 2018	743
Velocity of Flue Gas	m/sec	IS 11255 (Part-3): 2018	7.41
Quantity of Gas Flow	Nm ³ /hr	IS 11255 (Part-3): 2018	5187


Reviewed by


****End of Report****


Authorised Signatory
Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
Technical Manager

Page 2 of 2

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D124

Email: info@elespl.co.in, eles_ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in

TEST REPORT

Test Report No. : ELES/RNC/2026/02925	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinsplate Division (Golmuri Works)	Sample Ref. No.	: ELES/RNC/2026/SM/03284
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Location	: ARP
		Sampling Date	: 26.03.2026
Plant Status	: Operational	Sample Received Date	: 30.03.2026
Period of Analysis	: 30.03.2026 to 06.04.2026	Type of Sample	: Flue Gas
		Sampling Procedure	: ELES/DOC/SMPL/02(A)
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

GENERAL INFORMATION- (Data Provided by Customer)

1	Particular of the Plant	: ARP
2	Emission Due to	: Burning of Propane Gas
3	Stack Connected to	: Inbuilt Scrubber attached with Burner
4	Material of Construction of Stack	: FRP
5	Stack Height from Ground Level (m)	: 31.7
6	Height of Sampling Port from Ground Level (m)	: 15.9
7	Inner Diameter of Stack at Sampling Point (m)	: 0.6
8	Shape of the Stack	: Circular
9	Working Load of the Stack	: N/A
10	Pollution Control System	: Inbuilt Scrubber
11	Ladder & Platform	: Permanent

FUEL CHARACTERISTICS DETAILS

1	Type of Fuel Used	: Propane Gas
2	Fuel Consumption	: N/A
3	Calorific Value of Fuel (Kcal/Kg)	: N/A



CIN: U74999JH2018PTC011125

ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D1Z4

Email: info@elespl.co.in, eles.ranchi@gmail.com

Phone no.: 0651-2290103

Website : www.elespl.co.in

TEST REPORT

Test Report No. : ELES/RNC/2026/02925	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Results
Hydrogen Chloride (HCl)	mg/Nm ³	USEPA Method- 26	21.92

Remarks: Parameters are outsourced to other Lab.


Reviewed by


****End of Report****


Authorized Signatory
Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
Technical Manager

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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC031125

TEST REPORT

Test Report No. : ELES/RNC/2026/02910	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002836F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Tata Steel Limited, Tinplate Division (Golmuri Works)	Sampling Date	: 24.03.2026 to 25.03.2026
Address	: Golmuri, Jamshedpur, Dist- East Singhbhum, Jharkhand, Pin- 831003	Sampling Received Date	: 30.03.2026
		Type of Sample	: Ambient Noise
Plant Status	: Operational	Sampling procedure	: ELES/DOC/SMPL/03
		Sampling Done By	: ELES Pvt. Ltd.
		Period of Analysis	: 30.03.2026 to 02.04.2026

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

Discipline : Chemical			Group : Atmospheric Pollution		Regulatory Limit (Industrial Zone)
Location	Unit	Test Protocol	Result		Noise Pollution (Regulation & Control) Rule, 2000.
Near General Office Lawn	dB(A)	IS 9989: 2020	Time	L_{eq}	75 dB(A) Day Time & 70 dB(A) Night Time
Sample ID: ELES/RNC/2026/AN/03268			Day Time	54	
Latitude:22°47'27.47"N			Longitude :86°13'39.37"E	Night Time	
Near CRM Solar Pond	dB(A)	IS 9989: 2020	Time	L_{eq}	
Sample ID: ELES/RNC/2026/AN/03269			Day Time	65	
Latitude:22°47'48.04"N			Longitude :86°14'03.56"E	Night Time	
Near Analyser Room, Gate No.06	dB(A)	IS 9989: 2020	Time	L_{eq}	
Sample ID: ELES/RNC/2026/AN/03270			Day Time	68	
Latitude:22°47'33.58"N			Longitude :86°14'03.15"E	Night Time	

Page 1 of 2

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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles_ranchi@gmail.com
Phone no.: 0651-2290103
Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2026/02910	Report Release Date : 06.04.2026
Work Order No. : 3000183177/T01	Work Order Date : 24.07.2025
ULR No. : TC1358726000002836F	

Discipline : Chemical		Group : Atmospheric Pollution		Regulatory Limit (Industrial Zone)	
Location	Unit	Test Protocol	Result	Noise Pollution (Regulation & Control) Rule, 2000.	
Near Expansion Area	dB(A)	IS 9989: 2020	Time	75 dB(A) Day Time & 70 dB(A) Night Time	
Sample ID: ELES/RNC/2026/AN/03271			Day Time		71
Latitude: 22°47'34.07"N			Night Time		63
	Longitude : 86°14'07.31"E				



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
Technical Manager

Page 2 of 2

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Test Report No. INCHE26029180323114737

ULR No. : TC80672600009032F

Report Issue Date: 23 Mar 2026

TEST REPORT

Report Issued To: Tata Steel Ltd., Tinplate Division			
GOLMURI WORKS, TINPLATE, GOLMURI, EAST SINGHBHUM, JHARKHAND - Pin 831003, India			
Discipline :	Chemical	Group :	Pollution and Environment
BV Sample ID :	2727886	Sample receipt date :	16 Mar 2026
Sample Name** :	Effluent Water	Date of registration :	16 Mar 2026
Physical Description :	Clear liquid	Date of commencing of testing :	16 Mar 2026
Sample condition on receipt :	Good	Date of completion of testing :	23 Mar 2026
Sample quantity / Package** :	1Ltr x 2Nos		
Sample Information:	Sampling Done by Laboratory		
Sampling procedure :	BV/SAR/F/SOP/001	Date of sampling / collection :	09 Mar 2026
Sampling location :	CRM WWTP Inlet Water (Pickling Rinse Tank)	Sampling / Collection done by :	Mr. Vishal Rajak

No.	Test Parameters	Unit	Test Results	Test Method	LOQ
1	Total Suspended Solids	mg/L	15	APHA 24th Edn-2540D	1
2	pH Value	-	2.8	APHA 24th Edn-4500H+ B	1
3	Chemical Oxygen Demand	mg/L	1301	APHA 24th-5220 C	5
4	Bio-Chemical Oxygen Demand - 27°C/3 days	mg/L	220	IS 3025 Part 44 2023	1
5	Oil and Grease	mg/L	40	APHA 24th Edn- 5520 O&GB	2
6	Ammonical Nitrogen as N	mg/L	34	APHA 24th Edn- 4500NH3 B, C	1
7	Cadmium as Cd	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
8	Copper as Cu	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
9	Cyanide as CN	mg/L	BLQ	APHA 24th - 4500CN C, E	0.01
10	Hexavalent Chromium as Cr ⁶⁺	mg/L	BLQ	APHA 24th Edn- 3500CrB	0.05
11	Total Chromium as Cr	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
12	Iron as Fe	mg/L	29.5	APHA 24th Ed. 3120 B	0.05
13	Lead as Pb	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
14	Nickel as Ni	mg/L	0.391	APHA 24th Ed. 3120 B	0.05
15	Free Residual Chlorine	mg/L	2.2	APHA 24th Edn 2023 4500 Cl B	1
16	Temperature	°C	36	APHA 24th Edn-2550 B	0
17	Zinc as Zn	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
18	Total Dissolved Solids	mg/L	4212	APHA 24th Ed. 2540 C	1

Abbreviations: LOQ: Limit of Quantification, BLQ: Below limit of quantification

** Indicates information supplied by the customer for which the laboratory has no control

Note: SAMPLE TESTED AS RECEIVED



Test Report No. INCHE26029180323114737

ULR No. : TC806726000009032F

Report Issue Date:

Authorized
Signatory
23 Mar 2026

M.Ramesh
Manager

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--- End of Report ---



Test Report No. INCHE26029180323114749

ULR No. : TC80572600009033F

Report Issue Date: 23 Mar 2026

TEST REPORT

Report Issued To: Tata Steel Ltd., Tinplate Division			
GOLMURI WORKS, TINPLATE, GOLMURI, EAST SINGHBHUM, JHARKHAND - Pin 831003, India			
Discipline :	Chemical	Group :	Pollution and Environment
BV Sample ID :	2727887	Sample receipt date :	16 Mar 2026
Sample Name** :	Effluent Water	Date of registration :	16 Mar 2026
Physical Description :	Turbid liquid	Date of commencing of testing :	16 Mar 2026
Sample condition on receipt :	Good	Date of completion of testing :	23 Mar 2026
Sample quantity / Package** :	1Ltr x 2Nos		
Sample Information:	Sampling Done by Laboratory		
Sampling procedure :	BV/SAR/F/SOP/001	Date of sampling / collection :	09 Mar 2026
Sampling location :	CRM WWTP Inlet Water (Alkali Waste Water Tank)	Sampling / Collection done by :	Mr. Vishal Rajak

No.	Test Parameters	Unit	Test Results	Test Method	LOQ
1	Total Suspended Solids	mg/L	925	APHA 24th Edn-2540D	1
2	pH Value	-	11.7	APHA 24th Edn-4500H+ B	1
3	Chemical Oxygen Demand	mg/L	2309	APHA 24th-5220 C	5
4	Bio-Chemical Oxygen Demand - 27°C/3 days	mg/L	414	IS 3025 Part 44 2023	1
5	Oil and Grease	mg/L	121	APHA 24th Edn- 5520 O&GB	2
6	Ammonical Nitrogen as N	mg/L	45	APHA 24th Edn- 4500NH3 B, C	1
7	Cadmium as Cd	mg/L	0.05	APHA 24th Ed. 3120 B	0.05
8	Copper as Cu	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
9	Cyanide as CN	mg/L	BLQ	APHA 24th - 4500CN C, E	0.01
10	Hexavalent Chromium as Cr ⁶⁺	mg/L	BLQ	APHA 24th Edn- 3500CrB	0.05
11	Total Chromium as Cr	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
12	Iron as Fe	mg/L	0.7	APHA 24th Ed. 3120 B	0.05
13	Lead as Pb	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
14	Nickel as Ni	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
15	Free Residual Chlorine	mg/L	2.9	APHA 24th Edn 2023 4500 Cl B	1
16	Temperature	°C	34	APHA 24th Edn-2550 B	0
17	Zinc as Zn	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
18	Total Dissolved Solids	mg/L	2869	APHA 24th Ed. 2540 C	1

Abbreviations: LOQ: Limit of Quantification, BLQ: Below limit of quantification

** Indicates information supplied by the customer for which the laboratory has no control

Note: SAMPLE TESTED AS RECEIVED



Test Report No. INCHE26029180323114749

ULR No. : TC80672600009033F

Report Issue Date:

Authorized
Signatory

23 Mar 2026

M.Ramesh

Manager

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--- End of Report ---



Test Report No. INCHE26029180323114802

ULR No. : TC805726000009034F

Report Issue Date: 23 Mar 2026

TEST REPORT

Report Issued To: Tata Steel Ltd., Tinplate Division			
GOLMURI WORKS, TINPLATE, GOLMURI, EAST SINGHBHUM, JHARKHAND - Pin 831003, India			
Discipline :	Chemical	Group :	Pollution and Environment
BV Sample ID :	2727888	Sample receipt date :	16 Mar 2026
Sample Name** :	Effluent Water	Date of registration :	16 Mar 2026
Physical Description :	Turbid liquid	Date of commencing of testing :	16 Mar 2026
Sample condition on receipt :	Good	Date of completion of testing :	23 Mar 2026
Sample quantity / Package** :	1Ltr x 2Nos		
Sample Information:	Sampling Done by Laboratory		
Sampling procedure :	BV/SAR/F/SOP/001	Date of sampling / collection :	09 Mar 2026
Sampling location :	CRM WWTP Inlet Water (Emulsion Tank)	Sampling / Collection done by :	Mr. Vishal Rajak

No.	Test Parameters	Unit	Test Results	Test Method	LOQ
1	Total Suspended Solids	mg/L	974	APHA 24th Edn-2540D	1
2	pH Value	-	5.9	APHA 24th Edn-4500H+ B	1
3	Chemical Oxygen Demand	mg/L	2831	APHA 24th-5220 C	5
4	Bio-Chemical Oxygen Demand - 27°C/3 days	mg/L	480	IS 3025 Part 44 2023	1
5	Oil and Grease	mg/L	128	APHA 24th Edn- 5520 O&GB	2
6	Ammonical Nitrogen as N	mg/L	40	APHA 24th Edn- 4500NH3 B, C	1
7	Cadmium as Cd	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
8	Copper as Cu	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
9	Cyanide as CN	mg/L	BLQ	APHA 24th - 4500CN C, E	0.01
10	Hexavalent Chromium as Cr ⁶⁺	mg/L	BLQ	APHA 24th Edn- 3500CrB	0.05
11	Total Chromium as Cr	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
12	Iron as Fe	mg/L	11.4	APHA 24th Ed. 3120 B	0.05
13	Lead as Pb	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
14	Nickel as Ni	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
15	Free Residual Chlorine	mg/L	3.1	APHA 24th Edn 2023 4500 Cl B	1
16	Temperature	°C	33	APHA 24th Edn-2550 B	0
17	Zinc as Zn	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
18	Total Dissolved Solids	mg/L	481	APHA 24th Ed. 2540 C	1

Abbreviations: LOQ: Limit of Quantification, BLQ: Below limit of quantification

** Indicates information supplied by the customer for which the laboratory has no control

Note: SAMPLE TESTED AS RECEIVED



Test Report No. INCHE26029180323114802

ULR No. : TC805726000008034F

Report Issue Date:

Authorized
Signatory
23 Mar 2026

M.Ramesh
Manager

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--- End of Report ---



Test Report No. INCHE26029180323114815

ULR No. : TC80572600009035F

Report Issue Date: 23 Mar 2026

TEST REPORT

Report Issued To: Tata Steel Ltd., Tinplate Division			
GOLMURI WORKS, TINPLATE, GOLMURI, EAST SINGHBHUM, JHARKHAND - Pin 831003, India			
Discipline :	Chemical	Group :	Pollution and Environment
BV Sample ID :	2727889	Sample receipt date :	16 Mar 2026
Sample Name** :	Effluent Water	Date of registration :	16 Mar 2026
Physical Description :	Turbid liquid	Date of commencing of testing :	16 Mar 2026
Sample condition on receipt :	Good	Date of completion of testing :	23 Mar 2026
Sample quantity / Package** :	1Ltr x 2Nos		
Sample Information:	Sampling Done by Laboratory		
Sampling procedure :	BV/SAR/F/SOP/001	Date of sampling / collection :	09 Mar 2026
Sampling location :	ETL ETP Inlet Water (CS-5 Tank)	Sampling / Collection done by :	Mr. Vishal Rajak

No.	Test Parameters	Unit	Test Results	Test Method	LOQ
1	Total Suspended Solids	mg/L	4725	APHA 24th Edn-2540D	1
2	pH Value	-	7.4	APHA 24th Edn-4500H+ B	1
3	Chemical Oxygen Demand	mg/L	912	APHA 24th-5220 C	5
4	Bio-Chemical Oxygen Demand - 27°C/3 days	mg/L	123	IS 3025 Part 44 2023	1
5	Oil and Grease	mg/L	24	APHA 24th Edn- 5520 O&GB	2
6	Ammonical Nitrogen as N	mg/L	26	APHA 24th Edn- 4500NH3 B, C	1
7	Cadmium as Cd	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
8	Copper as Cu	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
9	Cyanide as CN	mg/L	BLQ	APHA 24th - 4500CN C, E	0.01
10	Hexavalent Chromium as Cr ⁶⁺	mg/L	BLQ	APHA 24th Edn- 3500CrB	0.05
11	Total Chromium as Cr	mg/L	1.6	APHA 24th Ed. 3120 B	0.05
12	Iron as Fe	mg/L	20.8	APHA 24th Ed. 3120 B	0.05
13	Lead as Pb	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
14	Nickel as Ni	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
15	Free Residual Chlorine	mg/L	1.9	APHA 24th Edn 2023 4500 Cl B	1
16	Temperature	°C	38	APHA 24th Edn-2550 B	0
17	Zinc as Zn	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
18	Total Dissolved Solids	mg/L	2421	APHA 24th Ed. 2540 C	1

Abbreviations: LOQ: Limit of Quantification, BLQ: Below limit of quantification

** Indicates information supplied by the customer for which the laboratory has no control

Note: SAMPLE TESTED AS RECEIVED



Test Report No. INCHE26029180323114815

ULR No. : TC805726000009035F

Report Issue Date:

Authorized
Signatory

23 Mar 2026

M.Ramesh

Manager

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--- End of Report ---



Test Report No. INCHE26029180323114846

ULR No. : TC805726000009036F

Report Issue Date: 23 Mar 2026

TEST REPORT

Report Issued To: Tata Steel Ltd., Tinplate Division			
GOLMURI WORKS, TINPLATE, GOLMURI, EAST SINGHBHUM, JHARKHAND - Pin 831003, India			
Discipline :	Chemical	Group :	Pollution and Environment
BV Sample ID :	2727890	Sample receipt date :	16 Mar 2026
Sample Name** :	Effluent Water	Date of registration :	16 Mar 2026
Physical Description :	Turbid liquid	Date of commencing of testing :	16 Mar 2026
Sample condition on receipt :	Good	Date of completion of testing :	23 Mar 2026
Sample quantity / Package** :	1Ltr x 2Nos		
Sample Information:	Sampling Done by Laboratory		
Sampling procedure :	BV/SAR/F/SOP/001	Date of sampling / collection :	09 Mar 2026
Sampling location :	ETL ETP Inlet Water (CS-8 Tank)	Sampling / Collection done by :	Mr. Vishal Rajak

No.	Test Parameters	Unit	Test Results	Test Method	LOQ
1	Total Suspended Solids	mg/L	62	APHA 24th Edn-2540D	1
2	pH Value	-	3.0	APHA 24th Edn-4500H+ B	1
3	Chemical Oxygen Demand	mg/L	183	APHA 24th-5220 C	5
4	Bio-Chemical Oxygen Demand - 27°C/3 days	mg/L	38	IS 3025 Part 44 2023	1
5	Oil and Grease	mg/L	8	APHA 24th Edn- 5520 O&GB	2
6	Ammonical Nitrogen as N	mg/L	9	APHA 24th Edn- 4500NH3 B, C	1
7	Cadmium as Cd	mg/L	0.11	APHA 24th Ed. 3120 B	0.05
8	Copper as Cu	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
9	Cyanide as CN	mg/L	BLQ	APHA 24th - 4500CN C, E	0.01
10	Hexavalent Chromium as Cr ⁶⁺	mg/L	0.106	APHA 24th Edn- 3500CrB	0.05
11	Total Chromium as Cr	mg/L	9.09	APHA 24th Ed. 3120 B	0.05
12	Iron as Fe	mg/L	00.5	APHA 24th Ed. 3120 B	0.05
13	Lead as Pb	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
14	Nickel as Ni	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
15	Free Residual Chlorine	mg/L	2.1	APHA 24th Edn 2023 4500 Cl B	1
16	Temperature	°C	33	APHA 24th Edn-2550 B	0
17	Zinc as Zn	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
18	Total Dissolved Solids	mg/L	980	APHA 24th Ed. 2540 C	1

Abbreviations: LOQ: Limit of Quantification, BLQ: Below limit of quantification
 ** Indicates information supplied by the customer for which the laboratory has no control
 Note: SAMPLE TESTED AS RECEIVED



Test Report No. INCHE26029180323114912

ULR No. : TC805726000009038F

Report Issue Date: 23 Mar 2026

TEST REPORT

Report Issued To: Tata Steel Ltd., Tinplate Division			
GOLMURI WORKS, TINPLATE, GOLMURI, EAST SINGHBHUM, JHARKHAND - Pin 831003, India			
Discipline :	Chemical	Group :	Pollution and Environment
BV Sample ID :	2727892	Sample receipt date :	16 Mar 2026
Sample Name** :	Effluent Water	Date of registration :	16 Mar 2026
Physical Description :	Turbid liquid	Date of commencing of testing :	16 Mar 2026
Sample condition on receipt :	Good	Date of completion of testing :	23 Mar 2026
Sample quantity / Package** :	1Ltr x 2Nos		
Sample Information:	Sampling Done by Laboratory		
Sampling procedure :	BV/SAR/F/SOP/001	Date of sampling / collection :	09 Mar 2026
Sampling location :	ETL ETP Outlet Water	Sampling / Collection done by :	Mr. Vishal Rajak

No.	Test Parameters	Unit	Test Results	Test Method	LOQ
1	Total Suspended Solids	mg/L	50	APHA 24th Edn-2540D	1
2	pH Value	-	7.0	APHA 24th Edn-4500H+ B	1
3	Chemical Oxygen Demand	mg/L	191	APHA 24th-5220 C	5
4	Bio-Chemical Oxygen Demand - 27°C/3 days	mg/L	21	IS 3025 Part 44 2023	1
5	Oil and Grease	mg/L	6	APHA 24th Edn- 5520 O&GB	2
6	Ammonical Nitrogen as N	mg/L	16	APHA 24th Edn- 4500NH3 B, C	1
7	Cadmium as Cd	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
8	Copper as Cu	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
9	Cyanide as CN	mg/L	BLQ	APHA 24th - 4500CN C, E	0.01
10	Hexavalent Chromium as Cr ⁶⁺	mg/L	BLQ	APHA 24th Edn- 3500CrB	0.05
11	Total Chromium as Cr	mg/L	0.409	APHA 24th Ed. 3120 B	0.05
12	Iron as Fe	mg/L	00.7	APHA 24th Ed. 3120 B	0.05
13	Lead as Pb	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
14	Nickel as Ni	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
15	Free Residual Chlorine	mg/L	0.6	APHA 24th Edn 2023 4500 Cl B	1
16	Temperature	°C	33.8	APHA 24th Edn-2550 B	0
17	Zinc as Zn	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
18	Total Dissolved Solids	mg/L	2024	APHA 24th Ed. 2540 C	1

Abbreviations: LOQ: Limit of Quantification, BLQ: Below limit of quantification
 ** Indicates information supplied by the customer for which the laboratory has no control
 Note: SAMPLE TESTED AS RECEIVED



Test Report No. INCHE26029180323114912

ULR No. : TC80672600009038F

Report Issue Date:

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23 Mar 2026

M.Ramesh

Manager

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--- End of Report ---



Test Report No. NCHE26029180323114901

ULR No. : TC805726000009037F

Report Issue Date: 23 Mar 2026

TEST REPORT

Report Issued To: Tata Steel Ltd., Tinplate Division

GOLMURI WORKS, TINPLATE, GOLMURI, EAST SINGHBHUM, JHARKHAND - Pin 831003, India

Discipline :	Chemical	Group :	Pollution and Environment
BV Sample ID :	2727891	Sample receipt date :	16 Mar 2026
Sample Name** :	Effluent Water	Date of registration :	16 Mar 2026
Physical Description :	Turbid liquid	Date of commencing of testing :	16 Mar 2026
Sample condition on receipt :	Good	Date of completion of testing :	23 Mar 2026
Sample quantity / Package** :	1Ltr x 2Nos		

Sample Information: Sampling Done by Laboratory

Sampling procedure :	BV/SAR/F/SOP/001	Date of sampling / collection :	09 Mar 2026
Sampling location :	CRM WWTP Outlet Water	Sampling / Collection done by :	Mr. Vishal Rajak

No.	Test Parameters	Unit	Test Results	Test Method	LOQ
1	Total Suspended Solids	mg/L	67	APHA 24th Edn-2540D	1
2	pH Value	-	7.2	APHA 24th Edn-4500H+ B	1
3	Chemical Oxygen Demand	mg/L	226	APHA 24th-5220 C	5
4	Bio-Chemical Oxygen Demand - 27°C/3 days	mg/L	20	IS 3025 Part 44 2023	1
5	Oil and Grease	mg/L	6	APHA 24th Edn- 5520 O&GB	2
6	Ammonical Nitrogen as N	mg/L	19	APHA 24th Edn- 4500NH3 B, C	1
7	Cadmium as Cd	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
8	Copper as Cu	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
9	Cyanide as CN	mg/L	BLQ	APHA 24th - 4500CN C, E	0.01
10	Hexavalent Chromium as Cr ⁶⁺	mg/L	BLQ	APHA 24th Edn- 3500CrB	0.05
11	Total Chromium as Cr	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
12	Iron as Fe	mg/L	1.0	APHA 24th Ed. 3120 B	0.05
13	Lead as Pb	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
14	Nickel as Ni	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
15	Free Residual Chlorine	mg/L	0.7	APHA 24th Edn 2023 4500 Cl B	1
16	Temperature	°C	35	APHA 24th Edn-2550 B	0
17	Zinc as Zn	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
18	Total Dissolved Solids	mg/L	15.2	APHA 24th Ed. 2540 C	1

Abbreviations: LOQ: Limit of Quantification, BLQ: Below limit of quantification

** Indicates information supplied by the customer for which the laboratory has no control

Note: SAMPLE TESTED AS RECEIVED



Test Report No. NCHE26029180323114901

ULR No. : TC805726000009037F

Report Issue Date:

Authorized
Signatory

23 Mar 2026

M.Ramesh

Manager

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--- End of Report ---



Test Report No. INCHE26029180323114921

ULR No. : TC805726000009039F

Report Issue Date: 23 Mar 2026

TEST REPORT

Report Issued To: Tata Steel Ltd., Tinplate Division			
GOLMURI WORKS, TINPLATE, GOLMURI, EAST SINGHBHUM, JHARKHAND - Pin 831003, India			
Discipline :	Chemical	Group :	Pollution and Environment
BV Sample ID :	2727893	Sample receipt date :	16 Mar 2026
Sample Name** :	Effluent Water	Date of registration :	16 Mar 2026
Physical Description :	Slightly turbid	Date of commencing of testing :	16 Mar 2026
Sample condition on receipt :	liquid	Date of completion of testing :	23 Mar 2026
Sample quantity / Package** :	Good 1Ltr x 2Nos		
Sample Information:	Sampling Done by Laboratory		
Sampling procedure :	BV/SAR/F/SOP/001	Date of sampling / collection :	09 Mar 2026
Sampling location :	Treated Final Discharge Water (Kadari Drain)	Sampling / Collection done by :	Mr. Vishal Rajak

No.	Test Parameters	Unit	Test Results	Test Method	LOQ
1	Total Suspended Solids	mg/L	42	APHA 24th Edn-2540D	1
2	pH Value	-	7.5	APHA 24th Edn-4500H+ B	1
3	Chemical Oxygen Demand	mg/L	156	APHA 24th-5220 C	5
4	Bio-Chemical Oxygen Demand - 27°C/3 days	mg/L	14	IS 3025 Part 44 2023	1
5	Oil and Grease	mg/L	5	APHA 24th Edn- 5520 O&GB	2
6	Ammonical Nitrogen as N	mg/L	9	APHA 24th Edn- 4500NH3 B, C	1
7	Cadmium as Cd	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
8	Copper as Cu	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
9	Cyanide as CN	mg/L	BLQ	APHA 24th - 4500CN C, E	0.01
10	Hexavalent Chromium as Cr ⁶⁺	mg/L	BLQ	APHA 24th Edn- 3500CrB	0.05
11	Total Chromium as Cr	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
12	Iron as Fe	mg/L	0.1	APHA 24th Ed. 3120 B	0.05
13	Lead as Pb	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
14	Nickel as Ni	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
15	Free Residual Chlorine	mg/L	0.3	APHA 24th Edn 2023 4500 Cl B	1
16	Temperature	°C	33	APHA 24th Edn-2550 B	0
17	Zinc as Zn	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
18	Total Dissolved Solids	mg/L	1984.2	APHA 24th Ed. 2540 C	1

Abbreviations: LOQ: Limit of Quantification, BLQ: Below limit of quantification

** Indicates information supplied by the customer for which the laboratory has no control

Note: SAMPLE TESTED AS RECEIVED



Test Report No. INCHE26029180323114921

ULR No. : TC80572600009039F

Report Issue Date:

Authorized
Signatory

23 Mar 2026

M.Ramesh

Manager

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--- End of Report ---



Test Report No. INCHE26007290202105624

ULR No. : TC805726000002498F

Report Issue Date: 02 Feb 2026

TEST REPORT

Report Issued To: Tata Steel Ltd., Tinplate Division			
GOLMURI WORKS, TINPLATE, GOLMURI, EAST SINGHBHUM, JHARKHAND - Pin 831003, India			
Discipline :	Chemical	Group :	Pollution and Environment
BV Sample ID :	2874578	Sample receipt date :	23 Jan 2026
Sample Name** :	Ground Water	Date of registration :	23 Jan 2026
Physical Description :	Slightly turbid liquid	Date of commencing of testing :	23 Jan 2026
Sample condition on receipt :	Good	Date of completion of testing :	30 Jan 2026
Sample quantity / Package** :	1Ltr X 2Nos		
Sample Information: Sampling Done by Laboratory			
Sampling procedure :	BV/SARF/SOP1001	Date of sampling / collection :	15 Jan 2026
Sampling location :	Propane Yard	Sampling / Collection done by :	Mr. Vishal Rajak

No.	Test Parameters	Unit	Test Results	Test Method	LOQ
1	pH Value	-	6.61	APHA 24th Edn-4500H+ B	1
2	Total Dissolved Solids	mg/L	297	APHA 24th Ed. 2540 C	1
3	Chemical Oxygen Demand	mg/L	43	APHA 24th-5220 C	5
4	Bio-Chemical Oxygen Demand - 27°C/3 days	mg/L	4.4	IS 3025 (P-44) : 1993 (RA 2019)	1
5	Oil and Grease	mg/L	BLQ	APHA 24th Edition - 5520 O&G B	10
6	Chloride as Cl	mg/L	28.3	APHA 24th Ed. 4500 Cl-B	1
7	Sulphate as SO ₄ ²⁻	mg/L	98	APHA 24th Edn-4500 SO4 E	2
8	Total Residual Chlorine	mg/L	BLQ	APHA 24th Ed. 4500 Cl-B	1
9	Cyanide as CN	mg/L	BLQ	APHA 24th - 4500CN C, E	0.01
10	Fluoride as F	mg/L	BLQ	APHA 24th Edn- 4500F ⁻ B & D	0.1
11	Cadmium as Cd	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
12	Total Chromium as Cr	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
13	Lead as Pb	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
14	Mercury as Hg	mg/L	BLQ	APHA 24th Ed. 3120 B	0.01
15	Nickel as Ni	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
16	Copper as Cu	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
17	Zinc as Zn	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
18	Pesticides	mg/L	BLQ	USEPA 3510 C & 8270 C	0.0005
19	Arsenic as As	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
20	Colour	Hazen	1.9	APHA 24th Edn-2120 B	10
21	Turbidity	NTU	3.15	APHA 24th Edn-2130B	1
22	Sodium as Na	mg/L	9.2	APHA 24th Ed. 3120 B	0.1
23	Potassium as K	mg/L	2.8	APHA 24th Ed. 3120 B	0.1
24	Electrical Conductivity @ 25°C	Micromho s/cm	438	APHA 24th Edn-2510 B	1
25	Iron as Fe	mg/L	0.243	APHA 24th Ed. 3120 B	0.05
26	Total Alkalinity as CaCO ₃	mg/L	98.8	APHA 24th -2320B	1
27	Magnesium as Mg	mg/L	17.0	APHA 24th Edn-3500 Mg B	1



Test Report No. INCHE26007290202105624

ULR No. : TC805729000002498F

Report Issue Date: 02 Feb 2025

Item No.	Parameter	Unit	Result	Method	Limit
28	Total Hardness as CaCO ₃	mg/L	191	APHA 24th Edn - 2340 C	1
29	Calcium as Ca	mg/L	49.1	APHA 24th Edn- 3500CaB	1
30	Nitrate as NO ₃	mg/L	13.0	APHA 23rd Ed. 4500-NO3 B	0.5
31	Total Phosphates as P	mg/L	BLQ	APHA 24th Edn-4500 P B, D	0.05
32	Manganese as Mn	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05

Abbreviations: LOQ: Limit of Quantification, BLQ: Below limit of quantification

** Indicates information supplied by the customer for which the laboratory has no control

Note: SAMPLE TESTED AS RECEIVED

Authorized Signatory

M.Ramesh

Manager

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— End of Report —



Test Report No. INCHE26007290202105834

ULR No. : TC805726000002499F

Report Issue Date: 02 Feb 2026

TEST REPORT

Report Issued To: Tata Steel Ltd., Tinplate Division			
GOLMURI WORKS, TINPLATE, GOLMURI, EAST SINGHBHUM, JHARKHAND - Pin 831003, India			
Discipline :	Chemical	Group :	Pollution and Environment
BV Sample ID :	2674577	Sample receipt date :	23 Jan 2026
Sample Name** :	Ground Water	Date of registration :	23 Jan 2026
Physical Description :	Slightly turbid liquid	Date of commencing of testing :	23 Jan 2026
Sample condition on receipt :	Good	Date of completion of testing :	30 Jan 2026
Sample quantity / Package** :	1Ltr X 2Nos		
Sample Information:	Sampling Done by Laboratory		
Sampling procedure :	BV/SARF/SOP/001	Date of sampling / collection :	15 Jan 2026
Sampling location :	Kadani Road, Tinplate division	Sampling / Collection done by :	Mr. Vishal Rajak

No.	Test Parameters	Unit	Test Results	Test Method	LOQ
1	pH Value	-	7.27	APHA 24th Edn-4500H+ B	1
2	Total Dissolved Solids	mg/L	383	APHA 24th Ed. 2540 C	1
3	Chemical Oxygen Demand	mg/L	26	APHA 24th-5220 C	5
4	Bio-Chemical Oxygen Demand - 27°C/3 days	mg/L	3.2	IS 3025 (P-44) : 1993 (RA 2019)	1
5	Oil and Grease	mg/L	BLQ	APHA 24th Edition - 5520 O&G B	10
6	Chloride as Cl	mg/L	42.6	APHA 24th Ed. 4500 Cl-B	1
7	Sulphate as SO ₄ ²⁻	mg/L	33.7	APHA 24th Edn-4500 SO4 E	2
8	Total Residual Chlorine	mg/L	BLQ	APHA 24th Ed. 4500 Cl-B	1
9	Cyanide as CN	mg/L	BLQ	APHA 24th - 4500CN C, E	0.01
10	Fluoride as F	mg/L	0.52	APHA 24th Edn- 4500F ⁻ B & D	0.1
11	Cadmium as Cd	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
12	Total Chromium as Cr	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
13	Lead as Pb	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
14	Mercury as Hg	mg/L	BLQ	APHA 24th Ed. 3120 B	0.01
15	Nickel as Ni	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
16	Copper as Cu	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
17	Zinc as Zn	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
18	Pesticides	mg/L	BLQ	USEPA 3510 C & 8270 C	0.0005
19	Arsenic as As	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
20	Colour	Hazen	BLQ	APHA 24th Edn-2120 B	10
21	Turbidity	NTU	BLQ	APHA 24th Edn-2130B	1
22	Sodium as Na	mg/L	43.2	APHA 24th Ed. 3120 B	0.1
23	Potassium as K	mg/L	2.68	APHA 24th Ed. 3120 B	0.1
24	Electrical Conductivity @ 25°C	Micromho/cm	662	APHA 24th Edn-2510 B	1
25	Iron as Fe	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05
26	Total Alkalinity as CaCO ₃	mg/L	170.0	APHA 24th -2320B	1
27	Magnesium as Mg	mg/L	15.8	APHA 24th Edn-3500 Mg B	1



Test Report No. INCHE26007290202105834

ULR No. : TC805726000002499F

Report Issue Date: 02 Feb 2026

Sl. No.	Parameter	Unit	Result	Method	Limit
28	Total Hardness as CaCO ₃	mg/L	322	APHA 24th Edn - 2340 C	1
29	Calcium as Ca	mg/L	103	APHA 24th Edn- 3500CaB	1
30	Nitrate as NO ₃	mg/L	28.7	APHA 23rd Ed. 4500-NO3 B	0.5
31	Total Phosphates as P	mg/L	0.27	APHA 24th Edn-4500 P B, D	0.05
32	Manganese as Mn	mg/L	BLQ	APHA 24th Ed. 3120 B	0.05

Abbreviations: LOQ: Limit of Quantification, BLQ: Below limit of quantification

** Indicates information supplied by the customer for which the laboratory has no control

Note: SAMPLE TESTED AS RECEIVED

Authorized Signatory

M.Ramesh

Manager

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— End of Report —

ENVIRONMENTAL POLICY

Tata Steel's environmental responsibilities are driven by our commitment to preserve the environment and are integral to the way we do business.

1. We are committed to deal proactively with Climate Change issue by efficient use of natural resources & energy; reducing and preventing pollution; promoting waste avoidance and recycling measures; and product stewardship.
 - We shall identify, assess and manage our environment impact.
 - We shall regularly monitor, review and report publicly our environmental performance.
 - We shall develop & rehabilitate abandoned sites through afforestation and landscaping and shall protect and preserve the biodiversity in the areas of our operations.
 - We shall enhance awareness, skill and competence of our employees and contractors so as to enable them to demonstrate their involvement, responsibility and accountability for sound environmental performance.
2. We are committed to continual improvement in our environmental performance.
 - We shall set objective-targets, develop, implement and maintain management standards and systems, and go beyond compliance of the relevant industry standards, legal and other requirements.
3. We will truly succeed when we sustain our environmental achievement and are valued by the communities in which we work.

Date : November 1, 2017



T V Narendran
CEO & Managing Director

