



HIL/LHD/ENV/MoEF&CC/060

Date: 16<sup>th</sup> May 2025

To,  
**The Dy. Director General of Forest (C)**  
**Ministry of Environment, Forests and Climate Changes**  
**2<sup>nd</sup> Floor, Headquarter-Jharkhand State Housing Board**  
**Harmu Chowk, Ranchi, Jharkhand-834002**

**Sub:** Six Monthly EC Compliance Report for Bhusar (65.31 Ha) Bauxite Mining Project of M/s Hindalco Industries Limited, Lohardaga Jharkhand for the period from October 2024 to March 2025.

**Ref:** Environmental Clearance Letter No. J-11015/184/2011-IA II (M), dated 17<sup>th</sup> June 2013.

Dear Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Bhusar (65.31 Ha) Bauxite Mining Project of M/s Hindalco Industries Limited**, Lohardaga Jharkhand for the period from **October 2024 to March 2025** for your kind perusal please.

The lease details are below:

Lease area (ha)	Production Capacity (MT)	Lease Period
65.31	280000	11.07.1981 to 31.03.2030

Hope you will find the same in order.

Thanking You

Yours faithfully,  
For **Hindalco Industries Limited**

**Basudev Gangopadhyay**  
**AVP (Planning, Environment & Compliance)**

Enclosure: - As Above

CC: [ro.ranchi-mef@gov.in](mailto:ro.ranchi-mef@gov.in), [mef@ori.nic.in](mailto:mef@ori.nic.in), [mef@nic.in](mailto:mef@nic.in), [mef.or@nic.in](mailto:mef.or@nic.in), [mescb.cpcb@nic.in](mailto:mescb.cpcb@nic.in), [zokolkatta.cpcb@nic.in](mailto:zokolkatta.cpcb@nic.in), [ranchijspcb@gmail.com](mailto:ranchijspcb@gmail.com), [roranchi47@gmail.com](mailto:roranchi47@gmail.com)

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Registered Office : 21st Floor, One Unity Center, Senapati Bapat Marg, Prabhadevi, Mumbai - 400013, India  
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**Name of the Project** : **Bhusar Bauxite Mine (65.31 ha)**  
**M/s Hindalco Industries Limited**

**Environment Clearance No & date** : **J-11015/184/2011-IA. II (M), dated 17.06.2013**

**Period of compliance Report** : **From 1<sup>st</sup> October 2024 to 31<sup>st</sup> March 2025**

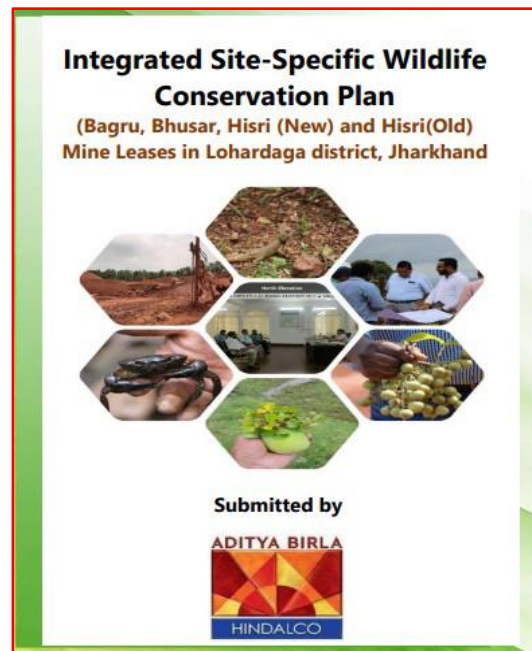
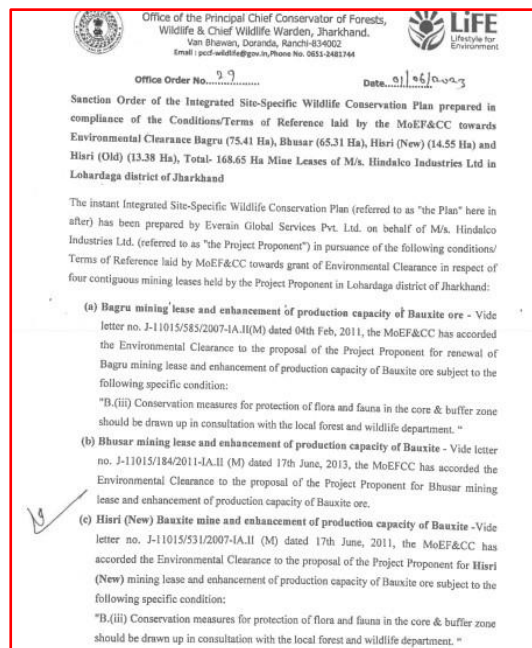
**Specific Conditions: -**

**Condition i: - All the conditions stipulated by State Pollution Control Board in their NOC shall be effectively implemented.**

**Reply: -** Implementations of stipulated conditions in NOC are fulfilled post which consent to operate has been obtained from time to time. Existing consent to operate is valid up to 30.09.2027.

**Condition ii: - Environmental clearance is subject to obtaining clearance under the wildlife (Protection) Act, 1972 from the competent authority, as may be applicable to this project.**

**Reply: -** This is not applicable for this mine as this mine is located tentatively 20 kms away from nearest Eco sensitive zone. However, we have prepared Integrated Site-specific Wildlife Conservation Plan and obtained approval via obtained approval from by PCCF, Wildlife, Ranchi vide Office Order No.29 dated 01.06.2023. A copy of same is enclosed below:



**Condition iii: - The mining operations shall be restricted to above ground water table and it should not intersect groundwater table. Prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained for mining below water table.**

**Reply: -** Shallow depth mining is being done and does not intersect the ground water. In future also, working zone will be restricted to above ground water table. We assure that no mining is/was carried out below groundwater table and the same status will be maintained in future also.

**Condition iv: - The project proponent shall ensure that no natural watercourse shall be obstructed due to any mining operations.**

**Reply: -** There is no natural watercourse and / or water resources within the mining lease area. Shallow depth mining methodology is adopted for mining process. Hence, there is no impact of mining operation on natural watercourse.

**Condition v: - Topsoil should be stacked with proper slope at earmarked site(s) only with adequate measures and should be used for reclamation and rehabilitation of mined out areas.**

**Reply: -** Topsoil is being stacked temporarily with proper slope as and when required. Concurrent backfilling and reclamation of mined out area are being exercised for which topsoil is being spread on backfilled area for reclamation. No OB dump is present in mines. The mining is being carried out as per the approved mining plan. Monitoring and management of rehabilitated areas is being done through effective supervision.



**Reclaimed area**

**Condition vi: - The entire waste generated shall be backfilled and there shall be no external over burden dump left at the end of the mine life. The entire backfilled area shall be reclaimed by plantation. The back filling should be carried out in such a manner that it is restored to the normal ground level. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status**

**should be submitted to the Ministry of Environment as Forests and its Regional Office, Bhubaneswar on six monthly basis.**

**Reply:** - Backfilling and reclamation are being done concurrently by overburden. No OB dump is present in mines. The mining is being carried out as per the approved mining plan. Data pertaining to backfilling is enclosed as **Annexure 4**. Monitoring and management of rehabilitated areas is being done through effective supervision. Compliance status is being submitted to MoEF&CC on six monthly bases. Now, the Regional office of MoEF&CC is in Ranchi.

**Condition vii:** - Catch drains and siltation ponds of appropriate size should be constructed for the working pit, temporary OB dumps, if any and mineral dumps to arrest flow of silt and sediment. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted, particularly after monsoon, and maintained properly. Garland drain of appropriate size, gradient and length shall be constructed for both mine pit and temporary dumps and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.

**Reply:-** To collect & manage rainwater during monsoon, part of mined out area is used as settling tank for the runoff. Rainwater stored is being used for watering the mine area, roads, green belt development and sprinkling as necessary. Catch drains, Garland drains of appropriate size are being constructed in both around the mine pit to prevent runoff of water and flow of sediments directly into the agricultural field and water bodies, if applicable. Sump of adequate capacity is being provided and maintained as required. No active external dump exists in mine.



Garland drain

**Condition viii:** -Dimension of the retaining wall at the toe of temporary dumps and OB benches within the mine to check run-off and siltation should be based on the rain fall data.

**Reply:** - There are no temporary dumps within the mining lease area. However, the dimensions of the retaining wall of temporary OB dumps will be maintained based on average rain fall, if required.



**Condition ix: -** Plantation shall be raised in an area of 52.50 ha including a 7.5m wide green belt in the safety zone around the mining lease by planting the native species around ML area, backfilled and reclaimed area, around water body, roads etc. in consultation with the local DFO/Agriculture Department at the end of life of mine. The density of the trees should be around 2500 plants per ha.

**Reply: -** It is already in practice. Phase wise plantation of native species in consultation with forest department has been carried out within safety zone and mined out/reclaimed pits. During FY 2024-25, a total of 5395 nos. saplings have been planted within the mining lease. Cumulative 45.74 ha areas have been planted till date. In addition to this, agricultural activity is going on reclaimed land as per the consent from landowners. Greenbelt development programme is in progress with progress of mining activities. Photographs enclosed below:



Plantation at mine

**Condition x: -** Regular water sprinkling should be carried out in critical areas prone to air pollution and having high levels of SPM and RSPM such as haul road, loading and unloading point and transfer points. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.

**Reply: -** Mobile water tankers have been provided for sprinkling of water in critical areas to suppress dust. Additionally, we have also installed a Mist Fog Cannon to suppress the dust at the transfer point. AAQ parameters are monitored on regular basis in the mine. Monitoring Report is attached as **Annexure 2.**



**Dust suppression through water tanker**



**Mist Fog Cannon**

**Condition xi: - The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.**

**Reply: -** A detailed rainwater harvesting plan to augment ground water has been prepared and suitable measures like water harvesting pond etc. are created for the augmentation of ground water in the area (Bagru Plateau) in consultation with the Central Ground Water Board.

**Condition xii: - Regular monitoring of ground water level and quality should be carried out in and around the mine lease by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year i.e. January, April-May, August, November and the data thus collected may be sent regularly to Ministry of Environment and Forests, its Regional Office, Bhubaneswar; Central Ground Water Authority and Central Ground Water Board.**

**Reply: -** Since, Shallow depth mining is being carried out, hence there is no intersection of ground water table during the mining operation at present and in future also. Regular monitoring of groundwater level and quality of the area is being carried out by establishing a network of existing wells/Piezometers. Reports are being sent regularly to the regional office of Ministry, CGWA and JSPCB. The Ground water level from October 2024 to March 2025 and quality Monitoring report of post-monsoon season and Winter season is attached as **Annexure 1 & 2**. Now, Regional office of MoEF&CC is in Ranchi.



**Piezometer**

**Condition xiii: - The project authorities should obtain prior approval of the competent authority for drawl of groundwater if any, required for the project.**

**Reply:-** We are not using any ground water for mining purposes. Suitable arrangement has been made for collection and storage of rainwater in harvesting pond. Water drawn from rainwater harvesting pond is being used for sprinkling on haul roads and for raising plantation. However, No Objection Certificate (NOC) for ground water abstraction has been obtained from CGWA/CGWB for drinking purposes only. The copy of the NOC CGWA is attached below:

भारत सरकार वातावरण, वन और जल विभाग औद्योगिक और परिवहन विभाग Government of India Ministry of Jal Shakti Department of Water Resources, River Development & Gangs Rejuvenation Central Ground Water Authority			
(भूखनन निगरानी हेतु अनिवार्य प्रमाण पत्र) <b>NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION</b>			
Project Name:	Bhusar Bauxite Mining Lease (65.31 Ha)		
Project Address:	Bagru Hill Bauxite Mine, VIII - Bhusar, P.O. - Lohardaga		
Village:	Bhusar		
Block:	Kisko		
District:	Lohardaga		
State:	Jharkhand		
Pin Code:			
Communication Address:	Hindalco Industries Ltd, Hindalco Complex, Court Road, Lohardaga, P.O. - Lohardaga, Kisko, Lohardaga, Jharkhand - 835302		
Address of CGWB Regional Office:	Central Ground Water Board Mid Eastern Region, 6th & 7th Floor, Lok Nayak Jai Prakash Bhawan, Fraser Road Dale Banglow, Patna, Bihar - 800011		
1. NOC No.:	CGWA/NOC/MIN/REN/2024/6900		
2. Date of Issuance:	01/09/2024		
3. Application No.:	21-4/484/HMIN/2019		
4. Category:	Safe		
5. Project Status:	Existing Ground Water		
6. NOC Type:	Renewal		
7. Valid from:	11/09/2024		
8. Valid up to:	10/09/2029		
9. Ground Water Abstraction Permitted:			
Fresh Water	Saline Water	Dewatering	Total
m <sup>3</sup> /day	m <sup>3</sup> /year	m <sup>3</sup> /day	m <sup>3</sup> /year
9.50	3467.50		
10. Details of ground water abstraction /dewatering structures			

NOC for Groundwater



Rainwater Harvesting Pond

**Condition xiv: - Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.**

**Reply: -** Bauxite is transported through ropeway from mine to Lohardaga siding. However, Regular maintenance of HEMM/vehicles and all measures are being taken to control vehicular emission.



Ropeway transportation- eco-friendly



**Condition xv:-** Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.

**Reply:-** Blasting time is fixed during 1.00 PM - 2.00 PM. Controlled blasting method is in practice. Ground vibration study has been conducted periodically. All efforts are being taken to mitigate impact of blasting.

**Condition xvi: -** Drills shall either be operated with dust extractors or equipped with water injection system.

**Reply: -** Wet drilling is in practice.

**Condition xvii: -** Consent to operate should be obtained from SPCB before starting/enhanced production from the mine.

**Reply: -** We have already obtained the Consent to Operate for Bauxite as per the production capacity mentioned in EC. Existing CTO is valid up to 30.09.2027.

**Condition xviii :-** A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.

**Reply: -** Progressive mine closure plan along with mining scheme has been approved by IBM. Final mine closure plan will be prepared in due time. Based on present resource estimate, and peak rated production capacity mentioned in EC, Mining operation is being carried out.

**General Conditions: -**

**Condition i: -** No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment and Forests.

**Reply: -** Noted.

**Condition ii: -** No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.

**Reply: -** Calendar plan including excavation, quantum of mineral bauxite and waste is being done as per IBM approved mining scheme. The report is attached as **Annexure-4**.

**Condition iii: -** Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for PM10, SO2 as NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.



**Reply:** - We have already established four ambient air quality monitoring stations in core zone as well as buffer zone. Monitoring is being carried out and reported to the concerned authorities. Report is attached as **Annexure 2.**

**Condition iv:** - Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.

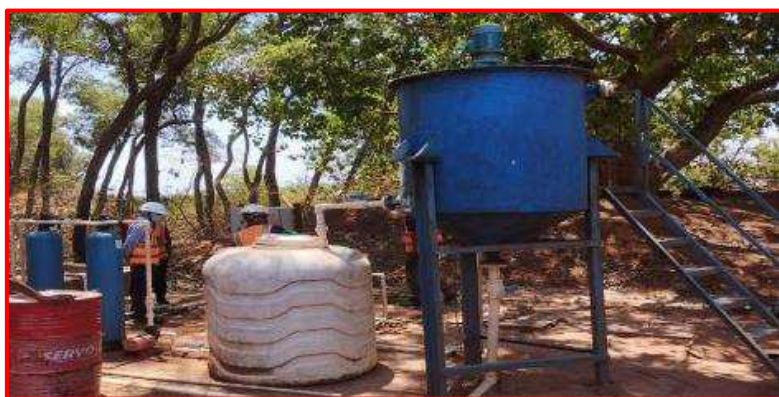
**Reply:** - Suitable water spraying system is already available. To arrest fugitive dust proper water sprinkling is being carried out on haul roads, loading and unloading and at transfer points. Mist cannon is also installed. Photographs attached above.

**Condition v:** Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.

**Reply:** - Noise monitoring is being done regularly. Workers engaged in operation of HEMMs, etc. has also been provided with PPEs such as ear plugs and earmuffs. Monitoring of noise level is being conducted at various locations of the work zone area. Report is attached as **Annexure 2.**

**Condition vi:** -Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422(E) dated 19th May 1993 and 31st December 03 or as amended from time to time. Oil and grease trap should be installed before discharge of effluents from workshop.

**Reply:** - There is no industrial wastewater generation from mining operation. We are not discharging any wastewater outside the mine lease area. However, negligible amount of wastewater is generated in workshop from washing of vehicles and Effluent treatment plant (ETP) has been installed for this effluent. The treated water is in close circuit and being reused for washing of vehicles in the workshop.



Effluent Treatment Plant (ETP)

Furthermore, the quality of this treated water is being monitored regularly, and all water parameters are within permissible limits. The monitoring report is attached herewith as **Annexure 2.**

**Condition vii: -Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.**

**Reply: -** All the workers have been provided with PPEs including dust mask and dust respirators. Apart from PPEs distribution to all workers, we are also providing adequate safety training and conducting awareness session on Safety and health aspects on regular basis.

**Condition viii: - Occupational health surveillance programme of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.**

**Reply: -** Periodical Occupational health surveillance program of the workers is being carried out and records maintained as per statute.

**Condition ix:- A separate environmental management cell with suitable qualified personnel should be set up under the control of a senior Executive, who will report directly to the Head of the organization.**

**Reply: -** A separate environmental management cell with suitable qualified personnel has been set up under the control of a Senior Executive, who is reporting directly to the Head of the Organization. The same is being attached herewith as **Annexure 3.**

**Condition x:- The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purposes. Year-wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.**

**Reply: -** Every year budget is earmarked for environmental protection measures being prepared for purpose and its expenditure is being reported to the ministry. The copy of the same is attached as **Annexure 5.** Now, the Regional Office of MoEF&CC is in Ranchi.

**Condition xi:- The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The Project authorities should extend full cooperation to the officer(s) of the Regional Office by furnishing requisite data/information/monitoring reports.**

**Reply: -** Noted and Agreed. Now, the Regional Office of MoEF&CC is in Ranchi.

**Condition xii: - The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Bhubaneswar, Central Pollution Control Board and State Pollution Control Board.**

**Reply: -** Six monthly reports on status of compliance of stipulated environmental clearance conditions including monitoring report are being submitted to the MoEFCC, Zonal office of CPCB and JSPCB Ranchi. Now, the Regional Office of MoEF&CC is in Ranchi.

**Condition xiii: - A copy of the clearance letter will be marked to the concerned Panchayat/local NGO, if any, from whom suggestions/representation has been received while processing the proposal.**

**Reply: -** Complied. A copy of clearance letter has been already submitted.

**Condition xiv-** The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.

**Reply:** - It is an operational mine. Hence provisions related to financial closure is not applicable.

**Condition xv:** - State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's/Tehsildar's Office for 30 days.

**Reply:** - Noted. The EC Letter has been submitted to JSPCB for display of same at its Regional office and other government offices.

**Condition xvi:-** The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the Clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <http://envfor.nic.in> and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.

**Reply:** - Noted and complied. The information on grant of the EC has been published in two local newspapers. The copy of the advertisement has already been submitted to the Regional Office of the MoEF&CC. Now, the Regional office of MoEF&CC is in Ranchi.

**Piezometer Monitoring Report****Mine: Bhusar Bauxite Mine (65.31 Ha)**

S No	Month	Ground Water Level (BGL) in meter
1	Oct-24	34.12
2	Nov-24	34.21
3	Dec-24	34.45
4	Jan-25	34.52
5	Feb-25	34.87
6	Mar-25	35.16



**ENVIRONMENTAL LABORATORIES & ENGINEERING  
SERVICES PVT. LTD.**

Plot No.30, Mansarovar Enclave, Tupudana, Hatia, Ranchi-834003,  
Jharkhand.

**Bhusar Bauxite Mine-Environmental Monitoring Report**

**October 2024**



## CONTENT

Hindalco Industries : Bhusar Bauxite Mine Environmental Monitoring Report		October 2024
Bhusar Bauxite Mine		
	<b>AMBIENT AIR QUALITY- CORE ZONE</b>	
1	Near View Point 1 (Bhusar Mine Pit I)	
2	Near View Point 2 (Bhusar Mine Pit II)	
3	Near Rest Shelter	
4	Near GTS Point	
	<b>AMBIENT AIR QUALITY- BUFFER ZONE</b>	
1	Near Daldaliya Village	
2	Aditya School Gangupara	
3	Ropeway unloading station	
4	Ropeway Angle Station	



### TEST REPORT

Test Report No.	: ELES/RNC/2024/6193	Report Release Date	: 25.10.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004084F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7222
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-1(Bhusar Mine Pit I) Bhusar Bauxite Mine(65.31ha)
		Sampling Date	: 15.10.2024 to 16.10.2024
Mines Status	: Operational	Sample Received Date	: 18.10.2024
Period of Analysis	: 18.10.2024 to 24.10.2024	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)	: 28	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	58	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	25	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	9.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	22.2	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



Reviewed by  
**Akash Kumar**  
Quality Manager

\*\*\*\*End of Report\*\*\*\*



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

Page 1 of 1

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**"Save Environment, Save Future"**



### TEST REPORT

Test Report No.	: ELES/RNC/2024/6194	Report Release Date	: 25.10.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004085F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7223
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-2(Bhusar Mine Pit 1) Bhusar Bauxite Mine(65.31ha)
Mines Status	: Operational	Sampling Date	: 15.10.2024 to 16.10.2024
Period of Analysis	: 18.10.2024 to 24.10.2024	Sample Received Date	: 18.10.2024
		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)	: 28	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	63	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	8.6	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	19.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.013	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
**Reviewed by**  
**Akash Kumar**  
**Quality Manager**

\*\*\*\*End of Report\*\*\*\*

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

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### TEST REPORT

Test Report No. : ELES/RNC/2024/6195	Report Release Date : 25.10.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004086F	

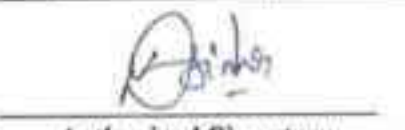
CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7224
Address	: Lohardaga, Jharkhand-835302	Location	: Near Rest Shelter Bhusar Bauxite Mine (65.31ha)
		Sampling Date	: 15.10.2024 to 16.10.2024
Mines Status	: Operational	Sample Received Date	: 18.10.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 18.10.2024 to 24.10.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C) : 28		2	Barometric Pressure (mmHg) : 740	
3	Relative Humidity (%) : 64		4	Weather Condition : Partly Cloudy	

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	61	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	10.6	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	21.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)

  
Reviewed by  
**Akash Kumar**  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

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

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**"Save Environment, Save Future"**



### TEST REPORT

Test Report No. : ELES/RNC/2024/6196	Report Release Date : 25.10.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004087F	


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7225
Address	: Lohardaga, Jharkhand-835302	Location	: Near GTS Point Bhusar Bauxite Mine (65.31ha)
Mines Status	: Operational	Sampling Date	: 15.10.2024 to 16.10.2024
Period of Analysis	: 18.10.2024 to 24.10.2024	Sample Received Date	: 18.10.2024
		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)	: 28	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	60	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	7.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	20.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.013	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
Reviewed by  
**Akash Kumar**  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

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

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPLIDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAACE8713D124

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## TEST REPORT

Test Report No. : ELES/RNC/2024/6189	Report Release Date : 25.10.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004080F	


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7218
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine (75.41ha)
Mines Status	: Non Operational	Sampling Date	: 14.10.2024 to 15.10.2024
Period of Analysis	: 18.10.2024 to 24.10.2024	Sample Received Date	: 18.10.2024
		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)	: 27	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	60	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	10.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	20.2	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)

  
Reviewed by  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

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

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, AMHSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO.- 23AAECE17130124

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## TEST REPORT

Test Report No.	: ELES/RNC/2024/6190	Report Release Date	: 25.10.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004081F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7219
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 14.10.2024 to 15.10.2024
Mines Status	: Non Operational	Sample Received Date	: 18.10.2024
Period of Analysis	: 18.10.2024 to 24.10.2024	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)	: 27	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	64	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide ( $\text{SO}_2$ )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	6.6	80 (24hrs)
Nitrogen Di-Oxide ( $\text{NO}_2$ )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	17.5	80 (24hrs)
Ozone ( $\text{O}_3$ )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia ( $\text{NH}_3$ )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	1.05	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.065	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene ( $\text{C}_6\text{H}_6$ )	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	$\text{ng}/\text{m}^3$	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)



Reviewed by  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*



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

Page 1 of 1

Technical Manager

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANDABOVAR ENCLAVE, TIPUDANA  
HATTA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAACE97130124

ENGINEERING SERVICES PVT. LTD.

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## TEST REPORT

Test Report No.	: ELES/RNC/2024/6191	Report Release Date	: 25.10.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004082F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7220
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine (75.41ha)
Mines Status	: Non Operational	Sampling Date	: 14.10.2024 to 15.10.2024
Period of Analysis	: 18.10.2024 to 24.10.2024	Sample Received Date	: 18.10.2024
		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)	: 27	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	71	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 3/Sec1): 2023	8.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	23.7	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.017	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)



Reviewed by  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*



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

Technical Manager

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-80, AMANAROVAR ENCLAVE, TURUDANA  
HATTA, RANCHI-834003 (JHARKHAND)  
GST NO:- 33AAECES7130124

ENGINEERING SERVICES PVT. LTD.

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## TEST REPORT

Test Report No.	: ELES/RNC/2024/6192	Report Release Date	: 25.10.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004083F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7221
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 14.10.2024 to 15.10.2024
Mines Status	: Non Operational	Sample Received Date	: 18.10.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 18.10.2024 to 24.10.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	66	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide ( $\text{SO}_2$ )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	7.9	80 (24hrs)
Nitrogen Di-Oxide ( $\text{NO}_2$ )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	20.9	80 (24hrs)
Ozone ( $\text{O}_3$ )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia ( $\text{NH}_3$ )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	1.02	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene ( $\text{C}_6\text{H}_6$ )	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	03 (Annual)
Benzo-(a)-Pyrene	$\text{ng}/\text{m}^3$	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)

Reviewed by  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

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

Page 1 of 1

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Save Environment Save Future

**ENVIRONMENTAL LABORATORIES & ENGINEERING  
SERVICES PVT. LTD.**

Plot No.30, Mansarovar Enclave, Tupudana, Hatia, Ranchi-834003,  
Jharkhand.

**Bhusar Bauxite Mine-Environmental Monitoring Report**

**November 2024**



## CONTENT

Hindalco Industries : Bhusar Bauxite Mine Environmental Monitoring Report		November 2024
Bhusar Bauxite Mine		
AMBIENT AIR QUALITY- CORE ZONE		
1	Near View Point 1 (Bhusar Mine Pit I)	
2	Near View Point 2 (Bhusar Mine Pit II)	
3	Near Rest Shelter	
4	Near GTS Point	
AMBIENT AIR QUALITY- BUFFER ZONE		
1	Near Daldaliya Village	
2	Aditya School Gangupara	
3	Ropeway unloading station	
4	Ropeway Angle Station	
Drinking Water		







TEST REPORT

Test Report No. : ELES/RNC/2024/6832	Report Release Date : 26.11.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004704F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8035
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-1(Bhusar Mine Pit I) Bhusar Bauxite Mine(65.31ha)
		Sampling Date	: 18.11.2024 to 19.11.2024
Mines Status	: Operational	Sample Received Date	: 21.11.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 21.11.2024 to 26.11.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	63	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	11.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	25.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.014	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



  
Authorised Signatory  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

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TEST REPORT

Test Report No.	: ELES/RNC/2024/6833	Report Release Date	: 26.11.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004705F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8036
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-2(Bhusar Mine Pit I) Bhusar Bauxite Mine(65.31ha)
		Sampling Date	: 18.11.2024 to 19.11.2024
Mines Status	: Operational	Sample Received Date	: 21.11.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 21.11.2024 to 26.11.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	70	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	38	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	11.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	22.6	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.08	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.018	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



\*\*\*\*End of Report\*\*\*\*

Authorised Signatory  
Akash Kumar  
Quality Manager

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# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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## TEST REPORT

Test Report No.	: ELES/RNC/2024/6834	Report Release Date	: 26.11.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004706F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8037
Address	: Lohardaga, Jharkhand-835302	Location	: Near Rest Shelter Bhusar Bauxite Mine (65.31ha)
		Sampling Date	: 18.11.2024 to 19.11.2024
Mines Status	: Operational	Sample Received Date	: 21.11.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 21.11.2024 to 26.11.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	69	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	37	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec I): 2023	13.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	25.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.017	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



  
Authorised Signatory  
Akash Kumar  
Quality Manager

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# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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CIN: U74999JH2016PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/6835	Report Release Date	: 26.11.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004707F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8038
Address	: Lohardaga, Jharkhand-835302	Location	: Near GTS Point Bhusar Bauxite Mine (65.31ha)
		Sampling Date	: 18.11.2024 to 19.11.2024
Mines Status	: Operational	Sample Received Date	: 21.11.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 21.11.2024 to 26.11.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	72	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	39	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	11.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	24.7	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.11	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.016	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



\*\*\*\*End of Report\*\*\*\*

Authorised Signatory  
Akesh Kumar  
Quality Manager

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-50, MANSARDHAR ENCLAVE, TUPUDANA  
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TIN: 12A9991H2018PTC01125

## TEST REPORT

Test Report No. : ELES/RNC/2024/6820	Report Release Date : 25.11.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004692F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7963
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine (75.41 ha)
		Sampling Date	: 17.11.2024 to 18.11.2024
Mines Status	: Non Operational	Sample Received Date	: 19.11.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 19.11.2024 to 25.11.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 51	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	64	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	11.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	24.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



\*\*\*\*End of Report\*\*\*\*

  
Authorized Signatory  
Akesh Kumar  
Quality Manager

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSARVAR ENCLAVE, TUPUDANA  
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## TEST REPORT

Test Report No.	: ELES/RNC/2024/6821	Report Release Date	: 25.11.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004693F		


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7964
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 17.11.2024 to 18.11.2024
Mines Status	: Non Operational	Sample Received Date	: 19.11.2024
Period of Analysis	: 19.11.2024 to 25.11.2024	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)	: 25	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 51	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (TSP10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	64	106 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	9.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	23.4	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR-Method)	1.05	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.008	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



\*\*\*\*End of Report\*\*\*\*

  
Authorised Signatory  
**Akash Kumar**  
Quality Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANJAROVAR ENCLAVE, TURIDANA,  
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IN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/6822	Report Release Date	: 25.11.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004694F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7965
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine (75.41 ha)
		Sampling Date	: 17.11.2024 to 18.11.2024
Mines Status	: Non Operational	Sample Received Date	: 19.11.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 19.11.2024 to 25.11.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 51	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	69	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	36	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	10.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	22.8	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



\*\*\*\*End of Report\*\*\*\*

Authorised Signatory  
Akash Kumar  
Quality Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

PLOT NG-30, MANSAKVAR ENCLAVE, TUMPIDANA  
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## TEST REPORT

Test Report No. : ELES/RNC/2024/6823	Report Release Date : 25.11.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004695F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/7966
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine (75.41 ha)
		Sampling Date	: 17.11.2024 to 18.11.2024
Mines Status	: Non Operational	Sample Received Date	: 19.11.2024
Period of Analysis	: 19.11.2024 to 25.11.2024	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)	: 25	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 51	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	66	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	13.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	25.7	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.08	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



\*\*\*\*End of Report\*\*\*\*

  
Authorised Signatory  
Akash Kumar  
Quality Manager

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# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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## TEST REPORT

Test Report No.	: ELES/RNC/2024/6950	Report Release Date	: 30.11.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004819F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/DW/8102
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 19.11.2024
		Sample Received Date	: 22.11.2024
		Type of Sample	: Drinking Water
Mines Status	: Operational	Source of Sample	: Tap Water
		Location of Sample	: Near Laboratory (Bhusar Bauxite Mines)
Period of Analysis	: 22.11.2024 to 30.11.2024	Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 24.6 °C)	-	APHA 24 <sup>th</sup> Ed.2023, 4500-H <sup>+</sup>	6.72	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 24 <sup>th</sup> Ed.2023, 2130 B	0.73	1.0	5.0
Taste	-	APHA 24 <sup>th</sup> Ed.2023, 2160 C	Agreeable	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 24 <sup>th</sup> Ed.2023, 2120B&D	1.0	5.0	15
Total Dissolved Solids (TDS)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 2540B,C&D	324	500	2000
Chloride (as Cl)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 Cl B	8.0	250	1000
Fluoride (as F)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 2320 B	123	200	600
Total Hardness (as CaCO <sub>3</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 2340 C	138	200	600
Sulphate (as SO <sub>4</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 SO <sub>4</sub> <sup>-2</sup> -E	BDL (DL: 1.0)	200	400
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 NO <sub>3</sub> -B	BDL (DL: 0.5)	45	No Relaxation

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# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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## TEST REPORT

Test Report No. : ELES/RNC/2024/6950	Report Release Date : 30.11.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004819F	

Discipline : Chemical		Group : Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/L	IS 3025 (Part 43/Sec1): 2022	BDL (DL: 0.001)	0.001	0.002
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26): 2021	BDL (DL: 0.1)	0.2(Min)	1.0(Min)
Calcium (as Ca)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 3500 Ca B	33.3	75	200
Anionic Surfactants (as MBAS)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 5540-C	BDL (DL: 0.025)	0.2	1.0
Discipline : Chemical		Group : Residues in Water			
Aluminum (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	0.03	0.2
Arsenic (as As)	mg/L	IS 3025 (Part-37): 2022	BDL (DL: 0.005)	0.01	No Relaxation
Boron (as B)	mg/L	IS 3025 (Part-57) : 2021	BDL (DL: 0.2)	0.5	1.0
Cadmium (as Cd)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.03)	0.05	1.5
Cyanide (as CN)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation
Iron (as Fe)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	0.075	1.0	No Relaxation
Lead (as Pb)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	BDL (DL: 0.001)	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2019	BDL (DL: 0.01)	0.01	No Relaxation

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# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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## TEST REPORT

Test Report No.	: ELES/RNC/2024/6950	Report Release Date	: 30.11.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400004819F		

Discipline : Chemical		Group : Residues in Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Zinc (as Zn)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.1)	5.0	15
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04: 2023	BDL (DL: 0.05)	0.1	No Relaxation
Polychlorinated biphenyls (PCB)	µg/L	ELES/GC/SOP/03: 2023	BDL (DL: 0.1)	0.5	No Relaxation
Pesticides				Limit	
Alachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	20	
Atrazine	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2.0	
Butachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	125	
Chlorpyrifos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	30	
Ethion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	3.0	
Malathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	190	
Methyl parathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.1)	0.30	
Monocrotophos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	1.0	
Phorate	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2.0	
Phorate Sulphone	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--	
Dieldrin	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.01)	0.03	
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	0.01	
Beta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	0.04	

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/6950	Report Release Date : 30.11.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400004819F	

Pesticides				
Parameter	Unit	Test Protocol	Result	Limit
Delta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	0.04
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	2.0
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	0.40
DDT(o,p and p,p-isomers of DDT) ( DDE and DDD)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	1.0
Discipline : Biological		Group : Water		
Total Coliform (Qualitative)	Per 100 mL	IS 15185: 2021	Not Detected	Shall not be detected
Escherichia coli (Qualitative)	Per 100 mL	IS 15185: 2021	Not Detected	

Reviewed by  
**Akash Kumar**  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

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

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CIN: U74999JH2018PTC011125

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## TEST REPORT

Test Report No. : ELES/RNC/2024/6950	Report Release Date : 30.11.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/DW/8102
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 19.11.2024
		Sample Received Date	: 22.11.2024
		Type of Sample	: Drinking Water
Mines Status	: Operational	Source of Sample	: Tap Water
		Location of Sample	: Near Laboratory (Bhusar Bauxite Mines)
Period of Analysis	: 22.11.2024 to 30.11.2024	Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Mineral Oil*	mg/L	IS 3025 (Part-39): 2021, Clause 6 Infrared Spectroscopic method.	BDL (DL: 0.01)	0.5	No Relaxation

Remarks: (\*) Parameters are outsourced to other Lab.

Reviewed by  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

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

**ENVIRONMENTAL LABORATORIES & ENGINEERING  
SERVICES PVT. LTD.**

Plot No.30, Mansarovar Enclave, Tupudana, Hatia, Ranchi-834003,  
Jharkhand.

**Bhusar Bauxite Mine-Environmental Monitoring Report**

**December 2024**





## CONTENT

Hindalco Industries : Bhusar Bauxite Mine Environmental Monitoring Report		December-2024
Bhusar Bauxite Mine		
AMBIENT AIR QUALITY- CORE ZONE		
1	Near View Point 1 (Bhusar Mine Pit I)	
2	Near View Point 2 (Bhusar Mine Pit II)	
3	Near Rest Shelter	
4	Near GTS Point	
AMBIENT AIR QUALITY- BUFFER ZONE		
1	Near Daldaliya Village	
2	Aditya School Gangupara	
3	Ropeway unloading station	
4	Ropeway Angle Station	



**TEST REPORT**

Test Report No. : ELES/RNC/2024/7535	Report Release Date : 21.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400005390F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8839
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-I (Bhusar Mine Pit I) Bhusar Bauxite Mine(65.31ha)
Mines Status	: Operational	Sampling Date	: 12.12.2024 to 13.12.2024
Period of Analysis	: 14.12.2024 to 21.12.2024	Sample Received Date	: 14.12.2024
		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)	: 19	2	Barometric Pressure (mmHg)	: 728
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	71	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	38	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec I): 2023	13.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	28.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.017	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)



**Reviewed by**  
**Akash Kumar**  
**Quality Manager**

\*\*\*\*End of Report\*\*\*\*



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





# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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## TEST REPORT

Test Report No. : ELES/RNC/2024/7536	Report Release Date : 21.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400005391F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8840
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-2(Bhusar Mine Pit 1) Bhusar Bauxite Mine(65.31ha)
		Sampling Date	: 12.12.2024 to 13.12.2024
Mines Status	: Operational	Sample Received Date	: 14.12.2024
Period of Analysis	: 14.12.2024 to 21.12.2024	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)	: 19	2	Barometric Pressure (mmHg)	: 728
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	74	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	47	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	12.6	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	24.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.13	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.022	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
**Akash Kumar**  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

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

Page 1 of 1

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"Save Environment, Save Future"





# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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### TEST REPORT

Test Report No.	: ELES/RNC/2024/7537	Report Release Date	: 21.12.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400005392F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8841
Address	: Lohardaga, Jharkhand-835302	Location	: Near Rest Shelter Bhusar Bauxite Mine (65.31 ha)
		Sampling Date	: 12.12.2024 to 13.12.2024
Mines Status	: Operational	Sample Received Date	: 14.12.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 14.12.2024 to 21.12.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 728
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	77	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	43	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	14.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	28.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.022	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)

Reviewed by  
**Akash Kumar**  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

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

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CIN: U74999JH2018PTC011125

### TEST REPORT

Test Report No. : ELES/RNC/2024/7538	Report Release Date : 21.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400005393F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8842
		Location	: Near GTS Point Bhusar Bauxite Mine (65.31ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 12.12.2024 to 13.12.2024
		Sample Received Date	: 14.12.2024
Mines Status	: Operational	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 14.12.2024 to 21.12.2024	Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

### METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 19	2	Barometric Pressure (mmHg) : 728
3	Relative Humidity (%) : 47	4	Weather Condition : Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	76	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	13.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	27.2	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.18	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.022	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)

Reviewed by  
**Akash Kumar**  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

Authorised Signatory  
**Dr. Deependra Kumar Sinha**  
Ph. D. Environmental Engg.

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/7523	Report Release Date	: 21.12.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400005378F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8827
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 12.12.2024 to 13.12.2024
Mines Status	: Non Operational	Sample Received Date	: 14.12.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 14.12.2024 to 21.12.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 728
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	66	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	10.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	22.8	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

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

Technical Manager

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TC-13587

JIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/7524	Report Release Date : 21.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400005379F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8828
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 12.12.2024 to 13.12.2024
Mines Status	: Non Operational	Sample Received Date	: 14.12.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 14.12.2024 to 21.12.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 19	2	Barometric Pressure (mmHg) : 728
3	Relative Humidity (%) : 47	4	Weather Condition : Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	62	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	11.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	20.8	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.09	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



Reviewed by  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

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

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## TEST REPORT

Test Report No. : ELES/RNC/2024/7525	Report Release Date : 21.12.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400005380F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8829
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine (75.41ha)
Mines Status	: Non Operational	Sampling Date	: 11.12.2024 to 12.12.2024
Period of Analysis	: 14.12.2024 to 21.12.2024	Sample Received Date	: 14.12.2024
		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) : 18	2	Barometric Pressure (mmHg) : 728
3	Relative Humidity (%) : 45	4	Weather Condition : Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	73	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	41	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	12.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	24.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.016	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



Reviewed by  
Arush Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*



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Technical Manager

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## TEST REPORT

Test Report No.	: ELES/RNC/2024/7526	Report Release Date	: 21.12.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400005381F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/8830
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 11.12.2024 to 12.12.2024
Mines Status	: Non Operational	Sample Received Date	: 14.12.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 14.12.2024 to 21.12.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 728
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	70	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	38	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	15.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	27.4	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.12	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.016	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



Reviewed by  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*



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

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Technical Manager

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Plot No.30, Mansarovar Enclave, Tupudana, Hatia, Ranchi-834003,  
Jharkhand.

**Bhusar Bauxite Mine-Environmental Monitoring Report**

**January- 2025**





## CONTENT

Hindalco Industries : Bhusar Bauxite Mine Environmental Monitoring Report		January 2025
Bhusar Bauxite Mine		
	<b>AMBIENT AIR QUALITY- CORE ZONE</b>	
1	Near View Point 1 (Bhusar Mine Pit I)	
2	Near View Point 2 (Bhusar Mine Pit II)	
3	Near Rest Shelter	
4	Near GTS Point	
	<b>AMBIENT AIR QUALITY- BUFFER ZONE</b>	
1	Near Daldaliya Village	
2	Aditya School Gangupara	
3	Ropeway unloading station	
4	Ropeway Angle Station	
	<b>Surface Water</b>	
	<b>Soil</b>	



### TEST REPORT

Test Report No. : ELES/RNC/2025/0329	Report Release Date : 15.01.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000000321F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0132
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-1 (Bhusar Mine Pit 1) Bhusar Bauxite Mine (65.31 ha)
Mines Status	: Operational	Sampling Date	: 07.01.2025 to 08.01.2025
Period of Analysis	: 09.01.2025 to 15.01.2025	Sample Received Date	: 09.01.2025
		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)	: 17	2	Barometric Pressure (mmHg)	: 727
3	Relative Humidity (%)	: 54	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	75	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	40	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	15.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	27.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.21	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.024	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)



Reviewed by  
**Akash Kumar**  
Quality Manager

\*\*\*\*End of Report\*\*\*\*



Authorised Signatory  
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Technical Manager

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2025/0330	Report Release Date	: 15.01.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000000322F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0133
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-2(Bhusar Mine Pit I) Bhusar Bauxite Mine(65.31ha)
Mines Status	: Operational	Sampling Date	: 07.01.2025 to 08.01.2025
Period of Analysis	: 09.01.2025 to 15.01.2025	Sample Received Date	: 09.01.2025
		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)	: 17	2	Barometric Pressure (mmHg)	: 727
3	Relative Humidity (%)	: 54	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	77	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	43	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec I): 2023	10.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	25.4	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	1.28	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.031	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	$\text{ng}/\text{m}^3$	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

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

Technical Manager

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### TEST REPORT

Test Report No. : ELES/RNC/2025/0331	Report Release Date : 15.01.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000000323F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0134
Address	: Lohardaga, Jharkhand-835302	Location	: Near Rest Shelter Bhusar Bauxite Mine (65.31ha)
Mines Status	: Operational	Sampling Date	: 07.01.2025 to 08.01.2025
Period of Analysis	: 09.01.2025 to 15.01.2025	Sample Received Date	: 09.01.2025
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

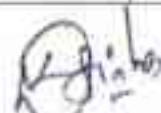
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 17	2	Barometric Pressure (mmHg)	: 727
3	Relative Humidity (%)	: 54	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	72	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	12.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	24.9	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.29	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.028	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



Reviewed by  
**Akash Kumar**  
 Quality Manager

\*\*\*\*End of Report\*\*\*\*



Authorised Signatory  
**Dr. Deependra Kumar Sinha**  
 Ph. D. Environmental Engg.

Technical Manager

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAECE97130124

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## TEST REPORT

Test Report No. : ELES/RNC/2025/0332	Report Release Date : 15.01.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000000324F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0135
Address	: Lohardaga, Jharkhand-835302	Location	: Near GTS Point Bhusar Bauxite Mine (65.31ha)
		Sampling Date	: 07.01.2025 to 08.01.2025
Mines Status	: Operational	Sample Received Date	: 09.01.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 09.01.2025 to 15.01.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 17	2	Barometric Pressure (mmHg)	: 727
3	Relative Humidity (%)	: 54	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	73	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	36	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	11.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	25.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.25	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.028	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



Reviewed by  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*



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

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### TEST REPORT

Test Report No. : ELES/RNC/2025/0319	Report Release Date : 15.01.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000000311F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0122
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine (75.41ha)
Mines Status	: Non Operational	Sampling Date	: 06.01.2025 to 07.01.2025
Period of Analysis	: 09.01.2025 to 15.01.2025	Sample Received Date	: 09.01.2025
		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) : 19	2	Barometric Pressure (mmHg) : 727
3	Relative Humidity (%) : 57	4	Weather Condition : Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	71	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	39	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	12.6	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	25.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.014	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



Reviewed by  
**Akash Kumar**  
Quality Manager

\*\*\*\*End of Report\*\*\*\*



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

Technical Manager

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### TEST REPORT

Test Report No. : ELES/RNC/2025/0320	Report Release Date : 15.01.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000000312F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0123
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine (75.41ha)
Mines Status	: Non Operational	Sampling Date	: 06.01.2025 to 07.01.2025
Period of Analysis	: 09.01.2025 to 15.01.2025	Sample Received Date	: 09.01.2025
		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) : 19	2	Barometric Pressure (mmHg) : 727
3	Relative Humidity (%) : 57	4	Weather Condition : Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	67	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	13.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	24.4	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.15	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.018	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

*(Signature)*

Reviewed by

Akash Kumar

Quality Manager

\*\*\*\*End of Report\*\*\*\*

*(Signature)*

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

Technical Manager

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CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
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TC-13587

## TEST REPORT

Test Report No.	: ELES/RNC/2025/0321	Report Release Date	: 15.01.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000000313F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0124
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 06.01.2025 to 07.01.2025
Mines Status	: Non Operational	Sample Received Date	: 09.01.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 09.01.2025 to 15.01.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 727
3	Relative Humidity (%)	: 57	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	78	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	45	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	13.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	25.1	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.019	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	$\text{ng}/\text{m}^3$	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



Reviewed by  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*



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

Page 1 of 1

Technical Manager

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"Save Environment, Save Future"





CIN: U74999JH2018PTC011125

**ENVIRONMENTAL LABORATORIES &**PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
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Phone no.: 0651-2290103  
Website : [www.elespl.co.in](http://www.elespl.co.in)

TC-13587

**TEST REPORT**

Test Report No.	: ELES/RNC/2025/0322	Report Release Date	: 15.01.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000000314F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/0125
Address	: Lohardaga, Jharichand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 06.01.2025 to 07.01.2025
Mines Status	: Non Operational	Sample Received Date	: 09.01.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 09.01.2025 to 15.01.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 727
3	Relative Humidity (%)	: 57	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	74	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	41	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	13.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	26.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.20	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.018	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

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

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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## TEST REPORT

Test Report No. : ELES/RNC/2025/0425	Report Release Date : 20.01.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000000417F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/SW/0140
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 07.01.2025
		Sample Received Date	: 09.01.2025
Mines Status	: Operational	Type of Sample	: Surface Water
Period of Analysis	: 09.01.2025 to 17.01.2025	Location of Sample	: Near GTS Point- Bhusar Bauxite Mines (65.31ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.5 °C)	-	IS 3025 (Part-11) : 2022	6.50	6.5-8.5
Temperature	°C	IS 3025 (Part 9): 2023	19.0	--
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2023	BDL (DL: 4.0)	--
Biochemical Oxygen Demand (BOD) (@ 20°C for 5 days)	mg/L	APHA 24 <sup>th</sup> Ed.2023: 5210B	BDL (DL: 1.0)	3.0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	55.0	1500
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	2.0	--
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	BDL (DL: 0.1)	0.1
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	5.7	--

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### TEST REPORT

Test Report No. : ELES/RNC/2025/0425	Report Release Date : 20.01.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000000417F	

Discipline : Chemical		Group : Residues in Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Aluminum (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	--
Iron (as Fe)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	0.119	50

Remarks: pH & Temperature done at site.



Reviewed by  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*



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



### TEST REPORT

Test Report No. : ELES/RNC/2025/0424	Report Release Date : 20.01.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000000416F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/SL/0139
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 08.01.2025
		Sample Received Date	: 09.01.2025
Mines Status	: Operational	Type of Sample	: Soil
		Location of Sample	: Near Dump Yard, Bhusar Bauxite Mines (65.31 ha)
Period of Analysis	: 09.01.2025 to 17.01.2025	Sampling Procedure	: ELES/DOC/SMPL/05
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

Discipline : Chemical		Group : Pollution & Environment	
Parameter	Unit	Test Protocol	Result
pH (1:2) at 24.5 °C	-	IS 2720 (Part-26): 2021	7.52
Conductivity (1:2) at 24.5 °C	µS/cm	IS 14767: 2021	386
Total Organic Carbon (TOC)	%	Soil Testing in India: 2011 (Walkley & Black Method)	2.67
Available Phosphorus (as P)	kg/ha	Soil Testing in India: 2011	5.72
Potassium (as K)	mg/kg	IS 9497: 2020	1650
Available Nitrogen	%	Soil Testing in India: 2011	5.32
Chloride (as Cl) (1:2)	%	ELES/SOIL/SOP/01: 2021	0.014
Arsenic (as As)	mg/kg	ELES/SOIL/SOP/28: 2023	BDL (DL: 0.01)
Cadmium (as Cd)	mg/kg	US EPA 3050 A&B : 1996	BDL (DL: 0.1)
Lead (as Pb)	mg/kg	US EPA 3050 A&B : 1996	BDL (DL: 0.1)



### TEST REPORT

Test Report No.	: ELES/RNC/2025/0424	Report Release Date	: 20.01.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000000416F		

Discipline : Chemical		Group : Pollution & Environment	
Parameter	Unit	Test Protocol	Result
Magnesium (as Mg)	mg/kg	Soil Testing in India; 2011	2800
Mercury (as Hg)	mg/kg	US EPA 7473 : 2007	BDL (DL: 0.01)



Reviewed by  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*



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



CIN: U74995JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RNC/2025/0424	Report Release Date : 20.01.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/SL/0139
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 08.01.2025
		Sample Received Date	: 09.01.2025
Mines Status	: Operational	Type of Sample	: Soil
		Location of Sample	: Near Dump Yard, Bhusar Bauxite Mines (65.31 ha)
Period of Analysis	: 09.01.2025 to 17.01.2025	Sampling Procedure	: ELES/DOC/SMPL/05
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

Discipline : Chemical		Group : Pollution & Environment	
Parameter	Unit	Test Protocol	Result
Selenium (as Se)	mg/kg	US EPA 3050 B : 1996	BDL (DL: 0.01)

Reviewed by  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

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



**ENVIRONMENTAL LABORATORIES & ENGINEERING  
SERVICES PVT. LTD.**

Plot No.30, Mansarovar Enclave, Tupudana, Hatia, Ranchi-834003,  
Jharkhand.

**Bhusar Bauxite Mine-Environmental Monitoring Report**

**February 2025**



## CONTENT

Hindalco Industries : Bhusar Bauxite Mine Environmental Monitoring Report		February 2025
Bhusar Bauxite Mine		
	<b>AMBIENT AIR QUALITY- CORE ZONE</b>	
1	Near View Point 1 (Bhusar Mine Pit I)	
2	Near View Point 2 (Bhusar Mine Pit II)	
3	Near Rest Shelter	
4	Near GTS Point	
	<b>AMBIENT AIR QUALITY- BUFFER ZONE</b>	
1	Near Daldaliya Village	
2	Aditya School Gangupara	
3	Ropeway unloading station	
4	Ropeway Angle Station	
	<b>Drinking Water</b>	







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## TEST REPORT

Test Report No. : ELES/RNC/2025/1126	Report Release Date : 22.02.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001104F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1109
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-1 (Bhusar Mine Pit I) Bhusar Bauxite Mine (65.31 ha)
Mines Status	: Operational	Sampling Date	: 13.02.2025 to 14.02.2025
Period of Analysis	: 15.02.2025 to 22.02.2025	Sample Received Date	: 15.02.2025
		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)	: 21	2	Barometric Pressure (mmHg)	: 725
3	Relative Humidity (%)	: 57	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	80	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	45	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	12.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	37.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.26	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.021	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)

*Susma Yadav*  
Reviewed by

*Aakash Kumar*  
Authorised Signatory  
Aakash Kumar

\*\*\*\*End of Report\*\*\*\*

Page 1 of 1

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## TEST REPORT

Test Report No. : ELES/RNC/2025/1127	Report Release Date : 22.02.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001105F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1110
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-2(Bhusar Mine Pit I) Bhusar Bauxite Mine(65.31ha)
Mines Status	: Operational	Sampling Date	: 13.02.2025 to 14.02.2025
Period of Analysis	: 15.02.2025 to 22.02.2025	Sample Received Date	: 15.02.2025
		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) : 21	2	Barometric Pressure (mmHg) : 727
3	Relative Humidity (%) : 57	4	Weather Condition : Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	85	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	47	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	13.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	33.8	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.37	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.036	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

*Swarna Yadav*  
Reviewed by

*Authorised Signatory*  
Authorised Signatory

\*\*\*\*End of Report\*\*\*\*

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## TEST REPORT

Test Report No. : ELES/RNC/2025/1128	Report Release Date : 22.02.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001106F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1111
Address	: Lohardaga, Jharkhand-835302	Location	: Near Rest Shelter Bhusar Bauxite Mine (65.31ha)
		Sampling Date	: 13.02.2025 to 14.02.2025
Mines Status	: Operational	Sample Received Date	: 15.02.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 15.02.2025 to 22.02.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 21	2	Barometric Pressure (mmHg) : 727
3	Relative Humidity (%) : 57	4	Weather Condition : Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	81	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	43	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	14.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	31.2	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.33	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.033	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

*Suma Yadav*  
Reviewed by

*[Signature]*  
Authorised Signatory  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

Page 1 of 1

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Save Environment, Save Future





# ENVIRONMENTAL LABORATORIES &

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

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## TEST REPORT

Test Report No. : ELES/RNC/2025/1129	Report Release Date : 22.02.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001107F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1112
		Location	: Near GTS Point Bhusar Bauxite Mine (65.31ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 13.02.2025 to 14.02.2025
		Sample Received Date	: 15.02.2025
Mines Status	: Operational	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 15.02.2025 to 22.02.2025	Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 21	2	Barometric Pressure (mmHg) : 725
3	Relative Humidity (%) : 57	4	Weather Condition : Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	77	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	38	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	12.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	28.6	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.15	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.027	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

*Suma Yadav*  
Reviewed by

*Authorised Signatory*  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

Page 1 of 1

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### TEST REPORT

Test Report No. : ELES/RNC/2025/1122	Report Release Date : 22.02.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001100F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1105
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 12.02.2025 to 13.02.2025
Mines Status	: Non Operational	Sample Received Date	: 15.02.2025
Period of Analysis	: 15.02.2025 to 22.02.2025	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) : 22		2	Barometric Pressure (mmHg) : 727	
3	Relative Humidity (%) : 58		4	Weather Condition : Clear	

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	75	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	11.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	27.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.018	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

*Suma Yadav*  
Reviewed by

\*\*\*\*End of Report\*\*\*\*

*[Signature]*  
Authorised Signatory  
Quality Manager





CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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

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TC-13587

## TEST REPORT

Test Report No. : ELES/RNC/2025/1123	Report Release Date : 22.02.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001101F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1106
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine (75.41ha)
Mines Status	: Non Operational	Sampling Date	: 12.02.2025 to 13.02.2025
Period of Analysis	: 15.02.2025 to 22.02.2025	Sample Received Date	: 15.02.2025
		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) : 22		2	Barometric Pressure (mmHg) : 727	
3	Relative Humidity (%) : 58		4	Weather Condition : Clear	

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	71	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	38	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	12.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	26.4	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.24	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.018	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

*Susma Yadav*  
Reviewed by

*[Signature]*  
Authorised Signatory

\*\*\*\*End of Report\*\*\*\*

Page 1 of 1

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CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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

## ENGINEERING SERVICES PVT. LTD.

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TC-X3507

### TEST REPORT

Test Report No.	: ELES/RNC/2025/1124	Report Release Date	: 22.02.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001102F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1107
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 12.02.2025 to 13.02.2025
Mines Status	: Non Operational	Sample Received Date	: 15.02.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 15.02.2025 to 22.02.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C) : 22		2	Barometric Pressure (mmHg) : 727	
3	Relative Humidity (%) : 56		4	Weather Condition : Clear	

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	74	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	40	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	12.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	23.8	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.014	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
Reviewed by

\*\*\*\*End of Report\*\*\*\*

  
Authorised Signatory

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CIN: U74899JH2018FTC011125

**ENVIRONMENTAL LABORATORIES &**

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

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TC-10987

**TEST REPORT**

Test Report No.	: ELES/RNC/2025/1125	Report Release Date	: 22.02.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001103F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1108
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 12.02.2025 to 13.02.2025
Mines Status	: Non Operational	Sample Received Date	: 15.02.2025
Period of Analysis	: 15.02.2025 to 22.02.2025	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)	: 22	2	Barometric Pressure (mmHg)	: 727
3	Relative Humidity (%)	: 56	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	78	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	45	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	13.6	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	29.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.23	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.022	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

*Susma Yadav*

Reviewed by

*Aakash Kumar*

Authorised Signatory

Aakash Kumar

\*\*\*\*End of Report\*\*\*\*

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# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
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## TEST REPORT

Test Report No. : ELES/RNC/2025/1190	Report Release Date : 24.02.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001162F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/DW/1120
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 13.02.2025
		Sample Received Date	: 15.02.2025
		Type of Sample	: Drinking Water
Mines Status	: Operational	Source of Sample	: TAP Water
		Location of Sample	: Time Office (Bhusar Bauxite Mines)
Period of Analysis	: 15.02.2025 to 22.02.2025	Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 24.7°C)	-	APHA 24 <sup>th</sup> Ed.2023, 4500-H <sup>+</sup>	6.68	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 24 <sup>th</sup> Ed.2023, 2130 B	0.28	1.0	5.0
Taste	-	APHA 24 <sup>th</sup> Ed.2023, 2160 C	Agreeable	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 24 <sup>th</sup> Ed.2023, 2120B&D	1.0	5.0	15
Total Dissolved Solids (TDS)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 2540B,C&D	378	500	2000
Chloride (as Cl)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 Cl B	9.5	250	1000
Fluoride (as F)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 2320 B	174	200	600
Total Hardness (as CaCO <sub>3</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 2340 C	188	200	600
Sulphate (as SO <sub>4</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 SO <sub>4</sub> <sup>-2</sup> -E	BDL (DL: 1.0)	200	400
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 NO <sub>3</sub> -B	BDL (DL: 0.5)	45	No Relaxation

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Work Order No. : 13612312113	Work Order Date : 28.03.2024
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Discipline : Chemical		Group : Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/L	IS 3025 (Part 43/Sec1): 2022	BDL (DL: 0.001)	0.001	0.002
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26): 2021	BDL (DL: 0.1)	0.2(Min)	1.0(Min)
Calcium (as Ca)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 3500 Ca B	49.8	75	200
Anionic Surfactants (as MBAS)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 5540-C	BDL (DL: 0.025)	0.2	1.0
Discipline : Chemical		Group : Residues in Water			
Aluminum (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	0.03	0.2
Arsenic (as As)	mg/L	IS 3025 (Part-37): 2022	BDL (DL: 0.005)	0.01	No Relaxation
Boron (as B)	mg/L	IS 3025 (Part-57) : 2021	BDL (DL: 0.2)	0.5	1.0
Cadmium (as Cd)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	IS 3025 (Part 42): 2019	BDL (DL: 0.03)	0.05	1.5
Cyanide (as CN)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation
Iron (as Fe)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	0.072	1.0	No Relaxation
Lead (as Pb)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	BDL (DL: 0.001)	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2019	BDL (DL: 0.01)	0.01	No Relaxation



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ULR No. : TC1358725000001162F	

Discipline : Chemical		Group : Residues in Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Zinc (as Zn)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.1)	5.0	15
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04: 2023	BDL (DL: 0.05)	0.1	No Relaxation
Polychlorinated biphenyls (PCB)	µg/L	ELES/GC/SOP/03: 2023	BDL (DL: 0.1)	0.5	No Relaxation
<b>Pesticides</b>				<b>Limit</b>	
Alachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	20	
Atrazine	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2.0	
Butachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	125	
Chlorpyrifos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	30	
Ethion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	3.0	
Malathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	190	
Methyl parathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.1)	0.30	
Monocrotophos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	1.0	
Phorate	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2.0	
Phorate Sulphone	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--	
Dieldrin	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.01)	0.03	
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	0.01	
Beta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	0.04	



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Pesticides				
Parameter	Unit	Test Protocol	Result	Limit
Delta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	0.04
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	2.0
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	0.40
DDT(o,p and p,p-isomers of DDT) ( DDE and DDD)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	1.0
Discipline : Biological		Group : Water		
Total Coliform (Qualitative)	Per 100 mL	IS 15185: 2021	Not Detected	Shall not be detected
Escherichia coli (Qualitative)	Per 100 mL	IS 15185: 2021	Not Detected	

Remarks: pH done at Site.



Reviewed by

Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*



Authorised Signatory

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





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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2025/1190	Report Release Date : 24.02.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/DW/1120
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 13.02.2025
		Sample Received Date	: 15.02.2025
		Type of Sample	: Drinking Water
Mines Status	: Operational	Source of Sample	: TAP Water
		Location of Sample	: Time Office (Bhusar Bauxite Mines)
Period of Analysis	: 15.02.2025 to 24.02.2025	Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Mineral Oil*	mg/L	IS 3025 (Part-39): 2021, Clause 6 Infrared Spectroscopic method.	BDL (DL: 0.01)	0.5	No Relaxation

Remarks: (\*) Parameters are outsourced to other Lab.

Reviewed by

Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

Authorised Signatory

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

**ENVIRONMENTAL LABORATORIES & ENGINEERING  
SERVICES PVT. LTD.**

Plot No.30, Mansarovar Enclave, Tupudana, Hatia, Ranchi-834003,  
Jharkhand.

**Bhusar Bauxite Mine-Environmental Monitoring Report**

**March 2025**





## CONTENT

Hindalco Industries : Bhusar Bauxite Mine Environmental Monitoring Report		March 2025
Bhusar Bauxite Mine		
	<b>AMBIENT AIR QUALITY- CORE ZONE</b>	
1	Near View Point 1 (Bhusar Mine Pit I)	
2	Near View Point 2 (Bhusar Mine Pit II)	
3	Near Rest Shelter	
4	Near GTS Point	
	<b>AMBIENT AIR QUALITY- BUFFER ZONE</b>	
1	Near Daldaliya Village	
2	Aditya School Gangupara	
3	Ropeway unloading station	
4	Ropeway Angle Station	
	<b>AMBIENT NOISE</b>	
	<b>WORKZONE NOISE</b>	





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## TEST REPORT

Test Report No. : ELES/RNC/2025/1989	Report Release Date : 24.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001947F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/2131
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-1 (Bhusar Mine Pit I) Bhusar Bauxite Mine (65.31 ha)
Mines Status	: Operational	Sampling Date	: 11.03.2025 to 12.03.2025
Period of Analysis	: 17.03.2025 to 24.03.2025	Sample Received Date	: 17.03.2025
		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) : 27	2	Barometric Pressure (mmHg) : 720
3	Relative Humidity (%) : 60	4	Weather Condition : Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	76	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	43	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	13.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	34.8	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.18	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.026	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)



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Akash Kumar

Quality Manager

\*\*\*\*End of Report\*\*\*\*

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Ph. D. Environmental Engg.

Technical Manager

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CRM: U74909JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2025/1990	Report Release Date : 24.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001948F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/2132
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-2(Bhusar Mine Pit 1) Bhusar Bauxite Mine(65.31ha)
Mines Status	: Operational	Sampling Date	: 11.03.2025 to 12.03.2025
Period of Analysis	: 17.03.2025 to 24.03.2025	Sample Received Date	: 17.03.2025
		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) : 27	2	Barometric Pressure (mmHg) : 720
3	Relative Humidity (%) : 60	4	Weather Condition : Clear

### Discipline : Chemical

### Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	81	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	15.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	30.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.24	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.027	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



Reviewed by  
Akash Kumar

Quality Manager

\*\*\*\*End of Report\*\*\*\*



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TC-13587

## TEST REPORT

Test Report No. : ELES/RNC/2025/1991	Report Release Date : 24.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001949F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/2133
Address	: Lohardaga, Jharkhand-835302	Location	: Near Rest Shelter Bhusar Bauxite Mine (65.31ha)
		Sampling Date	: 11.03.2025 to 12.03.2025
Mines Status	: Operational	Sample Received Date	: 17.03.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 17.03.2025 to 24.03.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 27	2	Barometric Pressure (mmHg) : 720
3	Relative Humidity (%) : 60	4	Weather Condition : Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	86	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	47	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	15.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	27.2	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.20	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.032	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



Reviewed by  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

Page 1 of 1



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

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# ENVIRONMENTAL LABORATORIES &

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

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## TEST REPORT

Test Report No. : ELES/RNC/2025/1992	Report Release Date : 24.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001950F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/2134
Address	: Lohardaga, Jharkhand-835302	Location	: Near GTS Point Bhusar Bauxite Mine (65.31ha)
		Sampling Date	: 11.03.2025 to 12.03.2025
Mines Status	: Operational	Sample Received Date	: 17.03.2025
		Type of Sample	: Ambient Air
Period of Analysis	: 17.03.2025 to 24.03.2025	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

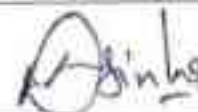
1	Average Temperature (°C) : 27	2	Barometric Pressure (mmHg) : 720
3	Relative Humidity (%) : 60	4	Weather Condition : Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	79	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	45	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	13.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	33.8	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.22	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.030	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)



Reviewed by  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*



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

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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TC-13587

## TEST REPORT

Test Report No. : ELES/RNC/2025/1744	Report Release Date : 19.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001703F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1915
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine (75.41 ha)
Mines Status	: Non Operational	Sampling Date	: 10.03.2025 to 11.03.2025
Period of Analysis	: 12.03.2025 to 19.03.2025	Sample Received Date	: 12.03.2025
		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)	: 28	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	70	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	12.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	26.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.022	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)



Reviewed by  
Akash Kumar

Quality Manager

\*\*\*\*End of Report\*\*\*\*



Authorized Signatory  
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Technical Manager

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CRM: U74999RJ2018PTC011125

# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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TC-13587

## TEST REPORT

Test Report No. : ELES/RNC/2025/1745	Report Release Date : 19.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001704F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1916
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine (75.41ha)
Mines Status	: Non Operational	Sampling Date	: 10.03.2025 to 11.03.2025
Period of Analysis	: 12.03.2025 to 19.03.2025	Sample Received Date	: 12.03.2025
		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)	: 28	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	76	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	13.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	28.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	1.22	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.018	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
Akash Kumar

Quality Manager

\*\*\*\*End of Report\*\*\*\*

Authorised Signatory  
Dr. Desendra Kumar Sinha  
Ph. D. Environmental Engg.

Technical Manager

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### TEST REPORT

Test Report No. : ELES/RNC/2025/1746	Report Release Date : 19.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001705F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1917
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine (75.41ha)
Mines Status	: Non Operational	Sampling Date	: 10.03.2025 to 11.03.2025
Period of Analysis	: 12.03.2025 to 19.03.2025	Sample Received Date	: 12.03.2025
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

### METEOROLOGICAL INFORMATION

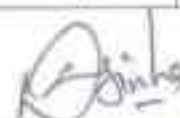
1	Average Temperature (°C) : 28	2	Barometric Pressure (mmHg) : 720
3	Relative Humidity (%) : 60	4	Weather Condition : Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	79	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	44	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	11.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	25.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.026	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)



Reviewed by  
**Akash Kumar**  
 Quality Manager

\*\*\*\*End of Report\*\*\*\*



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

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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## TEST REPORT

Test Report No.	: ELES/RNC/2025/1747	Report Release Date	: 19.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001706F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2025/AA/1918
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine (75.41 ha)
		Sampling Date	: 10.03.2025 to 11.03.2025
Mines Status	: Non Operational	Sample Received Date	: 12.03.2025
Period of Analysis	: 12.03.2025 to 19.03.2025	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)	: 28	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	83	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	48	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	12.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	27.3	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	1.28	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.024	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	$\text{ng}/\text{m}^3$	ELES/GC/SOP/05: 2023	<0.5	01(Annual)



Reviewed by  
Akash Kumar

\*\*\*\*End of Report\*\*\*\*



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Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

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Phone no.: 0651-2290103  
Website : [www.elespl.co.in](http://www.elespl.co.in)



## TEST REPORT

Test Report No. : ELES/RNC/2025/2017	Report Release Date : 24.03.2025
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC1358725000001975F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 11.03.2025 to 12.03.2025
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 17.03.2025
		Type of Sample	: Ambient Noise
		Sampling procedure	: ELES/DOC/SMPL/03
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
		Period of Analysis	: 17.03.2025 to 22.03.2025

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 27	2	Barometric Pressure (mmHg) : 720
3	Relative Humidity (%) : 60	4	Weather Condition : Clear

Discipline : Chemical		Group : Atmospheric Pollution			
Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
Bhusar Mines Pit- 1, Bhusar Bauxite Mines (65.31ha)	dB(A)	IS 9989: 2020	Time	$L_{eq}$	75 dB(A) Day Time & 70 dB(A) Night Time
			Day Time	65	
Sample ID: ELES/RNC/2025/AN/2159			Night Time	49	

Reviewed by  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

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

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# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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## TEST REPORT

Test Report No.	: ELES/RNC/2025/2022	Report Release Date	: 24.03.2025
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC1358725000001980F		


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 12.03.2025
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 17.03.2025
		Type of Sample	: Workzone Noise
		Sampling procedure	: ELES/DOC/SMPL/03
		Sample Drawn By	: ELES Pvt. Ltd.
Mines Status	: Operational	Period of Analysis	: 17.03.2025 to 22.03.2025

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 720
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
Bhusar Mines Pit- II, Bhusar Bauxite Mine (65.31ha)	dB(A)	IS 4758: 2017	Time	L <sub>eq</sub>	90 dB(A)
			Day Time	70	
Sample ID: ELES/RNC/2025/WN/2164					

  
Reviewed by  
Akash Kumar  
Quality Manager

\*\*\*\*End of Report\*\*\*\*

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



## **Annexure 3**

Date – 01.05.2025

### **Office Order**

Environmental Cell has been re-constituted for Bagru Group of Mines (Bagru Bauxite Mine, Bhusar Bauxite Mine and Hisri New Bauxite Mine). This cell consists of the following team members who will ensure compliance with the Environment Acts, Rules & Regulations in respect of the said mines of Hindalco Industries Limited.

1. Mr. Raj Sinha (Coordinator)
2. Mr. Malaya Prusty (Geologist)
3. Mr. Girija Tamrakar (Environment Engineer)
4. Mr. Anand Prakash Tiwari (Environment Engineer)

The Undersigned is the in charge of above Environment Management Cell constituted for the purpose of ensuring compliances of environmental acts, rules and regulations for the above mines.

A handwritten signature in blue ink, appearing to be "Basudev Gangopadhyay", written over a horizontal line.

**Basudev Gangopadhyay**  
**AVP (Planning, Environment & Compliance)**



## Annexure 4

Production, Mined Out, Back Filled and Over Burden removal from October'24 to March'25								
S No	Name of the Mines	Mining lease area (ha)	Production Capacity (MT)*	Lease Period*	Production (MT)	Mined out area (ha)	Backfilled area (ha)	Over burden (Cu.M)
1	Bagru Bauxite Mine	75.41	85000	22.01.1974 to 31.03.2030	NIL	NIL	NIL	NIL
2	Bhusar Bauxite Mine	65.31	280000	11.07.1981 to 31.03.2030	86061	1.53	0.695	88218.66
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	25362	0.345	0.10	30825.23
4	Pakhar (8.09) Bauxite Mine	8.09	80000	16.05.1973 to 31.03.2030	NIL	NIL	NIL	NIL
5	Pakhar (35.12) Bauxite Mine	35.12	200000	17.04.1975 to 31.03.2030	NIL	NIL	NIL	NIL
6	Pakhar (115.13) Bauxite Mine	115.13	300000	19.07.1996 to 31.03.2030	109753	2.12	7.6	332929.81
7	Sherangdag-A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	2989	0.02	0.02	2110.0
8	Serangdag-B Bauxite Mine	77.89	100000	04.10.1978 to 31.03.2030	35253	0.756	0.35	38119.67
9	Jalim & Sanai Bauxite Mine	12.14	50000	16.10.1974 to 31.03.2030	24760	0.13	0.08	12444.82
10	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	105401	4.42	3.76	185747.47
11	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	NIL	NIL	2.54	NIL
12	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	61250	2.40	4.72	136798.61
13	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	62240	4.047	6.423	255249.72

**Annexure 4**

<b>Minerals &amp; Minerals Limited</b>								
14	Pakhar (109.507) Bauxite Mine	109.507	280000	26.07.2008 to 25.07.2058	112559	0.44	3.62	255124.1
15	Pakhar (15.58) Bauxite Mine	15.58	60000	28.04.1965 to 31.03.2030	5015	0.26	0.42	11644.5
16	Bimarla Bauxite Mine	134.526	300000	18.07.2009 to 17.07.2059	93500	3.956	5.37	156892.41
17	Amtipani Chirodih Bauxite Mine	130.01	450000	11.01.2017 to 10.01.2067	114100	5.43	5.133	233823.46

\*Static information about the mines included in the above table



**Basudev Gangopadhyay**  
**AVP (Planning, Environment and Compliance)**



## Annexure-5

### **BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2024-25**

The composite cost during the year 2024-25 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Bagru (75.41 ha), Hisri New (14.55 ha), Bhusar (65.31 ha), Pakhar (115.13 ha), Pakhars (109.507 ha), Pakhar (15.58 ha), Pakhar (8.09 ha), Pakhar (35.12 ha), Sherangdag (155.81 ha), Serangdag (77.89 ha), Jalim & Sanai (12.14 ha), Bimarla Bauxite Mines (134.526 ha), Gurdari (584.19 ha), Amtipani (190.95 ha), Kujam I (80.87 ha) Kujam II (157.38 ha), and Amtipani Chirodih (130.01 ha) Bauxite mines.

S.No	Description	Budget (in Rupees) FY 2024-25 (From Oct'24 to Mar'25)	Actual (in Rupees) FY 2024-25 (From Oct'24 to Mar'25)
1	Pollution Control and Environmental Monitoring	61,35,000.00	42,08,879.10
2	Reclamation/ Back filing & Rehabilitation**	5,62,80,000.00	5,32,33,879.71
3	Green belt, Plantation & Water sprinkling arrangement	73,42,000.00	43,51,560.28
4	Rural Development	2,75,00,000.00	3,13,06,810.81

\*\*Part of OB removed cost



Basudev Gangopadhyay  
AVP (Planning, Environment & Compliance)