



Ref.: HILS/HKD/25-26/ 416

20<sup>th</sup> Sept. 2025

To,

The Member Secretary  
State Pollution Control Board, Odisha  
"Paribesh Bhawan"  
A/118, Nilakantha Nagar  
Unit - VIII,  
BHUBANESWAR - 751012

Sub: **Submission of Annual Environmental Statement (Form V) of our Aluminium Smelter at Hirakud for the financial year 2024-2025**

Ref: CTO granted vide no. 4625/IND-I-CON-32, dated 24.03.2023

Dear Sir,

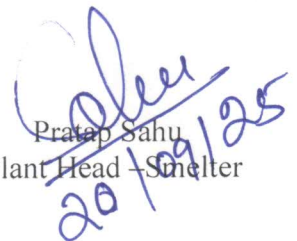
Please find enclosed herewith the Annual Environmental Statement in Form V with respect to our Aluminium Smelter at Hirakud for the financial year **2024-2025**.

This is for your kind information.

Thank you,

Yours truly,

Encl.: As above

  
Pratap Sahu  
Plant Head - Smelter  
20/09/25

Copy to the:

- (i) The Director, Eastern Regional Office, MoEF&CC, Bhubaneswar - 751023
- (ii) Regional Director, CPCB, Kolkata-700107
- (iii) Regional Officer, SPCB, Sambalpur - 768 002

**Hindalco Industries Limited**

Hirakud Complex, Hirakud - 768 016, District : Sambalpur, Odisha, India

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Prabhadevi, Mumbai 400013

Corporate ID No.: L27020MH1958PLC011238



## "FORM-V"

(See Rule – 14)

**Environmental Statement for the financial year ending the 31<sup>st</sup> March 2025.**

### **PART- A**

01. Name and Address of the owner / Occupier : Mr. Pratap Sahu  
Of the Industry, Operation or process : Plant Head- Smelter  
Hindalco Industries Limited,  
Hirakud Smelter  
PO: HIRAKUD – 768016  
Dist.: Sambalpur (ODISHA)
02. Industry category  
Primary - ( STC code ) : 684. 1  
Secondary - ( SIC code ) : 3720
03. Production Capacity - Units : 2.16 LTPA (as per CTO)  
177964.78 MT (2024-25)
04. Year of Establishment : 1959
05. Date of the last Environmental Statement : 19<sup>th</sup> June 2024  
Submitted

### **PART- B**

#### **Water and Raw Material Consumption**

01.	<b><u>Water Consumption(m<sup>3</sup>):</u></b>		
		<b><u>2023-2024</u></b>	<b><u>2024-2025</u></b>
	Process & Cooling :	166165	167839
	Domestic :	190150	181879
	Total :	356315	349718

Name of the Products	Water consumption per unit of product	
	During the Previous Financial Year 2023 - 2024	During the current Financial Year 2024 - 2025
Aluminium Metal	2.00 m <sup>3</sup> per Ton of Aluminium	1.97 m <sup>3</sup> per Ton of Aluminium

**02. Raw Material Consumption:**

Name of the Raw Materials	Name of the Products	Consumption of Raw materials per unit of Output (Kg/Ton of Aluminium)	
		During the Current Financial Year 2023 - 2024	During the Current Financial Year 2024 - 2025
Alumina	Aluminium Metal	1914.6	1920.0
Aluminium Fluoride (as $AlF_3$ )		16.80	17.0
Net Carbon		420.3	420.0

**PART- C**

**Pollution Discharged to Environment / Unit of output.  
(Parameters as specified in the Consent Order)**

Pollutants	Quantity of Pollutants discharged (mass / day)		Concentration of Pollutants in discharges (mass/ volume)	Percentage of Variation from prescribed standards with reasons.
(a) Water	No Discharge of untreated effluent to outside the plant premises. All the wastewater is treated and reused in metal cooling.		No Discharge of untreated effluent to outside the plant premises.	All the Plant effluents /sewage water being treated & recycled in Plant ETP/STP to maintain the ZLD status. The treated water is being reused for cooling and gardening purposes.
(b) Air	Total Fluoride (Kg/ MT. Al.)		PM (mg/ Nm <sup>3</sup> )	Prescribed Limits: Standards as per CTO
	Stack (FTP)	Pot room Fugitive	Stack (FTP)	(i) FTP Stack emission Total F - 0.3 Kg/ MT. Al (ii) Rooftop Fugitive emission Total F - 0.4 Kg/ MT. Al. (iii) FTP Stack emission PM - 100 mg/ Nm <sup>3</sup>
*Annual avg.	0.16	0.32	12.86	

**PART- D**

**Hazardous Wastes Management**

[as specified under Hazardous & Other Wastes (Management and Transboundary Movement) Rules, 2016]

Sl. No	Hazardous Wastes	Generation		Disposal	Stock
	(a) From Process	FY 2023-24	FY 2024-25	FY 2024-25	FY 2024-25
1	Used oil, KL	5.81	145.57	151.38	0.00
2	Waste containing oil, MT	2.32	14.28	12.31	4.29
3	Spent Pot Lining (Cathode residues), MT	36117.58	6195.78	42263.36	50.00
4	Aluminium Dross, MT	475.97	4904.00	5224.27	155.70
5	Aluminium Dross Residue, MT	18.50	3068.61	3075.96	11.15
6	Pot Duct Cleaning Waste, MT	27.44	59.00	85.60	0.84
7	Rejected Refractory of furnace, MT	66.26	78.00	140.41	3.85
8	Shot Blasting Dust (containing Fluoride), MT	0.75	328.28	320.46	8.57
9	Ladle cleaning residue, MT	0.00	82.80	82.80	0.00
10	Rejected Filter Bags FTP	1.36	5.61	2.39	4.57
11	Rejected AlF <sub>3</sub> Bags, MT	0.00	5.29	5.29	0.00
12	Fluoride contaminated waste (spilled waste from potline), MT	66.91	711.06	777.97	0.00
13	Drain cleaning sludge, MT	0.00	464.63	464.63	0.00
14	Floor sweeping & housekeeping waste, MT	27.01	223.01	250.02	0.00
15	ETP Sludge, MT	16.63	22.51	31.75	7.38
16	Used Anode butts, MT	39.70	23088.49	23109.28	18.91
17	Discarded container/ Liners used for Hazardous chemicals, no. s	2.42	1.67	4.09	0.00
18	Spent Ion Exchange Resin containing toxic materials, MT	0.08	0.13	0.18	0.03
19	Insulated Copper Wire Scrap or Copper with PVC sheathing (DRUID)	0	0.56	0.56	0.00
20	Rubber Waste, Waste Pneumatic and Other Tyres, Wastes Parings and Scrap of Rubber,	0	13.37	10.37	3.00

**(b) From Pollution Control Facilities (also included in (a) above)**

Hazardous Wastes	Generation		Disposal	Stock
(a) Water Pollution Control System				
	FY 2023-24	FY 2024-25	FY 2024-25	FY 2024-25
ETP sludge, MT	76.47	22.51	31.75	7.38
(b) Air Pollution Control System				
Rejected filter Bags (FTP), MT	15.53	5.61	2.39	4.57
Pot Duct Cleaning Waste, MT		59.00	85.60	0.84



**PART- E**  
**Solid Waste**

Solid waste	Generation (MT)	Disposal (Sale) (MT)
<b>( a ) From Process &amp; Maintenance</b>	<b>FY 2024-25</b>	<b>FY 2024-25</b>
Scrap Cast iron	254.05	254.05
Scrap Collector bar	592.64	592.64
M.S Scrap	1071.13	1071.13
Scrap Stainless Steel	200.29	200.29
Scrap Steel-Al clad	20.51	20.51
MS Strip	41.54	41.54
Scrap Pot Shell	893.14	893.14

**PART- F**

Please specify the characterizations (in terms of composition\* and quantum) of Hazardous as well as Solid Wastes and indicate disposal practice adopted for both these categories of wastes:

**Disposal of Hazardous Wastes:**

Hazardous Waste	Physical Form	Storage Description	Disposal Practice
Used oil	Liquid	Stored in drums under cover shed on concrete floor.	Sold to authorized recyclers
Waste containing oil	Solid	Stored under cover shed on concrete floor.	Disposed to cement plant for co-processing
Spent Pot Lining (Cathode residues)	Solid	Segregated for Carbon, Dust, Silicon Carbide & Refractory portion and stored in covered sheds on concrete floor.	Carbon portion - disposed to authorized actual user
Spent Pot Lining (Silicon Carbide)	Solid		Refractory portion - disposed to CHWTSDF
			Mixed Dust - disposed to authorized co-processor (cement plant)
			Silicon Carbide - disposed to authorized actual user
Aluminium Dross	Solid	Stored in covered sheds on concrete floor.	In-house re-processing and partly disposed to SPCB authorized actual users.
Aluminium Dross Residue	Solid	Stored in covered sheds on concrete floor.	Disposed to authorized actual user.
Pot Duct Cleaning Waste	Solid	Stored in covered sheds on concrete floor.	Disposed to CHWTSDF/ Sent to authorized co-processor
Rejected Refractory of furnace	Solid	Stored in covered sheds on concrete floor.	Disposed to CHWTSDF
Shot Blasting Dust (containing Fluoride)	Solid	Stored in covered sheds on concrete floor.	Disposed to authorized co-processor/ CHWTSDF
Ladle cleaning residue	Solid	Stored in covered sheds on concrete floor.	Recycled inside the Pot
Rejected filter Bags (FTP)	Solid	Stored in covered sheds on concrete floor.	Incinerated in CHWTSDF.
Rejected AlF <sub>3</sub> Bags	Solid	Stored in covered sheds on concrete floor.	Incinerated in the pots.



Fluoride contaminated waste (spilled waste from potline)	Solid	Stored in covered sheds on concrete floor.	Disposed to CHWTSDf
Drain cleaning sludge	Solid	Stored in covered sheds on concrete floor.	Disposed to authorized co-processor/ CHWTSDf
Floor sweeping & housekeeping waste	Solid	Stored in covered sheds on concrete floor.	Disposed to authorized co-processor/ CHWTSDf
ETP sludge	Solid	Stored in covered sheds on concrete floor.	Disposed to authorized co-processor
Used Anode butts	Solid	Stored in covered sheds on concrete floor.	Supplied to Aditya aluminium, Lapanga for recycling/partly supplied to actual users
Discarded containers/ Liners used for Hazardous chemicals	Solid	Stored in covered sheds on concrete floor.	Supplied to the authorized dealer in buy-back
Spent Ion Exchange Resin containing toxic materials	Semi-solid	Stored in covered sheds on concrete floor.	Co-incineration in CPP
Insulated Copper Wire Scrap or Copper with PVC sheathing (DRUID)	Solid	Stored in covered sheds on concrete floor.	Disposed to authorized recycler
Rubber Waste, Waste Pneumatic and Other Tyres, Wastes Parings and Scrap of Rubber	Solid	Stored in covered sheds on concrete floor.	Disposed to authorized recycler

\* For composition, please refer to Annexure - I

#### **PART- G**

**Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production.**

#### **Total Environmental Expenditure:**

Sl. No	Head of expenses	During Previous FY 2023-2024	During Current FY 2024-2025
1	Total expenditure (Rs in Lac)	15539.52	10392.62

#### **PART- H**

**Additional measures / investment proposal for environmental protection including abatement of pollution, prevention of pollution.**

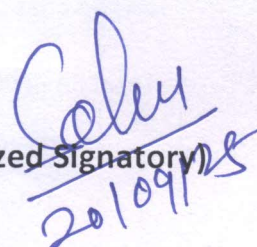
1. All the Legacy SPL disposed to authorized cement plants, CHWTSDf, and authorized users. The vacant sheds repurposed for storage of fresh Green Anodes from Aditya Aluminium, storage of various hazardous wastes, etc.
2. Installation of one Vertical Baling machine and two Leaf Shredders for non-hazardous MSW and Garden waste along with 2 TPD Bio-composter.
3. Installation of Rainwater Harvesting projects in Colonies for conservation of rainwater.
4. Total 45 no.s of Battery-Operated vehicles provided for material transport and movement inside the premise.
5. 2 nos. of new vacuum sweeping machines procured for housekeeping in Pot rooms.
6. Replacement of all R-22 based Air Conditioners inside the plant.



### PART- I

#### **Any other particulars for improving the quality of the Environment.**

- i) Co-processing of HWs like Shot Blast Dust, Drain Cleaning Sludge, Floor Sweeping & Housekeeping Waste, SPL (mixed dust) in authorized cement plants as Zero Waste to Landfill initiatives.
- ii) Hirakud Smelter & Power Complex declared Single-Use Plastic Free and received the certification from CII. All single use plastic materials prohibited for use inside the premises and replaced with other bio-degradable materials.
- iii) All the ducts connecting the pots of Line-3 to the FTP replaced for conservation of resources and better treatment of the process emissions.
- iv) Replacement of conventional fuel burners with dual mode burners in Cast Houses
- v) Furnace Oil used in Cast Houses replaced with Low Sulphur Heavy Stock (LSHS) oil having less than 1% Sulphur content.
- vi) Repairing of all the internal roads inside the plant premise to reduce fugitive dust emission.
- vii) 1800 dustbins provided to the households (@2 dustbins to each house) in all the colonies for segregation of dry & wet Municipal Solid Waste, with door-to-door collection of the waste.

  
(Authorized Signatory)  
20/09/25

Composition Analysis by NABL Accredited Laboratory							
Sl. No	Parameters	Hazardous Wastes					
		Aluminium Dross	Used Anode Butt	Spent Pot Line (SPL)			
				Carbon	Refractory	Mixed Fines	Silicon Carbide
1	Aluminium Oxide, Al <sub>2</sub> O <sub>3</sub>	59.31	0.12	6.92	28.01	23.55	0.33
2	Cadmium	0	0	0	0	0	0
3	Copper, Cu <sub>2</sub> O	0.01	0	0	0.02	0.02	0
4	Chromium, Cr <sub>2</sub> O <sub>3</sub>	0	0	0	0.01	0.01	0
5	Iron, Fe <sub>2</sub> O <sub>3</sub>	2.52	0.04	0.08	1.36	2.31	0.04
6	Manganese, MnO	0	0	0	0	0.01	0
7	Nikel, NiO	0.03	0	0.01	0.02	0.02	0.06
8	Tin, SnO <sub>2</sub>	0	0.05	0	0	0	0
9	Phosphorus, P <sub>2</sub> O <sub>5</sub>	0.02	0	0.01	0.03	0.02	0
10	Zinc	0	0	0	0.01	0.01	0
11	Lead	0	0	0	0	0	0
12	Calcium	0.54	0.04	0.15	0.98	2.88	0.13
13	Magnesium	0.37	0.01	0.01	0.03	0.43	0.18
14	Sodium	3.92	0.04	2.15	0.55	6.83	0.27
15	Potassium	1.22	0	0.06	0.08	0.41	0.01
16	Chloride	3.76	0	0	0	0	0
17	Sulphate	1.98	0	0	0	0	0.5
18	Total SiO <sub>2</sub>	19.24	69.13	59.76	61.13	45.4	95.58
19	Carbon as TOC	0.38	14.38	15.44	0.66	9.1	0.32
20	Organic matter	0.65	24.79	26.61	1.13	15.68	0.55
21	Fluoride	0.22	0.08	0.12	0.27	0.25	0.14
22	Cyanide	0	0	0	0	0	0

**Composition Analysis by NABL Accredited Laboratory\***

Sl. No	Parameters	Pot duct Cleaning Waste	Skimmed Coke	ETP sludge	Shot Blast Dust	Dross residue
1	Aluminium oxide, $Al_2O_3$	52.35	26.75	31.28	31.28	58.6
2	Cadmium	0	0	0	0	0
3	Copper, $Cu_2O$	0.01	0.01	0.01	0.01	0.02
4	Chromium, $Cr_2O_3$	0.02	0	0.03	0.03	0
5	Iron, $Fe_2O_3$	0.12	0.05	29.96	29.96	0.3
6	Manganese, $MnO$	0.03	0	0.05	0.05	0.01
7	Nikel, $NiO$	0	0.03	0.01	0.01	0
8	Tin, $SnO_2$	0	0	0	0	0
9	Phosphorus, $P_2O_5$	0.01	0.01	0.02	0.02	0.01
10	Zinc	0	0	0	0	0
11	Lead	0	0	0	0	0
12	Calcium	0.91	4.93	1.61	1.61	0.62
13	Magnesium	0.06	0.23	0.1	0.1	0.28
14	Sodium	4.84	27.85	10.67	10.67	2.56
15	Potassium	0.21	0.28	0.2	0.2	2.02
16	Chloride	0	0	0	0	0.24
17	Sulphate	0.99	0	0.25	0.25	0.48
18	Total $SiO_2$	20.75	32.99	12.62	12.62	28.08
19	Carbon as TOC	8.33	0.88	6.57	6.57	0.15
20	Organic matter	14.36	1.51	11.33	11.33	0.26
21	Fluoride	0.03	0.05	0.05	0.05	0.08
22	Cyanide	0	0	0	0	0