



Ref No: - TSL/FAP, JAJPUR/83/FY24

Dt. 29/09/2023

To,  
The Member Secretary  
State Pollution Control Board  
A/118, Paribesh Bhawan,  
Nilakantha Nagar, Bhubaneswar-751012.

Sub: - Submission of Environment Statement for the financial year 2022-2023.

Ref: under Rule 14 of The Environment (Protection) Rules 1986

Dear Sir,

With Reference to Rule 14 of the environment (Protection) Rules 1986, we are enclosing herewith the environment statement report for the financial year 2022-2023.

This is for your kind information

Thanking You,

Yours Truly,  
For Tata Steel Limited

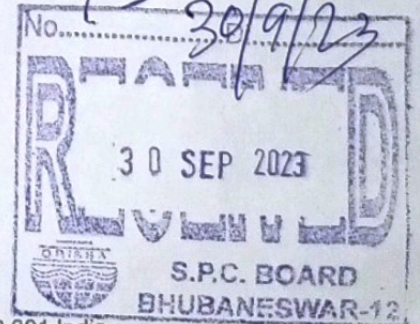
(Alok Kumar Panda)  
Plant Head & Factory Manager  
Ferro Alloys Plant, Jajpur

**Alok Kumar Panda**  
Head Ferro Alloys Plant, Jajpur  
TATA STEEL LTD.  
KNIC, P.O. - Manatira, Via-Danagadi  
Jajpur-755026, Odisha

Copy to: Regional Officer, State Pollution Control Board,  
Jajpur

**TATA STEEL LIMITED**

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







Ref.No.: TSL/FAMD/EAPJ/FX25/1405

Date. 28/09/2024

To  
The Member Secretary  
State Pollution Control Board  
A/118, Paribesh Bhawan  
Nilakantha Nagar, Bhubaneswar-751012

Sub:- Submission of Environmental Statement for the Financial Year 2023-2024

Ref:- Under Rule-14 of The Environment (Protection) Rules 1986

Dear Sir,

With Reference to Rule-14 of The Environment (Protection) Rules 1986, we are enclosing herewith the Environmental Statement report for the Financial Year 2023-2024 attached.

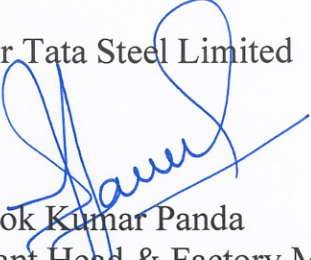
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**Alok Kumar Panda**  
Head Ferro Alloys Plant, Jajpur  
TATA STEEL LTD.  
KNIC, P.O.-Manatira, Via-Danagadi  
Jajpur-755026, Odisha

  
Alok Kumar Panda  
Plant Head & Factory Manager  
Ferro Alloys Plant, Jajpur

Cc: Regional Officer, State Pollution Control Board, Kalinganagar, Jajpur

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# ENVIRONMENTAL STATEMENT

FOR THE FINANCIAL YEAR 2023-24

Submitted to SPCB under Rule 14 of The Environment (Protection) Act, 1986

**TATA STEEL LIMITED**

**FERRO ALLOYS PLANT-JAJPUR**

**KALINGANAGAR INDUSTRIAL COMPLEX, DUBURI, DIST-JAJPUR-755026,  
ODISHA**

# ENVIRONMENTAL STATEMENTS

## FORM-V

(See Rule 14)

The Ministry of Environment & Forest vide its notification dated March, 1992 directed all industries which need to have consent under Water (Prevention & Control of Pollution) 1974 and Air (Prevention & Control of Pollution) 1981 to file the Environmental statement every year. This is to be filed for the period ending March by September every year. The format for the same is as follows:

**Environmental Statement for the financial year ending the 31<sup>st</sup> March 2024**

### PART-A

**(i) Name and address of the owner / occupier of the industry operation or process:**

Shri T V Narendran , CEO & Managing Director,

M/s Tata Steel Limited, (Ferro Alloys Plant).

Kalinganagar Industrial Complex, Duburi, Dist- Jajpur-755026, Odisha

**(ii) Industry category- Large scale industry (Ferro Alloys Plant)**

**Primary - (STC code):-**

**Secondary – (SIC Code):-**

**(iii) Production capacity -**

Charge Chrome/ Silico Manganese/Ferro Manganese (4x16.5MVA) furnace No-I, II, III & IV-1,00,000 TPA

**(iv) Year of establishment -Acquired M/s. Rohit Ferrotech Limited in 2022, NCLT Order Copy attached as per Annexure-II**

**(v) Date of the last environmental statement submitted- 29.09.2023, Letter copy attached as per Annexure-IV**

## PART-B

### Water and Raw Material Consumption

(i) **Water Consumption:- 176740 KL** (April-2023 to March- 2024) Consumed

Process: -326.78 m<sup>3</sup>/d

Cooling: -93.36 m<sup>3</sup>/d

Domestic: -46.68m<sup>3</sup>/d

Name of Product	Process water consumption per unit of product output (M <sup>3</sup> /T).	
	During the previous financial year(2022-2023)	During the current financial year(2023-2024)
1	2	3
Charge Chrome/ Silico Manganese/Ferro Manganese (4x16.5MVA) furnace No-I, II, III & IV- 1,00,000 TPA	2.28	2.15

(ii) **Raw Material Consumption**

SN	Name of Product	Name of Raw Material	Consumption of raw material per unit of output	
			During the previous financial year 2022-23 (Tonnes)	During the current financial year 2023-24 (Tonnes)
1	Charge Chrome/ Silico Manganese/Ferro Manganese (4x16.5MVA) furnace No-I, II, III & IV- 1,00,000 TPA	Chrome Ore	94546.29	131991.54
		Coke	20391.30	30800.21
		Coal	281.67	-
		Quartzite	6735.41	8986.73
		Magnesite	622	3676
		Molasses	7442.82	9792.12
		Lime	4337.62	5751.69
		Carbon Paste	577.52	728.29

Polluting Industry may use codes if disclosing details of raw material would violate contractual obligations, otherwise all industries must name the raw material used.

## PART-C

### Discharged to environment / unit of output specified if the consent issued.

#### (Parameters as specified in the consent issued)

#### Brief description of the process producing FeCr:

During the smelting process; oxides of Chromium, Iron, Silicon, Sulphur and Phosphorous are reduced. The Sulphur goes into the Slag and also escapes to the atmosphere through the stack as SO<sub>2</sub>.

#### Sources of Pollution:

The sources of pollution can be in the form of:

1. Water Pollution
2. Air Pollution

#### 1. Water Pollution:

We are treating water where chances of Hexavalent chromium contamination present through ETP and the treated water is used in metal cooling, watering on plantation, dust suppression etc.

#### 2. Air Pollution:

4nos. 16.5 MVA Arc Furnace produces the following air pollutants which is released to atmosphere through Gas Cleaning Plant. SPM, SO<sub>2</sub>, NO<sub>2</sub> & CO

Pollutants	Quantity of pollutants discharged (mass/day)	Concentration of pollutions in discharges (mass / volume)	Percentage variation from prescribed standard with reasons
<b>a) Liquid</b>			(Domestic effluent of water treated by Septic tank followed by soak pit). STP of 10KLD installed. No discharge allowed to outside (Cooling & Other waste water including COB Plant of water treated by recycling process). The sample analysis Waste Water Report is attached as
i) Domestic Effluent	0	0	
ii) Cooling & Other wastewater including COB Plant	0	0	

			<b>Annexure-IV</b>
<b>b) Emissions</b>		<b>Annexure-I</b>	Nil
i) GCP of Furnace-I	26.8	0.091	
ii) GCP of Furnace- II	37.1	0.1	
iii) GCP of Furnace-III & IV	39.1	0.38	
<b>c) Solid Wastes</b>			Nil
i) Fine Dust/GCP Dust	766.76 MT generated	Used in Briquette Plant	

**PART-D**

**HAZARDOUS WASTES**

**(As specified under Hazardous Wastes / Management and handling Rules, 1989)**

<b>Hazardous Waste</b>	<b>Total Quantity (Kg)</b>	
	<b>During the previous financial year (2022-2023)</b>	<b>During the current financial year (2023-2024)</b>
Used Oil	Nil	3KL

**PART-E**

**SOLID WASTE**

		<b>Total Quantity</b>	
		<b>During the previous financial year</b>	<b>During the current financial year</b>
(a)	From process (a) Slag	Slag-36106.42 MT	Slag- 54541.92 MT
(b)	From pollution control facility	--	--
(c)	(1) Quantity recycled or re-utilized within the unit	--	
	(2) Sold	--	--
	(3) Disposed	--	--

## PART-F

**Please specify the characterization (in terms of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both the categories of wastes.**

### **A. Hazardous Waste- Used oil stored (Sold to registered recycler).**

Solid Waste- Slag (Used as filling material).

Fine Dust-Used in Briquette Plant.

### **B. Characteristics (in terms of concentration and quantum) of solid waste**

Ferro chrome slag which is in lumpy form dumped in dump yard designated inside plant premises.

<b>Characteristics of Ferro Chrome Slag</b>	
<b>Parameter</b>	<b>Result (in %)</b>
Cr <sub>2</sub> O <sub>3</sub>	10-13
SiO <sub>2</sub>	27-30
MgO	25-27
FeO	3-5
Al <sub>2</sub> O <sub>3</sub>	22-25
CaO	5-7

The slag is dumped for back filing with-in our premises. The necessary TCLP test of slag has been carried out and attached as Annexure-V

### **Disposal practice:**

#### **Slag:-**

All the four furnaces produce Cr<sub>2</sub>O<sub>3</sub> slag as a by – product. The slag is mostly utilized for road construction & development and the rest is dumped at earmarked site inside the factory premises.

#### **GCP dust:-**

Individual GCPs have been provided to Furnace I & II , Furnace III & IV. Each GCP consists of gas cooler (air to air heat exchanger) and pulse jet bag filter with duct and ID fan and discharged through a stack of adequate height. The flue gas cleaning residue is



properly collected with the help of pneumatic dust collection system provide with silo and stored on a concrete floor under shed and is used in briquette making process.

### **Waste oil:**

The waste oil generated at various sources are collected in leak proof barrels and then are kept on a concrete floor with oil catch pit. It is also ensured that the caps of the barrels remain intact and in upright position. The storage area is properly fenced and caution board displayed. During transfer of waste oil to barrels, a trough is placed underneath to prevent land contamination due to oil spillage then at a fixed interval, these barrels are returned to stores for final disposal through authorized reprocessor.

### **Waste batteries:**

Waste Batteries are generated in Electrical and IT section . These batteries with diluted acid and caps intact are kept under a shed having concrete floor. Then at a fixed interval, these batteries are returned to stores for final disposal. The UPS generated is kept inside the IT room and during purchase of new UPS it is handed over to the party under buy back policy.

### **Used cotton wastes:**

The used cotton wastes generated at various locations are kept in designated barrels and at a fixed interval; these wastes are handed over to the Shift In-charge of the Furnace Section for incinerating in the Electric Arc Furnace at a temperature of more than 1700 degree C.

## **PART-G**

### **In respect of the pollution abatement measures taken up on conservation of natural resources and on the cost of production.**

M/s **TATA STEEL LIMITED, FERRO ALLOYS PLANT** has spearheaded the pursuit for Environmental Protection by implementing an effective environmental management system. To this effect, the Plant has undertaken the following measures: -

- ✚ Annual maintenance of both the GCPs including power consumption and GCP dust transportation
- ✚ Annual maintenance of dry fog systems including power consumption
- ✚ Misc. Contractual jobs for maintaining environmental management system like road development, drain development.
- ✚ Zero Discharge.
- ✚ Optimum land use, reuse of solid waste.
- ✚ 2000 numbers of forest tree sapling planted.
- ✚ Mist Canon and Water tanker deployed at site as a measure towards dust suppression

- ✚ Full-fledged Morden Dry Gas Cleaning Plant with Air Pulse Jet Bag Filter Technology (BFT) has been installed to clean process gas generated from furnace. Bag filters are also installed at briquetting plant to control dust emission during operation.
- ✚ Final dust of GCP is collected from silo in silo bags to control fugitive emission and the chrome dust is again reused 100% for briquette making.
- ✚ In plant control measures and, dust extraction system, fume extraction system, dry fog dust suppression system has been installed at vulnerable areas to reduce fugitive emission.
- ✚ Waste water utilization is continuing in regular activities like metal and slag cooling, road sprinkling, will be used in jigging plant, dust suppression and gardening.
- ✚ Maintenance of tree saplings is being carried out to ensure more than 90% survival rate.
- ✚ All internal roads inside the plant are made concrete and cast house front area is also made concreted to reduce dust emission.
- ✚ Side sheeting are given on sheds like bin building and briquetting plant to control cross wind and fugitive emission.
- ✚ Five numbers of ambient air quality monitoring stations installed to monitor air quality parameters and to take corrective action in-case of deviation from prescribed standard.
- ✚ Single use plastic is not used.
- ✚ Weather monitoring station is also installed for temperature, humidity, wind speed etc.
- ✚ Steel water bottles instead of plastic water s are in use to avoid plastic usage.

## **PART-H**

### **Additional measures/investment proposal during 2023-24 for environment protection including abatement of pollution prevention of pollution.**

- ✚ Necessary pollution control equipment has been installed at site and steps are being taken to implement environmental protection measures. An operational environment expenditure of rupees 28 Crores towards various projects for FY 2023-24 has been spent as below:
- ✚ Bag-filters refurbishing and updation in the system for GCP 3&4
- ✚ Two New GCP installed of double the capacity with bag filters with an expenditure value of Approx 16 Crores.
- ✚ Completely replaced the wet scrubber system to bag filter and dedusting system of around 40 numbers across the conveyor points in Briquette plant.
- ✚ Dust Suppression, Water sprinklers dedicated Mist Canon etc. are in place to control the air pollution.

- # ETP of 33 cum/day worth of rupees 4 crores has been installed with 24\*7 operation
- # Two STP of 10KLD installed and made operational, value of approx. rupees 33 Lakhs.
- # Rainwater harvesting ponds have been constructed at site to conserve and re-use the rain water post necessary treatment
- # Completely refurbished the dryer system to control the dust generation in Briquette plant.
- # Trees have been planted at site as per the Green Belt Development Plan.
- # For domestic waste septic tank and soak pit provided.
- # Water spraying on haulage roads, dumping site etc. as a measure towards dust suppression system
- # Continuing environmental monitoring as per the plan and monthly report of the same is submitted.
- # Celebrating World Environment Day, World Ozone Day etc at site.
- # Training on EMS to create awareness, mass meeting on shop floor are also being carried out.
- # Effective solid wastes management is maintained and followed at site.
- # 100% recycling of effluent water.
- # Proper handling and management of Hazardous Wastes.
- # Phase wise installation of LED lights in place of MH/HPSV lights for energy conservation.

## **PART-I**

### **Miscellaneous**

#### **Any other particular for improving the quality of the environment protection and abatement of pollution**

- # Water Sprinkling is being done on all the roads and areas of operation and also within the project site to control the fugitive dust emission.
- # Regular monitoring of ambient air, surface water, ground water and ambient noise is being done by third party MoEF approved labs.
- # Only PUC certified vehicles are engaged inside plant premise.
- # World environment day celebrated.
- # Adoption of good housekeeping practices in which proper and systematic stacking and movement of materials is ensured.
- # ETP and STP installed to treat domestic and industrial wastewater.
- # New GCP with Bag filter model is installed at Briquette plant for dust suppression and improvement in air quality.
- # Internal Roads and drains are modified throughout the unit.
- # We have provided adequate measures for proper handling of hazardous waste in

accordance with the provisions of Rules.

- ✚ We are maintaining good housekeeping throughout the plant.
- ✚ We have adopted different energy conservation measures for conserving thermal & electrical energy.
- ✚ We have carried out third party hazardous waste audit as per the guideline of Honorable Supreme Court of India.
- ✚ We have constructed garland drain around raw material yard for collection and treatment of surface runoff during monsoon period.
- ✚ Community awareness development programs on environmental protection are also undertaken through celebration of World Environment Day.
- ✚ We have undertaken extensive CSR activities like plantation program at nearby schools etc.

### **Few Photographs of New Installed projects and Initiatives :**



**Awareness Sessions and Campaigns**



**Plantation drive on the eve of World Environment Day 2023**



**Plantation drive**



**Lawn Development**



**Mist canon Deployed.**





Installation of New GCP



DHS connected to separate bag filter.



Installation of Bag House



Common Chimney for both Furnace-1 & 2



ETP-33 Cum/hr capacity

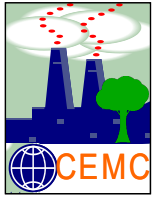


Environment Display Board



Internal Roads and Drains Developed across the unit

# Ferro Alloys Plant, Jajpur Tata Steel Limited



# CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

Annexure-I

An ISO 9001-2015 & OHSAS 45001:2018 Certified Company, Empanelled with OCCL, ORSAC and SPCB of Govt. of Odisha  
Accredited by NABET, QCI for EIA Studies as 'A' Category Consultant Organization. Empanelled with PCCF(Wildlife) &CWLW,Odisha  
Enlisted in Construction Industry Development Council (CIDC) established by the Planning Commission (Govt. of India)  
MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1986 & NABL Accredited Laboratory

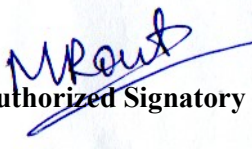
Ref: CEMC-25092024A1

Date: 25.09.2024

## AAQ MONITORING REPORT FOR(2023-2024)

1. Name of Industry	:	M/s. TATA Steel Ltd, (Ferro Alloys Plant),Kalinganagar,Jajpur
2. Sampling Location	:	AAQMS-1 : Infront of CPP (Core Zone)
3. Monitoring Instruments	:	RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler.
4. Sample collected by	:	CEMCPL Representative

Date	PARAMETERS											
	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>x</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	BaP (ng/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	As (ng/m <sup>3</sup> )
APR-23	73.65	33.81	7.63	28.86	0.67	<10	<20	<5	<1	<0.6	<0.1	<0.44
MAY-23	73.65	33.81	7.63	28.86	0.67	<10	<20	<5	<1	<0.6	<0.1	<0.44
JUNE-23	73.28	34.94	7.33	29.58	0.67	<10	<20	<5	<1	<0.6	<0.1	<0.44
JULY-23	68.59	37.08	7.79	11.87	0.39	<10	<20	<5	<1	<0.6	<0.1	<0.44
AUG-23	67.48	23.52	7.38	13.65	0.35	<10	<20	<5	<1	<0.6	<0.1	<0.44
SEPT-23	76.35	41.03	15.78	24.33	0.36	<10	<20	<5	<1	<0.6	<0.1	<0.44
OCT-23	86.88	39.73	14.22	22.97	0.36	<10	<20	<5	<1	<0.6	<0.1	<0.44
NOV-23	89.19	38.84	13.99	21.31	0.36	<10	<20	<5	<1	<0.6	<0.1	<0.44
DEC-23	78.64	37.45	13.83	19.64	0.35	<10	<20	<5	<1	<0.6	<0.1	<0.44
JAN-24	83.45	35.95	14	19.89	0.35	<10	<20	<5	<1	<0.6	<0.1	<0.44
FEB-24	81.71	34.43	13.48	18.89	0.33	<10	<20	<5	<1	<0.6	<0.1	<0.44
MAR-24	81.7	33.5	12.9	18.5	0.3	<10	<20	<5	<1	<0.6	<0.1	<0.44
Average	<b>77.88</b>	<b>35.34</b>	<b>11.33</b>	<b>21.53</b>	<b>0.43</b>	<10	<20	<5	<1	<0.6	<0.1	<0.44
NAAQ Standard	100	60	80	80	4	180	400	5	1	20	1	6

  
Authorized Signatory



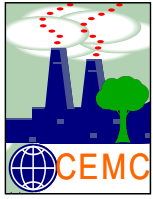
Environmental Studies (EIA & EMP),Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

Regd. Office: Plot No.-522/3458,Near Utkal Hyundai,Opposite Apex College,Pahal,Bhubaneswar-752101,Odisha, India, ,Mobile: 9861032826

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Laboratory At: Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101, Odisha, India, ,Mobile: 7752014842

E-mail: cemclab@yahoo.in



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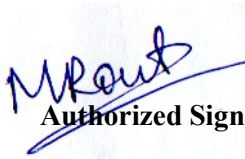
Ref: CEMC-25092024A2

Date: 25.09.2024

## AAQ MONITORING REPORT FOR(2023-2024)

1. Name of Industry	: M/s. TATA Steel Ltd, (Ferro Alloys Plant), Jajpur
2. Sampling Location	: AAQMS-2 : Briquette(BQT)
3. Monitoring Instruments	: RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler.
4. Sample collected by	: CEMCPL Representative

Date	PARAMETERS											
	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>x</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )	O <sub>3</sub> ( $\mu\text{g}/\text{m}^3$ )	NH <sub>3</sub> ( $\mu\text{g}/\text{m}^3$ )	C <sub>6</sub> H <sub>6</sub> ( $\mu\text{g}/\text{m}^3$ )	BaP ( $\text{ng}/\text{m}^3$ )	Ni ( $\text{ng}/\text{m}^3$ )	Pb ( $\mu\text{g}/\text{m}^3$ )	As ( $\text{ng}/\text{m}^3$ )
APR-23	83.03	45.92	8.01	41.66	0.82	<10	<20	<5	<1	<0.6	<0.1	<0.44
MAY-23	84.7	44.63	8.24	41.17	0.68	<10	<20	<5	<1	<0.6	<0.1	<0.44
JUNE-23	85.47	37.48	7.89	33.12	0.76	<10	<20	<5	<1	<0.6	<0.1	<0.44
JULY-23	67.23	38.41	8.34	12.65	0.38	<10	<20	<5	<1	<0.6	<0.1	<0.44
AUG-23	73.02	29.21	9.51	15	0.51	<10	<20	<5	<1	<0.6	<0.1	<0.44
SEPT-23	82.81	41.73	14.61	23.33	0.46	<10	<20	<5	<1	<0.6	<0.1	<0.44
OCT-23	88.91	41.14	14.3	20.99	0.36	<10	<20	<5	<1	<0.6	<0.1	<0.44
NOV-23	89.86	38.72	14.33	19.47	0.38	<10	<20	<5	<1	<0.6	<0.1	<0.44
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FEB-24	86.84	38.42	13.94	19.43	0.34	<10	<20	<5	<1	<0.6	<0.1	<0.44
MAR-24	80.5	32.7	11.5	18.4	0.3	<10	<20	<5	<1	<0.6	<0.1	<0.44
Average	<b>82.99</b>	<b>38.82</b>	<b>11.58</b>	<b>23.69</b>	<b>0.48</b>	<10	<20	<5	<1	<0.6	<0.1	<0.44
NAAQ Standard	100	60	80	80	4	180	400	5	1	20	1	6

  
Authorized Signatory



Environmental Studies (EIA & EMP), Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

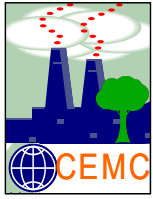
Regd. Office: Plot No.-522/3458, Near Utkal Hyundai, Opposite Apex College, Pahal, Bhubaneswar-752101, Odisha, India, Mobile: 9861032826

E-mail- cemc\_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in.

Laboratory At: Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101, Odisha, India, Mobile: 7752014842

E-mail: cemclab@yahoo.in





# CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

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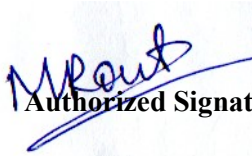
Ref: CEMC-25092024A3

Date: 25.09.2024

## AAQ MONITORING REPORT FOR(2023-2024)

1. Name of Industry	: M/s. TATA Steel Ltd, (Ferro Alloys Plant), Jajpur
2. Sampling Location	: AAQMS-3 : Buffer Zone
3. Monitoring Instruments	: RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler.
4. Sample collected by	: CEMCPL Representative

Date	PARAMETERS											
	PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ )	NO <sub>x</sub> ( $\mu\text{g}/\text{m}^3$ )	CO ( $\text{mg}/\text{m}^3$ )	O <sub>3</sub> ( $\mu\text{g}/\text{m}^3$ )	NH <sub>3</sub> ( $\mu\text{g}/\text{m}^3$ )	C <sub>6</sub> H <sub>6</sub> ( $\mu\text{g}/\text{m}^3$ )	BaP ( $\text{ng}/\text{m}^3$ )	Ni ( $\text{ng}/\text{m}^3$ )	Pb ( $\mu\text{g}/\text{m}^3$ )	As ( $\text{ng}/\text{m}^3$ )
APR-23	58.78	32.40	7.10	26.95	0.55	<10	<20	<5	<1	<0.6	<0.1	<0.44
MAY-23	58.90	33.20	7.13	29.20	0.54	<10	<20	<5	<1	<0.6	<0.1	<0.44
JUNE-23	56.15	29.95	7.08	24.50	0.54	<10	<20	<5	<1	<0.6	<0.1	<0.44
JULY-23	54.93	28.13	8.34	12.65	0.38	<10	<20	<5	<1	<0.6	<0.1	<0.44
AUG-23	59.95	30.68	7.87	11.91	0.39	<10	<20	<5	<1	<0.6	<0.1	<0.44
SEPT-23	55.60	30.85	7.87	14.98	0.37	<10	<20	<5	<1	<0.6	<0.1	<0.44
OCT-23	64.68	38.20	10.45	17.84	0.41	<10	<20	<5	<1	<0.6	<0.1	<0.44
NOV-23	65.15	37.37	10.84	17.10	0.35	<10	<20	<5	<1	<0.6	<0.1	<0.44
DEC-23	68.43	38.08	9.63	17.40	0.29	<10	<20	<5	<1	<0.6	<0.1	<0.44
JAN-24	61.03	35.35	9.05	16.15	0.36	<10	<20	<5	<1	<0.6	<0.1	<0.44
FEB-24	58.83	33.53	8.93	15.08	0.31	<10	<20	<5	<1	<0.6	<0.1	<0.44
MAR-24	52.00	32.03	8.25	13.50	0.25	<10	<20	<5	<1	<0.6	<0.1	<0.44
Average	<b>59.54</b>	<b>33.31</b>	<b>8.55</b>	<b>18.11</b>	<b>0.40</b>	<10	<20	<5	<1	<0.6	<0.1	<0.44
NAAQ Standard	100	60	80	80	4	180	400	5	1	20	1	6

  
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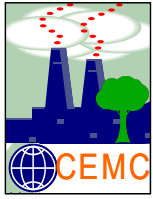
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Ref: CEMC-25092024St

Date: 25.09.2024

## STATIONARY EMISSION MONITORING REPORT (2023-2024)

1. Name of Industry : M/s TATA STEEL LTD, (Ferro Alloys Plant), Jajpur  
2. Monitoring Instrument : Vayubodhan Stack Sampler VSS 2  
3. Stack attached to : GCP-I

MONTH	TEMP(°C)	VEL(m/ sec)	Gas Flow(Nm <sup>2</sup> /hr)	PM (mg/Nm <sup>3</sup> )
Apr-23	324	14.03	145614.33	26
May-23	329	13.99	142799.03	22
Jun-23	351	14.98	142120.88	20
Jul-23	345	14.18	138345.22	32
Aug-23	335	14.16	138227.6	34
Avg.	<b>336.8</b>	<b>14.3</b>	<b>141421.4</b>	<b>26.8</b>
Permissible limit				<b>50.0</b>

  
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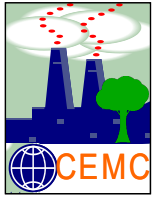
  
Seal of Laboratory

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## STATIONARY EMISSION MONITORING REPORT (2023-2024)

1. Name of Industry : M/s TATA STEEL LTD, (Ferro Alloys Plant), Jajpur  
2. Monitoring Instrument : Vayubodhan Stach Sampler VSS 2  
3. Stack Attached to : GCP-II

MONTH	TEMP(°C)	VEL(m/sec)	Gas Flow(Nm <sup>2</sup> /hr)	PM (mg/Nm <sup>3</sup> )
Apr-23	325	17.45	180263	32
Jul-23	331	9.24	92452.23	30
Aug-23	329	9.18	90962	34.4
Oct-23	395	7.51	84893	41.8
Nov-23	378	10.34	124551	47.1
<b>Avg</b>	<b>351</b>	<b>10.7</b>	<b>114624.2</b>	<b>37.1</b>
<b>Permissible limit</b>				<b>50.0</b>

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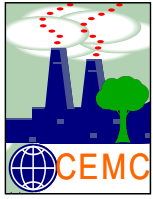


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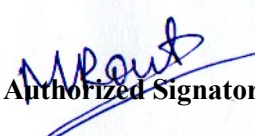
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## STATIONARY EMISSION MONITORING REPORT (2023-2024)

1. Name of Industry : M/s TATA STEEL LTD, (Ferro Alloys Plant), Jajpur  
2. Monitoring Instrument : Vayubodhan Stach Sampler VSS 2  
3. Stack Attached to : GCP-III

MONTH	TEMP(°C)	VEL(m/sec)	Gas Flow(Nm <sup>2</sup> /hr)	PM (mg/Nm <sup>3</sup> )
Jul-23	338	6.5	589022.81	28
Aug-23	343	6.1	58022	29.2
Sep-23	373	11.12	125700	42.6
Oct-23	381	8.22	92918	44
Avg	358.8	8.0	216415.7	36.0
Permissible limit				50.0

  
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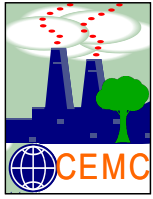


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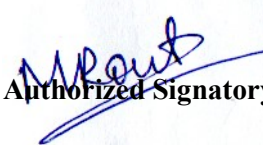
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## STATIONARY EMISSION MONITORING REPORT (2023-2024)

1. Name of Industry : M/s TATA STEEL LTD, (Ferro Alloys Plant), Jajpur  
2. Monitoring Instrument : Vayubodhan Stach Sampler VSS 2  
3. Stack Attached to : GCP-I &II

MONTH	TEMP(°C)	VEL(m/sec)	Gas Flow(Nm <sup>2</sup> /hr)	PM (mg/Nm <sup>3</sup> )
Jan-24(I)	405	7.84	84875	41
Jan-24(II)	384	8.95	920088	43
Feb-24(I)	397	7.55	84159	54
Feb-24(II)	375	9.01	912584	50
Mar-24(I)	402	7.96	84141	49
Mar-24(II)	397	7.84	84120	51
Avg	393.3	8.2	361661.2	48.0
Permissible limit				50.0

  
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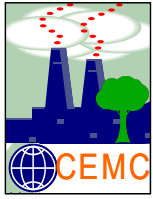
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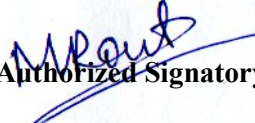
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## STATIONARY EMISSION MONITORING REPORT (2023-2024)

1. Name of Industry : M/s TATA STEEL LTD, (Ferro Alloys Plant), Jajpur  
2. Monitoring Instrument : Vayubodhan Stach Sampler VSS 2  
3. Stack Attached to : GCP-II & III

MONTH	TEMP(°C)	VEL(m/sec)	Gas Flow(Nm <sup>2</sup> /hr)	PM (mg/Nm <sup>3</sup> )
Nov-23	376	11.27	125824	45.3
Dec-23(I)	369	11.34	125986	47.4
Dec-23(II)	372	11.39	127163.7	47.5
<b>AVG</b>	<b>372.3</b>	<b>11.3</b>	<b>126324.6</b>	<b>46.7</b>
<b>Permissible limit</b>				<b>50.0</b>

  
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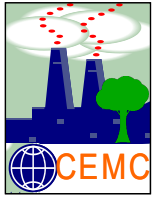


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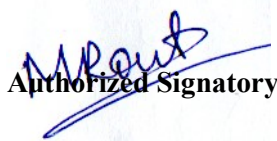
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## STATIONARY EMISSION MONITORING REPORT (2023-2024)

1. Name of Industry : M/s TATA STEEL LTD, (Ferro Alloys Plant), Jajpur  
2. Monitoring Instrument : Vayubodhan Stach Sampler VSS 2  
3. Stack Attached to : GCP-III & IV

MONTH	TEMP(°C)	VEL(m/sec)	Gas Flow(Nm <sup>2</sup> /hr)	PM (mg/Nm <sup>3</sup> )
Apr-23	350	15.08	144943.4	22.8
May-23	352	13.16	125278.22	31
Jun-23	345	15.02	144858.11	33
Sep-23	365	10.97	124005	39.9
Oct-23	375	8.14	92023	47
Nov-23	371	11.21	124542	45.9
Jan-24(I)	378	8.65	920154	41
Jan-24(II)	397	7.44	84963	38.9
Feb-24(I)	381	8.44	921158	49
Feb-24(II)	389	9.03	920555	42
Mar-24	387	9.25	920426	40
Avg	371.8	10.6	411173.2	39.1
Permissible limit				50.0

  
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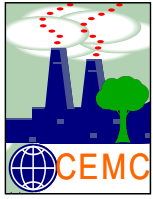


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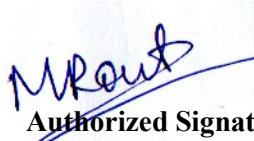
Ref: CEMC-25092024FE

Date: 25.09.2024

## FUGITIVE EMISSION MONITORING REPORT (2023-2024)

1.	Name of Industry	:	M/s. TATA Steel Mining Ltd, (Ferro Alloys Plant), Jajpur
2.	Monitoring Instruments	:	RDS (APM 460 BL)
3.	Sample Collected By	:	CEMCPL Representative

Sampling Location	GCP Area	Product Handling Yard (Finish Yard)	Furnance Area	Briquette Plant
	SPM ( $\mu\text{g}/\text{m}^3$ )	SPM ( $\mu\text{g}/\text{m}^3$ )	SPM ( $\mu\text{g}/\text{m}^3$ )	SPM ( $\mu\text{g}/\text{m}^3$ )
Apr-23	310	447	590	660
May-23	189	347	388	450
Jun-23	196	366	402	520
Jul-23	764	608	567	639
Aug-23	775	612	599	687
Sep-23	689	656	721	621
Oct-23	723	639	672	634
Nov-23	723	639	672	634
Dec-23	701	694	645	711
Jan-24	689	659	602	588
Feb-24	598	605	715	405
Mar-24	572	547	687	389
AVG	577.4	568.3	605.0	578.2
MoEF &CC Notification 03 <sup>rd</sup> Feb,2006	1200			

  
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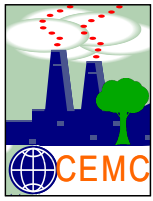
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# CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

Annexure-I

An ISO 9001-2015 & OHSAS 45001:2018 Certified Company, Empanelled with OCCL, ORSAC and SPCB of Govt. of Odisha Accredited by NABET, QCI for EIA Studies as 'A' Category Consultant Organization. Empanelled with PCCF(Wildlife) & CWLW, Odisha Enlisted in Construction Industry Development Council (CIDC) established by the Planning Commission (Govt. of India) MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1986 & NABL Accredited Laboratory

Ref: CEMC-25092024EW

Date: 25.09.2024

## EFFLUENT WATER QUALITY MONITORING TEST REPORT(2023-2024)

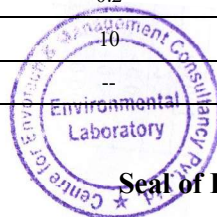
Name & Address of the Client : M/s. TATA Steel Ltd, (Ferro Alloys Plant), Jajpur  
 Sampling Period : April-2023 to March-2024  
 Sampling by : CEMCPL Representative  
 Sample Location : BQT

### ANALYSIS RESULT

Parameter	Unit of measurement	IS 2490: Discharge into Inland Surface Water	AUG'23	OCT'23	JAN'24	AVG
Colour	Hazen	--	20	15	18	18
Odour	--	--	U/O	U/O	U/O	U/O
Total Suspended Solids	mg/l	100	28.6	16.2	14.6	20
Particular size of SS	--	Shall pass 850	<850	<850	<850	<850
pH Value @ 25°C	--	5.5 to 9.0	7.21	6.91	6.78	7
Temperature	°C	Shall not Exceed 40 within 15 m d/s from effluent Outlet	25.8	24.2	24.3	25
Oil & Grease	mg/l	10	<1	<1	<1	<1
Residual Free Chlorine	mg/l	1.0	ND	ND	ND	ND
Ammonical Nitrogen	mg/l	50	ND	ND	ND	ND
Total Kjeldahl Nitrogen as N	mg/l	100	6.2	5.8	4.2	5
Free Ammonia	mg/l	5.0	ND	ND	ND	ND
Biochemical Oxygen Demand	mg/l	30	9.4	8.4	9	9
Chemical Oxygen Demand	mg/l	250	30	20	22	24
Arsenic (as As)	mg/l	0.2	<0.001	<0.001	<0.001	<0.001
Mercury (as Hg)	mg/l	0.01	<0.001	<0.001	<0.001	<0.001
Lead (as Pb)	mg/l	0.1	<0.01	<0.01	<0.01	<0.01
Cadmium (as Cd)	mg/l	2.0	<0.01	<0.01	<0.01	<0.01
Hexavalent Chromium (as Cr <sup>+6</sup> )	mg/l	0.1	<0.05	<0.05	<0.05	<0.05
Total Chromium (as Cr)	mg/l	2.0	<0.05	<0.05	<0.05	<0.05
Copper (as Cu)	mg/l	3.0	<0.03	<0.03	<0.03	<0.03
Zinc (as Zn)	mg/l	5.0	<0.05	<0.05	<0.05	<0.05
Selenium (as Se)	mg/l	0.05	<0.001	<0.001	<0.001	<0.001
Nickel (as Ni)	mg/l	3.0	<0.05	<0.05	<0.05	<0.05
Cyanide (as CN)	mg/l	0.2	ND	ND	ND	ND
Fluoride (as F)	mg/l	2.0	<0.05	<0.05	<0.05	<0.05
Dissolved Phosphate (as PO <sub>4</sub> )	mg/l	5.0	0.12	0.09	0.08	0
Sulphide (as S)	mg/l	2.0	<0.1	<0.1	<0.1	<0.1
Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	1.0	<0.001	<0.001	<0.001	<0.001
Bioassay Test	--	90% survival of fish after 96 hours in 100% effluent	94%	94%	94%	94%
Manganese (as Mn)	mg/l	2.0	<0.05	<0.05	<0.05	<0.05
Iron (as Fe)	mg/l	3.0	0.34	0.39	0.51	0
Vanadium (as V)	mg/l	0.2	<0.01	<0.01	<0.01	<0.01
Nitrate (as NO <sub>3</sub> )	mg/l	10	9.5	7.2	7.8	8
Dissolved Oxygen	mg/l	--	5.6	5.9	6.2	6

Authorized Signatory

Seal of Laboratory



Environmental Studies (EIA & EMP), Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

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Report no. - CEMC/TSL/280324/SL1

Issued Date-28.03.2024

## TCLP TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur

Date of Sampling : 21.03.2024

Sampling by : Mr. Rabindra Nath Das

Date of Sample Received : 22.03.2024

Sample Description : Slag Sample

Date of Analysis : 22.03.2024 to 28.03.2024

Reference No. : CEMC-28032024SL1

## ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	Standard*	Testing Method	Result
1	Arsenic as As	mg/l	5.0	TCLP With Zero Head Extraction Followed by Analysis in ICP-OES	<0.001
2	Cadmium as Cd	mg/l	1.0		<0.005
3	Chromium as Cr	mg/l	5.0		<0.005
4	Lead as Pb	mg/l	5.0		<0.005
5	Mercury as Hg	mg/l	0.2		<0.001
6	Selenium as Se	mg/l	1.0		<0.005
7	Nickel as Ni	mg/l	20.0		<0.005
8	Zinc as Zn	mg/l	20.0		0.071
9	Manganese as Mn	mg/l	250.0		0.41
10	Copper as Cu	mg/l	10.0		0.054

\* Govt. of India, MoEF & CC Schedule-II based on leachable concentration limits (TCLP) or Soluble Threshold limit Concentration (STLC), Class A, 2016

  
Authorized Signatory

Notes:

- The results relate only to the sample tested.
- This Test Report shall not be reproduced wholly or in part without prior written consent of the laboratory.
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Report no. - CEMC/TSL/201223/SL1

Issued Date-20.12.2023

## TCLP TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur

Date of Sampling : 09.12.2023

Sampling by : Mr. Rabindra Nath Das

Date of Sample Received : 10.12.2023

Sample Description : Slag Sample

Date of Analysis : 10.12.2023 to 20.12.2023

Reference No. : CEMC-20122023SL1

## ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	Standard*	Testing Method	Result
1	Arsenic as As	mg/l	5.0	TCLP With Zero Head Extraction Followed by Analysis in ICP-OES	<0.001
2	Cadmium as Cd	mg/l	1.0		<0.005
3	Chromium as Cr	mg/l	5.0		<0.005
4	Lead as Pb	mg/l	5.0		<0.005
5	Mercury as Hg	mg/l	0.2		<0.001
6	Selenium as Se	mg/l	1.0		<0.005
7	Nickel as Ni	mg/l	20.0		<0.005
8	Zinc as Zn	mg/l	20.0		0.066
9	Manganese as Mn	mg/l	250.0		0.57
10	Copper as Cu	mg/l	10.0		0.031

\* Govt. of India, MoEF & CC Schedule-II based on leachable concentration limits (TCLP) or Soluble Threshold limit Concentration (STLC), Class A, 2016

*B.P.Das*

Authorized Signatory

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