



HIL/LHD/ENV/MoEF/979

Date: 20.11.2024

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:** Compliance Report of EC conditions for Bhusar (65.31 ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Lohardaga, for the period April 2024 to September 2024.

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

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** located in Lohardaga, Jharkhand for the period April 2024 to September 2024.


The lease detail is as 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 Sincerely  
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)

**Name of the Project** : **Bhusar Bauxite Mine (65.31 ha)**  
**M/s Hindalco Industries Ltd**

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

**Period of compliance Report** : **From 1<sup>st</sup> April'24 to 30<sup>th</sup> September'24**

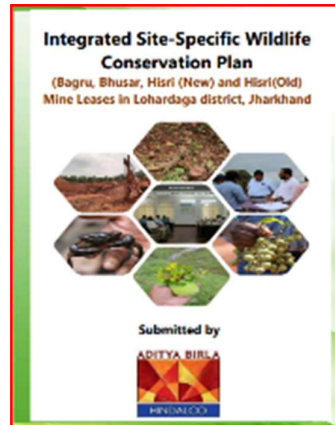
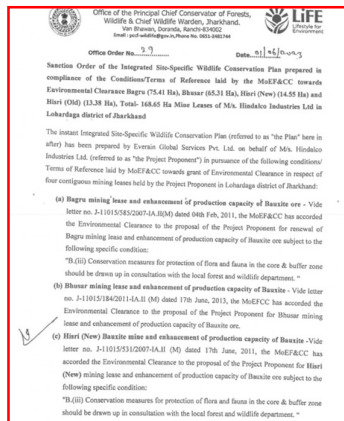
**Specific Conditions: -**

**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.



**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.**

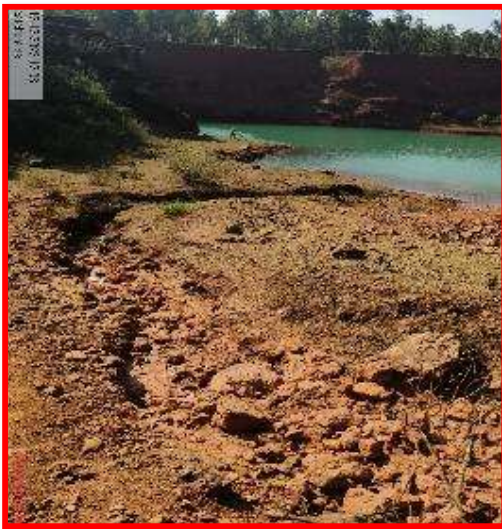
**Reply: -** Backfilling and reclamation are being done concurrently by overburden. No OB dump is present in mines. The mining is being carried out as per the approved mining plan. Data pertaining to backfilling is enclosed as **Annexure 4**. Monitoring and management of rehabilitated areas is being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



Catch Drains



Garland drains

**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, 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. Total 3820 saplings have been planted in the period of April'24 to September'24, within the Bhusar mine lease area. Cumulative 44.898 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.



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 installed a Mist Fog Cannon to suppress the dust at the transfer point. AAQ parameters in mine monitored on regular basis 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 augmentation of ground water in the area (Bagru Plateau) in consultation with 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:** -We are not using ground water for any mining purpose. 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. A Piezometer has been installed for monitoring of ground water level. Water level and water quality reports are being sent regular to regional office of Ministry, CGWA and JSPCB. The same is attached herewith 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 same NOC and photograph of RWH pond in attached below.





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

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



Wet drilling

**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 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. 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.

**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.

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**. Photograph of Effluent treatment plant (ETP) is attached below.



Effluent treatment plant (ETP)

**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 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 MoEFCC. Now, the Regional office of MoEF&CC is in Ranchi.

<b>Annexure 1</b>		
<b>Piezometer Reading - Bhusar</b>		
<b>S No</b>	<b>Month</b>	<b>Depth (meter)</b>
1	Apr-24	35.4
2	May-24	35.2
3	Jun-24	35.16
4	Jul-24	34.8
5	Aug-24	34.45
6	Sep-24	34.23

## **ENVIROCHECK**

Lab: MIG, R-3 Housing Colony, Dhanbad, Pin-826001,

State- Jharkhand.

**Bhusar Bauxite Mine-Environmental Monitoring Report**

**April 2024**



### TEST REPORT

Test Report No. : ENVJK/1135/APR/TR(W)24-25	Report Release Date : 20.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1660
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-1(Bhusar Mine Pit I) Bhusar Bauxite Mine(65.31ha)
		Sampling Date	: 10.04.2024 to 11.04.2024
Mines Status	: Operational	Sample Received Date	: 12.04.2024
Period of Analysis	: 12.04.2024 to 20.04.2024	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)	: 31	2	Barometric Pressure (mmHg)	: 734
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): 2006	64	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	USEPA 1997a, 40 CFR Part 50, Appendix L: 2006	37	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 2): 2001	11.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 6): 2006	21.8	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>	USEPA Method – IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	USEPA Method – TO-3 (GC-MS Method)	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	USEPA Method – TO-3A (GC-MS Method)	<0.5	01(Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

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



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

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### TEST REPORT

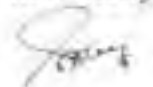
Test Report No. : ENVJK/1136/APR/TR(W)24-25	Report Release Date : 20.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1661
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-2(Bhusar Mine Pit I) Bhusar Bauxite Mine(65.31ha)
		Sampling Date	: 11.04.2024 to 12.04.2024
Mines Status	: Operational	Sample Received Date	: 12.04.2024
Period of Analysis	: 12.04.2024 to 20.04.2024	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)	: 31	2	Barometric Pressure (mmHg)	: 734
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): 2006	68	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	USEPA 1997a,40 CFR Part 50, Appendix L: 2006	31	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 2): 2001	8.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 6): 2006	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	0.007	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>	USEPA Method - IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	USEPA Method - TO-3 (GC-MS Method)	<1.0	05 (Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	USEPA Method - TO-3A (GC-MS Method)	<0.5	01 (Annual)


Reviewed by :



(Saswati Burman Roy, Dy. Quality Manager)



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

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### TEST REPORT

<b>Test Report No.</b> : ENVJK/1137/APR/TR(W)24-25	<b>Report Release Date</b> : 20.04.2024
<b>Work Order No.</b> : 13612312113	<b>Work Order Date</b> : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
<b>Customer Name</b>	: Hindalco Industries Limited	<b>Sample Ref. No.</b>	: ENVJK/2024/AA/1662
<b>Address</b>	: Lohardaga, Jharkhand-835302	<b>Location</b>	: Near Rest Shelter Bhusar Bauxite Mine (65.31ha)
<b>Mines Status</b>	: Operational	<b>Sampling Date</b>	: 11.04.2024 to 12.04.2024
<b>Period of Analysis</b>	: 12.04.2024 to 20.04.2024	<b>Sample Received Date</b>	: 12.04.2024
		<b>Type of Sample</b>	: Ambient Air
		<b>Sampling Procedure</b>	: ELES/DOC/SMPL/02
		<b>Sampling Done By</b>	: ELES Pvt. Ltd.
		<b>Sample Condition</b>	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 734
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): 2006	60	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	USEPA 1997a, 40 CFR Part 50, Appendix L: 2006	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 2): 2001	11.6	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 6): 2006	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	0.011	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>	USEPA Method - IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	USEPA Method - TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	USEPA Method - TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

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



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)



## TEST REPORT

Test Report No. : ENVJK/1138/APR/TR(W)24-25	Report Release Date : 20.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1663
Address	: Lohardaga, Jharkhand-835302	Location	: Near GTS Point Bhusar Bauxite Mine (65.31ha)
		Sampling Date	: 11.04.2024 to 12.04.2024
Mines Status	: Operational	Sample Received Date	: 12.04.2024
Period of Analysis	: 12.04.2024 to 20.04.2024	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)	: 32	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 59	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): 2006	69	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	USEPA 1997a,40 CFR Part 50, Appendix L: 2006	30	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 2): 2001	11.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 6): 2006	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	<0.002	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>	USEPA Method - IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	USEPA Method - TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	USEPA Method - TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

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



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

Page 1 of 1

### TEST REPORT

Test Report No. : ENVJK/1131/APR/TR(W)24-25	Report Release Date : 22.04.2024
Work Order No. : 13612312133	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1656
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldajya Village Begru Bauxite Mine (75-41kg)
		Sampling Date	: 11.04.2024 to 12.04.2024
Mines Status	: Non Operational	Sample Received Date	: 16.04.2024
Period of Analysis	: 16.04.2024 to 22.04.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DQC/SMPLE/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 736
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): 2006	66	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	USEPA 1997a, 40 CFR Part 50, Appendix L: 2006	32	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 2): 2001	12.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>x</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 6): 2006	27.4	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<10.0	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>	USEPA Method - IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	USEPA Method - TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo(a)-Pyrene	ng/m <sup>3</sup>	USEPA Method - TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Saewata Burnita Roy, Dy. Quality Manager)

\*\*\*ELES\*\*\*



Authorised Signatory :



(Bapun Das, Dy. Technical Manager)

Page 1 of 1



### TEST REPORT

Test Report No. : ENVJK/1132/APR/TR(W)24-25	Report Release Date : 23.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1657
Address	: Lohardaga, Jharkhand-833302	Location	: Aditya School Gangupara Bagra Bauxite Mine (75-ft) (W)
		Sampling Date	: 12.04.2024 to 13.04.2024
Mines Status	: Non Operational	Sample Received Date	: 17.04.2024
Period of Analysis	: 17.04.2024 to 23.04.2024	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)	: 32	2	Barometric Pressure (mmHg)	: 736
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): 2006	62	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	USEPA 1997a, 40 CFR Part 50, Appendix L: 2006	45	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 2): 2001	11.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 6): 2006	24.6	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)	<1.0	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>	USEPA Method - IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	USEPA Method - TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	USEPA Method - TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Saeema Barmati Roy, Dy. Quality Manager)



Authorised Signatory :



(Bipan Das, Dy. Technical Manager)



### TEST REPORT

Test Report No. : ENVJK/1133/APR/TR(W)24-15	Report Release Date : 24.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	Hindalco Industries Limited	Sample Ref. No.	ENVJK/2024/AA/1658
Address	Lohardaga, Jharkhand-835302	Location	Ropeway Unloading Station Bagru Bauxite Mine (75.43hr)
		Sampling Date	13.04.2024 to 14.04.2024
Mines Status	Non Operational	Sample Received Date	18.04.2024
Period of Analysis	18.04.2024 to 24.04.2024	Type of Sample	Ambient Air
		Sampling Procedure	ELES/DOC/SAMPL/02
		Sampling Done By	ELES Pvt. Ltd.
		Sample Condition	Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 736
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): 2006	71	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	USEPA 1997a, 40 CFR Part 50, Appendix L: 2006	34	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 2): 2001	9.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 6): 2006	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	0.009	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ug/m <sup>3</sup>	USEPA Method - IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	USEPA Method - TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo(a)-Pyrene	ng/m <sup>3</sup>	USEPA Method - TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Sarwida Barmaly Roy, Dy. Quality Manager)



Authorised Signatory :



(Bipan Das, Dy. Technical Manager)

Page 1 of 1

### TEST REPORT

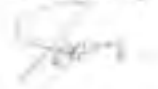
Test Report No. : ENVJK/1134/APR/TR(W)24-25	Report Release Date : 25.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1659
Address	: Lohandegh, Jharkhand-835302	Location	: Ropeway Angle Station Bagra Bauxite Mine (75.4 Ha)
		Sampling Date	: 14.04.2024 to 15.04.2024
Mines Status	: Non Operational	Sample Received Date	: 19.04.2024
Period of Analysis	: 19.04.2024 to 25.04.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMP/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 736
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): 2006	63	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	USEPA 1997a, 40 CFR Part 50, Appendix L: 2006	38	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 2): 2001	10.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 6): 2006	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	0.012	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>	USEPA Method – IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	USEPA Method – TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo-(a)-Pyrene	µg/m <sup>3</sup>	USEPA Method – TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by:



(Sarwati Burman Roy, Dy. Quality Manager)



Authorised Signatory:



(Bipan Das, Dy. Technical Manager)

## CONTENT

Hindalco Industries :Bhusar Bauxite MineEnvironmental Monitoring Report		May 2024
<b>Bhusar Bauxite Mine</b>		
<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>		







# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
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CIN: U74999JH2014PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2598	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000567F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/2915
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-1(Bhusar Mine Pit I) Bhusar Bauxite Mine(65.31ha)
		Sampling Date	: 08.05.2024 to 09.05.2024
Mines Status	: Operational	Sample Received Date	: 10.05.2024
Period of Analysis	: 10.05.2024 to 15.05.2024	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) : 31	2	Barometric Pressure (mmHg) : 742
3	Relative Humidity (%) : 58	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	72	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	9.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	23.3	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)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.011	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)

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# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RNC/2024/2598	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000567F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

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



# ENVIRONMENTAL LABORATORIES &

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

Test Report No. : ELES/RNC/2024/2599	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000568F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/2916
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-2(Bhusar Mine Pit I) Bhusar Bauxite Mine(65.31ha)
		Sampling Date	: 08.05.2024 to 09.05.2024
Mines Status	: Operational	Sample Received Date	: 10.05.2024
Period of Analysis	: 10.05.2024 to 15.05.2024	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)	: 31	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	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	74	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	37	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11/Sec- 1): 2023	10.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	23.4	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)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.007	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)

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# ENVIRONMENTAL LABORATORIES &

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

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Website : [www.elespl.co.in](http://www.elespl.co.in)



CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2599	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000568F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

Authorised Signatory

**Dr. Deependra Kumar Sinha**  
Ph. D Environmental Engg.  
ELES Pvt. Ltd. Technical Manager



# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74909JH2018PTC011175

## TEST REPORT

Test Report No. : ELES/RNC/2024/2600	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000569F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/2917
Address	: Lohardaga, Jharkhand-835302	Location	: Near Rest Shelter Bhusar Bauxite Mine (65.31ha)
		Sampling Date	: 08.05.2024 to 09.05.2024
Mines Status	: Operational	Sample Received Date	: 10.05.2024
Period of Analysis	: 10.05.2024 to 15.05.2024	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)	: 31	2	Barometric Pressure (mmHg)	: 742
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	69	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- II/Sec- 1): 2023	13.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	27.6	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)	<1.0	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)

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, NIANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PTC011125


## TEST REPORT

Test Report No. : ELES/RNC/2024/2600	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000569F	


Discipline: Chemical

Group: Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
 ELES PVT. LTD.

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

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



# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74995JH2018PTC031125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2601	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000570F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/2918
Address	: Lohardaga, Jharkhand-835302	Location	: Near GTS Point Bhusar Bauxite Mine (65.31 ha)
		Sampling Date	: 08.05.2024 to 09.05.2024
Mines Status	: Operational	Sample Received Date	: 10.05.2024
Period of Analysis	: 10.05.2024 to 15.05.2024	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)	: 31	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	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	75	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	39	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	13.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	27.5	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	<0.002	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)

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2601	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000570F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
 ELES PVT LTD

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

  
 Authorised Signatory  
**Dr. Geopande Kumar Sinha**  
 Ph. D Environmental Engg.  
 ELES Pvt. Ltd. Technical Manager

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### TEST REPORT

Test Report No. : ELES/RNC/2024/2591	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000560F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/2908
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaiya Village Bagru Bauxite Mine (75.41 ha)
		Sampling Date	: 07.05.2024 to 08.05.2024
Mines Status	: Non Operational	Sample Received Date	: 10.05.2024
Period of Analysis	: 10.05.2024 to 15.05.2024	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)	: 30	2	Barometric Pressure (mmHg)	: 742
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	51	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24); 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 11/Sec- 1); 2023	8.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6); 2022	23.2	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9); 2019	<10.0	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 (NIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22); 2019	0.007	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)



# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JK2018PTC011338

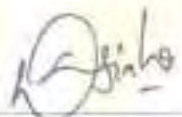
## TEST REPORT

Test Report No. : ELES/RNC/2024/2591	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
L.R No. : TC135872400000560F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Arminal)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Arminal)

  
Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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





# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74951JH2018FTCO11125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2592	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000561F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/2909
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 07.05.2024 to 08.05.2024
Mines Status	: Non Operational	Sample Received Date	: 10.05.2024
Period of Analysis	: 10.05.2024 to 15.05.2024	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)	: 30	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	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	73	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	12.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	21.3	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 (NIDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.008	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/ABR/SOP/01: 2021	<2.0	05 (Annual)

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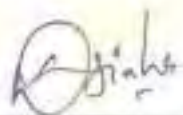
### TEST REPORT

Test Report No.	: ELES/RNC/2024/2592	Report Release Date	: 15.05.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400000561F		

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

  
Authorized Signatory  
**Dr. Deependra Kumar Sinha**  
Ph. D Environmental Engg.  
ELES Pvt. Ltd. Technical Manager



## TEST REPORT

Test Report No. : ELES/RNC/2024/2593	Report Release Date : 15.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000562F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/2910
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 07.05.2024 to 08.05.2024
Mines Status	: Non Operational	Sample Received Date	: 10.05.2024
Period of Analysis	: 10.05.2024 to 15.05.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPI/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	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	67	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	39	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11/Sec- 1): 2023	11.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	25.5	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 (NIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.005	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)





# 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  
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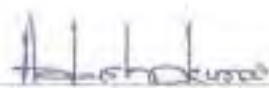


CIN: U74999JH2018PTC011125

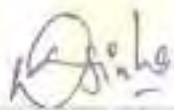
## TEST REPORT

Test Report No.	: ELES/RNC/2024/2593	Report Release Date	: 15.08.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400000562F		

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

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

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CIN: U74900JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MAÑSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAEC97130124

ENGINEERING SERVICES PVT. LTD.

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## TEST REPORT

Test Report No.	: ELES/RNC/2024/2594	Report Release Date	: 15.05.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400000563F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/2911
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine (75:4) (ha)
		Sampling Date	: 07.05.2024 to 08.05.2024
Mines Status	: Non Operational	Sample Received Date	: 10.05.2024
Period of Analysis	: 10.05.2024 to 15.05.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPI/02
		Sampling Done By	: ELES Pvt. Ltd
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	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	59	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24); 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1); 2023	7.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6); 2022	26.5	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9); 2019	<10.0	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	0.007	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)

Page 1 of 2

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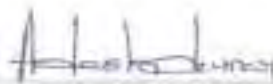
**"Save Environment, Save Future"**



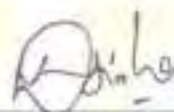
### TEST REPORT

Test Report No.	: ELES/RNC/2024/2594	Report Release Date	: 15.05.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TCI35872400000563F		

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
 ELES PVT. LTD.

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

  
 Authorised Signatory  
**Dr. Deependra Kumar Singh**  
 Ph. D Environmental Engg.  
 ELES Pvt. Ltd. Technical Manager





# ENVIRONMENTAL LABORATORIES &

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

**ENGINEERING SERVICES PVT. LTD.**

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CIN: U74999JH2018PTC011129

TC-13587

## TEST REPORT

Test Report No. : ELES/RNC/2024/2887	Report Release Date : 28.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000847F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/DW/2923
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 09.05.2024
		Sample Received Date	: 10.05.2024
Mines Status	: Operational	Type of Sample	: Drinking Water
		Source/Location of Sample	: Bhusar Bauxite Mines (65.31 ha)
Period of Analysis	: 10.05.2024 to 18.05.2024	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 25.8 °C)	-	APHA 24 <sup>th</sup> Ed.2023, 4500-H	<b>6.64</b>	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 24 <sup>th</sup> Ed.2023, 2130 B	<b>0.21</b>	1.0	5.0
Taste	-	APHA 24 <sup>th</sup> Ed.2023, 2160 C	<b>Agreeable</b>	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5) :2018	<b>Agreeable</b>	Agreeable	Agreeable
Colour	Hazen	APHA 24 <sup>th</sup> Ed.2023, 2120B&D	<b>1.0</b>	5	15
Total Dissolved Solids (TDS)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 2540B,C&D	<b>396</b>	500	2000
Chloride (as Cl)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 Cl B	<b>6.7</b>	250	1000
Fluoride (as F)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 F-D	<b>BDL (DL: 0.1)</b>	1.0	1.5
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 2320 B	<b>189</b>	200	600
Total Hardness (as CaCO <sub>3</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 2340 C	<b>196</b>	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	<b>BDL (DL: 1.0)</b>	200	400
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 NO <sub>3</sub> -B	<b>BDL (DL: 0.5)</b>	45	No Relaxation

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### TEST REPORT

Test Report No. : ELES/RNC/2024/2887	Report Release Date : 28.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000847F	

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	<b>BDL</b> (DL: 0.001)	0.001	0.002	
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26): 2021	<b>BDL</b> (DL: 0.1)	0.2	1.0	
Calcium (as Ca)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 3500 Ca B	<b>51.7</b>	75	200	
Anionic Surfactants (as MBAS)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 5540-C	<b>BDL</b> (DL: 0.025)	0.2	1.0	
Discipline : Chemical			Group : Residues in Water			
Aluminum (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	<b>BDL</b> (DL: 0.02)	0.03	0.2	
Arsenic (as As)	mg/L	IS 3025 (Part-37): 2022	<b>BDL</b> (DL: 0.005)	0.01	No Relaxation	
Boron (as B)	mg/L	IS 3025 (Part-57) : 2021	<b>BDL</b> (DL: 0.2)	0.5	2.4	
Cadmium (as Cd)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	<b>BDL</b> (DL: 0.003)	0.003	No Relaxation	
Total Chromium(as Cr)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	<b>BDL</b> (DL: 0.03)	0.05	No Relaxation	
Copper (as Cu)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	<b>BDL</b> (DL: 0.03)	0.05	1.5	
Cyanide (as CN)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 CN-E	<b>BDL</b> (DL: 0.012)	0.05	No Relaxation	
Iron (as Fe)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	<b>0.083</b>	1.0	1.0	
Lead (as Pb)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	<b>BDL</b> (DL: 0.01)	0.01	No Relaxation	
Manganese (as Mn)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	<b>BDL</b> (DL: 0.05)	0.1	0.3	
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	<b>BDL</b> (DL: 0.001)	0.001	No Relaxation	
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2019	<b>BDL</b> (DL: 0.01)	0.01	No Relaxation	

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### TEST REPORT

Test Report No. : ELES/RNC/2024/2887	Report Release Date : 28.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000847F	

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	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	





# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
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Website : [www.elespl.co.in](http://www.elespl.co.in)



CIN: U74909JH2018PTC011125

## TEST REPORT

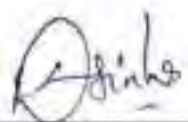
Test Report No. : ELES/RNC/2024/2887	Report Release Date : 28.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000847F	

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,DDEand 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: 1. pH and RFC done at Lab.

  
Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

  
Authorized Signatory  
**Dr. Deependra Kumar Sinha**  
Ph. D Environmental Engg.  
ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAACE97130124

ENGINEERING SERVICES PVT. LTD.

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CIN: U74899JH2018PTC011125


## TEST REPORT

Test Report No. : ELES/RNC/2024/2887	Report Release Date : 28.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

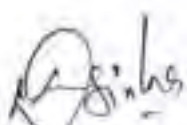
CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/DW/2923
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 09.05.2024
		Sample Received Date	: 10.05.2024
Mines Status	: Operational	Type of Sample	: Drinking Water
Period of Analysis	: 10.05.2024 to 18.05.2024	Source/Location of Sample	: Bhusar Bauxite Mines (65.31 ha)
		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	CL-6, IS: 3025 (P-39)	<b>BDL (DL: 0.1)</b>	1.0	No Relaxation

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

  
 Reviewed by  
**AKASH KUMAR**  
 Quality Manager  
 ELES PVT. LTD.

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

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

## CONTENT

Hindalco Industries : Bhusar Bauxite Mine Environmental Monitoring Report		June 2024
<b>Bhusar Bauxite Mine</b>		
<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/2024/3254	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001206F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3591
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-1(Bhusar Mine Pit 1) Bhusar Bauxite Mine(65.31ha)
		Sampling Date	: 11.06.2024 to 12.06.2024
Mines Status	: Operational	Sample Received Date	: 13.06.2024
Period of Analysis	: 13.06.2024 to 19.06.2024	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)	: 37	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 61	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	40	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- II/Sec- 1): 2023	13.8	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)	<1.0	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)



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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/3254	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001206F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

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





# ENVIRONMENTAL LABORATORIES &

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OR: U74899JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/3255	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001207F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3592
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-2(Bhusar Mine Pit I) Bhusar Bauxite Mine(65.31ha)
		Sampling Date	: 11.06.2024 to 12.06.2024
Mines Status	: Operational	Sample Received Date	: 13.06.2024
Period of Analysis	: 13.06.2024 to 19.06.2024	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)	: 37	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 61	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	65	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	12.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	20.9	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	0.007	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)

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CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RNC/2024/3255	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001207F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

Authorized Signatory  
**Dr. Deependra Kumar Sinha**  
Ph. D Environmental Engg.  
ELES Pvt. Ltd. Technical Manager





# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/3256	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001208F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3593
Address	: Lohardaga, Jharkhand-835302	Location	: Near Rest Shelter Bhusar Bauxite Mine (65.31ha)
		Sampling Date	: 11.06.2024 to 12.06.2024
Mines Status	: Operational	Sample Received Date	: 13.06.2024
Period of Analysis	: 13.06.2024 to 19.06.2024	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)	: 37	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 61	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- 11/Sec- 1): 2023	10.1	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)	<1.0	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)

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/3256	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001208F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD

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

Authorised Signatory

**Dr. Deependra Kumar Sinha**  
Ph. D Environmental Engg.  
ELES Pvt. Ltd. Technical Manager





# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U78900JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/3257	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001209F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3594
Address	: Lohardaga, Jharkhand-835302	Location	: Near GTS Point Bhusar Bauxite Mine (65.31ha)
		Sampling Date	: 11.06.2024 to 12.06.2024
Mines Status	: Operational	Sample Received Date	: 13.06.2024
Period of Analysis	: 13.06.2024 to 19.06.2024	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)	: 37	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 61	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	30	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 11/Sec- 1): 2023	9.5	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	<0.002	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)

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74999MH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/3257	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001209F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

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





# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74909JH2015PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/3244	Report Release Date	: 19.06.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400001196F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3581
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daidaliya Village Bagru Bauxite Mine (75.41 ha)
		Sampling Date	: 10.06.2024 to 11.06.2024
Mines Status	: Non Operational	Sample Received Date	: 13.06.2024
Period of Analysis	: 13.06.2024 to 19.06.2024	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)	: 37	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	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	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- II/Sec- 1): 2023	12.2	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)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.010	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)

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/3244	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001196F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

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





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CON: U74899JH2012PT011121

## TEST REPORT

Test Report No. : ELES/RNC/2024/3245	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001197F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3582
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine (75.41 ha)
		Sampling Date	: 10.06.2024 to 11.06.2024
Mines Status	: Non Operational	Sample Received Date	: 13.06.2024
Period of Analysis	: 13.06.2024 to 19.06.2024	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)	: 37	2 Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	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	65	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- II/Sec- 1): 2023	9.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	25.6	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)	<1.0	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)

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CIN: U74899JH2018PTC011125


## TEST REPORT

Test Report No. : ELES/RNC/2024/3245	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001197F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

  
Authorized Signatory  
**Dr. Deependra Kumar Sinha**  
Ph. D Environmental Engg.  
ELES Pvt. Ltd. Technical Manager

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### TEST REPORT

Test Report No.	: ELES/RNC/2024/3246	Report Release Date	: 19.06.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400001198F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3583
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 10.06.2024 to 11.06.2024
Mines Status	: Non Operational	Sample Received Date	: 13.06.2024
Period of Analysis	: 13.06.2024 to 19.06.2024	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)	: 37	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	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	74	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- II/Sec- 1); 2023	12.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6); 2022	20.2	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	0.011	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)



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CIN: U74999JH2018PTC011123

## TEST REPORT

Test Report No. : ELES/RNC/2024/3246	Report Release Date : 19.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001198F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

Authorized Signatory  
**Dr. Deependra Kumar Sinha**  
Ph. D Environmental Engg.  
ELES Pvt. Ltd. Technical Manager

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CIN: U74909JH2019PTC011122

## TEST REPORT

Test Report No.	: ELES/RNC/2024/3247	Report Release Date	: 19.06.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400001199F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3584
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 10.06.2024 to 11.06.2024
Mines Status	: Non Operational	Sample Received Date	: 13.06.2024
Period of Analysis	: 13.06.2024 to 19.06.2024	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)	: 37	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	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	65	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	39	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	11.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	23.7	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	3 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.012	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)

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CIN: U74999JH1018PVT0011215

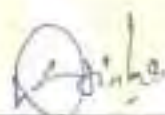
## TEST REPORT

Test Report No.	: ELES/RNC/2024/3247	Report Release Date	: 19.06.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400001199F		

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

  
Authorized Signatory  
**Dr. Deependra Kumar Sinha**  
Ph. D Environmental Engg.  
ELES Pvt. Ltd. Technical Manager

Page 2 of 2

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## CONTENT

Hindalco Industries : Bhusar Bauxite Mine Environmental Monitoring Report		July 2024
<b>Bhusar Bauxite Mine</b>		
<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	





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TC-13887

## TEST REPORT

Test Report No. : ELES/RNC/2024/3984	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001920F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4594
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-I(Bhusar Mine Pit 1) Bhusar Bauxite Mine(65.31ha)
		Sampling Date	: 10.07.2024 to 11.07.2024
Mines Status	: Operational	Sample Received Date	: 12.07.2024
Period of Analysis	: 12.07.2024 to 18.07.2024	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) : 32	2	Barometric Pressure (mmHg) : 741
3	Relative Humidity (%) : 63	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	68	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	36	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11/Sec- 1): 2023	10.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	22.2	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	0.011	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)

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# ENVIRONMENTAL LABORATORIES &



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TC-0387

## TEST REPORT

Test Report No. : ELES/RNC/2024/3984	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001920F	

Discipline: Chemical

Group: Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

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



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## TEST REPORT

Test Report No. : ELES/RNC/2024/3985	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001921F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4595
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-2(Bhusar Mine Pit I) Bhusar Bauxite Mine(65.31ha)
		Sampling Date	: 10.07.2024 to 11.07.2024
Mines Status	: Operational	Sample Received Date	: 12.07.2024
Period of Analysis	: 12.07.2024 to 18.07.2024	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)	: 32	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 63	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	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- 11/Sec- 1): 2023	9.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	19.2	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	0.01	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)

Page 1 of 2

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"Save Environment, Save Future"





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## TEST REPORT

Test Report No. : ELES/RNC/2024/3985	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001921F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

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

Page 2 of 2

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TC-13587

## TEST REPORT

Test Report No. : ELES/RNC/2024/3986	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001922F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4596
Address	: Lohardaga, Jharkhand-835302	Location	: Near Rest Shelter Bhusar Bauxite Mine (65.31ha)
		Sampling Date	: 10.07.2024 to 11.07.2024
Mines Status	: Operational	Sample Received Date	: 12.07.2024
Period of Analysis	: 12.07.2024 to 18.07.2024	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)	: 32	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 63	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	62	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	29	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11/Sec- 1): 2023	11.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	22.2	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	0.011	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)

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TC-1887

## TEST REPORT

Test Report No. : ELES/RNC/2024/3986	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001922F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

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



# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RNC/2024/3987	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001923F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4597
Address	: Lohardaga, Jharkhand-835302	Location	: Near GTS Point Bhusar Bauxite Mine (65.31ha)
		Sampling Date	: 10.07.2024 to 11.07.2024
Mines Status	: Operational	Sample Received Date	: 12.07.2024
Period of Analysis	: 12.07.2024 to 18.07.2024	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)	: 32	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 63	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	60	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11/Sec- 1): 2023	8.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	20.7	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	<0.002	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)

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## TEST REPORT

Test Report No. : ELES/RNC/2024/3987	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001923F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

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



### TEST REPORT

Test Report No. : ELES/RNC/2024/3974	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001910F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4584
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine (75.4Tha)
		Sampling Date	: 09.07.2024 to 10.07.2024
Mines Status	: Non Operational	Sample Received Date	: 12.07.2024
Period of Analysis	: 12.07.2024 to 18.07.2024	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)	: 31	2	Barometric Pressure (mmHg)	: 742
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	30	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- II/Sec- 1): 2023	11.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	23.9	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)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.007	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)





# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2016PTC011123

## TEST REPORT

Test Report No.	: ELES/RNC/2024/3974	Report Release Date	: 18.07.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400001910F		

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

Authorized Signatory  
**Dr. Deependra Kumar Sinha**  
Ph. D Environmental Engg.  
ELES Pvt. Ltd. Technical Manager



# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 32AAJCE9713D124

ENGINEERING SERVICES PVT. LTD.

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## TEST REPORT

Test Report No.	: ELES/RNC/2024/3975	Report Release Date	: 18.07.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400001911F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name:	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4585
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 09.07.2024 to 10.07.2024
Mines Status	: Non Operational	Sample Received Date	: 12.07.2024
Period of Analysis	: 12.07.2024 to 18.07.2024	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)	: 31	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 64	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	60	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	12.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	23.3	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)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.009	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)

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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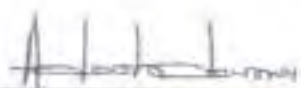


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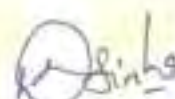
## TEST REPORT

Test Report No.	: ELES/RNC/2024/3975	Report Release Date	: 18.07.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400001911F		

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
 ELES PVT. LTD

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

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

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, YUPUDANA  
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ON: 074389103018P1011223

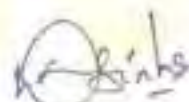
## TEST REPORT

Test Report No.	: ELES/RNC/2024/3976	Report Release Date	: 18.07.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400001912F		

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

  
Authorized Signatory  
**Dr. Deependra Kumar Sinha**  
Ph. D Environmental Engg.  
ELES Pvt. Ltd. Technical Manager

Page 2 of 2

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## TEST REPORT

Test Report No. : ELES/RNC/2024/3977	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.05.2024
ULR No. : TC135872400001913F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4587
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 09.07.2024 to 10.07.2024
Mines Status	: Non Operational	Sample Received Date	: 12.07.2024
Period of Analysis	: 12.07.2024 to 18.07.2024	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) : 31	2 Barometric Pressure (mmHg) : 742
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- II/Sec- 1): 2023	8.5	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	0.008	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	<1.0	06 (Annual)





# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSARDVAR ENCLAVE, TUPUDANA  
MATIA, RANCHI-834003 (JHARKHAND)  
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CIN: U74399JH3018PTC011123

## TEST REPORT

Test Report No. : ELES/RNC/2024/3977	Report Release Date : 18.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001913F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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)

**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

**Dr. Deependra Kumar Sinha**  
Ph. D Environmental Engg.  
ELES PVT. Ltd, Technical Manager

## CONTENT

Hindalco Industries : Bhusar Bauxite Mine Environmental Monitoring Report		August 2024
<b>Bhusar Bauxite Mine</b>		
<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>		







CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

**ENGINEERING SERVICES PVT. LTD.**PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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TC-13687

## TEST REPORT

Test Report No. : ELES/RNC/2024/4704	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002624F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5394
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-1(Bhusar Mine Pit I) Bhusar Bauxite Mine(65.31ha)
		Sampling Date	: 09.08.2024 to 10.08.2024
Mines Status	: Operational	Sample Received Date	: 12.08.2024
Period of Analysis	: 12.08.2024 to 19.08.2024	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) : 741
3	Relative Humidity (%) : 69	4	Weather Condition : 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	32	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- II/Sec- 1): 2023	8.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	20.6	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)	<1.0	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)

Page 1 of 2

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CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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

Test Report No. : ELES/RNC/2024/4704	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002624F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

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

Page 2 of 2

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CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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TC-13587

## TEST REPORT

Test Report No. : ELES/RNC/2024/4705	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002625F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5395
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-2(Bhusar Mine Pit I) Bhusar Bauxite Mine(65.31ha)
		Sampling Date	: 09.08.2024 to 10.08.2024
Mines Status	: Operational	Sample Received Date	: 12.08.2024
Period of Analysis	: 12.08.2024 to 19.08.2024	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) : 741
3	Relative Humidity (%) : 69	4	Weather Condition : 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	55	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- II/Sec- 1): 2023	7.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	17.5	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	0.005	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)

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CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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TC-13587

## TEST REPORT

Test Report No. : ELES/RNC/2024/4705	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002625F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

  
Authorized Signatory  
**Dr. Deependra Kumar Sinha**  
Ph. D Environmental Engg.  
ELES Pvt. Ltd. Technical Manager

Page 2 of 2

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### TEST REPORT

Test Report No. : ELES/RNC/2024/4706	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002626F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5396
Address	: Lohardaga, Jharkhand-835302	Location	: Near Rest Shelter Bhusar Bauxite Mine (65.31ha)
		Sampling Date	: 09.08.2024 to 10.08.2024
Mines Status	: Operational	Sample Received Date	: 12.08.2024
Period of Analysis	: 12.08.2024 to 19.08.2024	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)	: 741
3	Relative Humidity (%)	: 69	4	Weather Condition	: 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	56	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- II/Sec- 1): 2023	8.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	19.7	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	0.007	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)



CIN: U74999JH2018PTC011125

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## TEST REPORT

Test Report No. : ELES/RNC/2024/4706	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002626F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

  
Authorized Signatory  
**Dr. Deependra Kumar Sinha**  
Ph. D Environmental Engg.  
ELES Pvt. Ltd. Technical Manager





CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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TC-13587

## TEST REPORT

Test Report No. : ELES/RNC/2024/4707	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002627F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5397
Address	: Lohardaga, Jharkhand-835302	Location	: Near GTS Point Bhusar Bauxite Mine (65.31ha)
		Sampling Date	: 09.08.2024 to 10.08.2024
Mines Status	: Operational	Sample Received Date	: 12.08.2024
Period of Analysis	: 12.08.2024 to 19.08.2024	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)	: 741
3	Relative Humidity (%)	: 69	4	Weather Condition	: 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	57	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- 11/Sec- 1): 2023	6.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	17.3	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	<0.002	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)

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CIN: U74999JH2018PTC031125

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## TEST REPORT

Test Report No. : ELES/RNC/2024/4707	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002627F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

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





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CIN: U74893JH2018PTC011123

## TEST REPORT

Test Report No. : ELES/RNC/2024/4697	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002617F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5387
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 08.08.2024 to 09.08.2024
Mines Status	: Non Operational	Sample Received Date	: 12.08.2024
Period of Analysis	: 12.08.2024 to 19.08.2024	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 (%) : 69	4	Weather Condition : 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	55	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11/Sec- 1): 2023	9.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	21.4	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)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2019	0.013	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)

Page 1 of 2

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/4697	Report Release Date	: 20.08.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400002617F		

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

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

Page 2 of 2

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CIN: U74999JH2014PTC01125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/4698	Report Release Date	: 20.08.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400002618F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5388
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 08.08.2024 to 09.08.2024
Mines Status	: Non Operational	Sample Received Date	: 12.08.2024
Period of Analysis	: 12.08.2024 to 19.08.2024	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 (%)	: 69	4	Weather Condition	: 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	55	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	10.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	21.8	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	0.010	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)

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CIN: U74999JH2018PTC012125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/4698	Report Release Date	: 20.08.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400002618F		

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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/  
ELES PVT. LTD.

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

Authorized Signatory  
**Dr. Deependra Kumar Sinha**  
Ph. D Environmental Engg  
ELES Pvt. Ltd. Technical Manager

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## TEST REPORT

Test Report No.	: ELES/RNC/2024/4699	Report Release Date	: 20.08.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400002619F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5389
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 08.08.2024 to 09.08.2024
Mines Status	: Non Operational	Sample Received Date	: 12.08.2024
Period of Analysis	: 12.08.2024 to 19.08.2024	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 (%)	: 69	4	Weather Condition	: 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	63	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	8.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	22.2	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	0.013	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)



# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSARVAR ENCLAVE, TUPUDANA  
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CIN: U74999JK2019PTC011125


## TEST REPORT

Test Report No. : ELES/RNC/2024/4699	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002619F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

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

Page 2 of 2

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# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No.	: ELES/RNC/2024/4700	Report Release Date	: 20.08.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400002620F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5390
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 08.08.2024 to 09.08.2024
Mines Status	: Non Operational	Sample Received Date	: 12.08.2024
Period of Analysis	: 12.08.2024 to 19.08.2024	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 (%)	: 69	4	Weather Condition	: 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	27	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- II/Sec- 1): 2023	9.1	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	0.010	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)

Page 1 of 2

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# ENVIRONMENTAL LABORATORIES &

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

Test Report No. : ELES/RNC/2024/4700	Report Release Date : 20.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002620F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
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  
ELES PVT. LTD.

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

Authorised Signatory

Dr. Deependra Kumar Sinha  
Ph. D Environmental Engg.  
ELES Pvt. Ltd. Technical Manager

Page 2 of 2

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/4748	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002667F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/DW/5404
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 10.08.2024
		Sample Received Date	: 12.08.2024
Mines Status	: Operational	Type of Sample	: Drinking Water
Period of Analysis	: 12.08.2024 to 21.08.2024	Source of Sample	: Tap Water
		Location of Sample	: Near Laboratory (Bhusar Bauxite Mines)
		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	6.70	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 24 <sup>th</sup> Ed.2023, 2130 B	0.80	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	2.0	5.0	15
Total Dissolved Solids (TDS)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 2540B,C&D	362	500	2000
Chloride (as Cl)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 Cl B	15	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	159	200	600
Total Hardness (as CaCO <sub>3</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 2340 C	178	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	4.4	200	400
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 NO <sub>3</sub> -B	1.2	45	No Relaxation

Page 1 of 4

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPODANA  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/4748	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002667F	

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	0.48	0.2(Min)	1.0(Min)	
Calcium (as Ca)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 3500 Ca B	40.3	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		
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
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	0.077	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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### TEST REPORT

Test Report No. : ELES/RNC/2024/4748	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002667F	

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	





# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/4748	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002667F	

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) (o,p DDE and p,p 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: 1. pH and RFC done at Lab.

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

Authorized Signatory  
**Dr. Deependra Kumar Sinha**  
Ph. D Environmental Engg  
ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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

Test Report No. : ELES/RNC/2024/4748	Report Release Date : 22.08.2024
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/5404
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 10.08.2024
		Sample Received Date	: 12.08.2024
Mines Status	: Operational	Type of Sample	: Drinking Water
		Source of Sample	: Tap Water
Period of Analysis	: 12.08.2024 to 22.08.2024	Location of Sample	: Near Laboratory (Bhusar Bauxite Mines)
		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  
ELES PVT. LTD.

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

Authorised Signatory  
**Dr. Deependra Kumar Sinti**  
Ph. D Environmental Engg.  
ELES Pvt. Ltd. Technical Manager

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## CONTENT

Hindalco Industries : Bhusar Bauxite Mine Environmental Monitoring Report		September 2024
<b>Bhusar Bauxite Mine</b>		
<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>		







# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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TC-12587

CIN: U74999JH2018PTC011175

## TEST REPORT

Test Report No. : ELES/RNC/2024/5331	Report Release Date : 23.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003244F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6165
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-1(Bhusar Mine Pit 1) Bhusar Bauxite Mine(65.31ha)
Mines Status	: Operational	Sampling Date	: 11.09.2024 to 12.09.2024
Period of Analysis	: 16.09.2024 to 23.09.2024	Sample Received Date	: 16.09.2024
		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)	: 740
3	Relative Humidity (%)	: 71	4	Weather Condition	: 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	49	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	21	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	17.2	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	0.005	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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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PTC011325

## TEST REPORT

Test Report No. : ELES/RNC/2024/5332	Report Release Date : 23.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003245F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6166
Address	: Lohardaga, Jharkhand-835302	Location	: Near View Point-2(Bhusar Mine Pit 1) Bhusar Bauxite Mine(65.31ha)
		Sampling Date	: 11.09.2024 to 12.09.2024
Mines Status	: Operational	Sample Received Date	: 16.09.2024
Period of Analysis	: 16.09.2024 to 23.09.2024	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)	: 740
3	Relative Humidity (%)	: 71	4	Weather Condition	: 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	47	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	21	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	16.2	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	<0.002	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 (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\*\*\*\*

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

Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/5333	Report Release Date : 23.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003246F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6167
Address	: Lohardaga, Jharkhand-835302	Location	: Near Rest Shelter Bhusar Bauxite Mine (65.31ha)
		Sampling Date	: 11.09.2024 to 12.09.2024
Mines Status	: Operational	Sample Received Date	: 16.09.2024
Period of Analysis	: 16.09.2024 to 23.09.2024	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)	: 740
3	Relative Humidity (%)	: 71	4	Weather Condition	: 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	47	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	23	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	16.3	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	<0.002	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. Debprasad Kumar Sinha  
Ph. D. Environmental Engg.  
Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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TC-13847

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/5334	Report Release Date : 23.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003247F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6168
Address	: Lohardaga, Jharkhand-835302	Location	: Near GTS Point Bhusar Bauxite Mine (65.31ha)
		Sampling Date	: 11.09.2024 to 12.09.2024
Mines Status	: Operational	Sample Received Date	: 16.09.2024
Period of Analysis	: 16.09.2024 to 23.09.2024	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)	: 740
3	Relative Humidity (%)	: 71	4	Weather Condition	: 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	50	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	21	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	5.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	16.3	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	<0.002	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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# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RNC/2024/5275	Report Release Date : 19.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
U/LR No. : TC135872400003188P	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6029
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daloliya Village Bagru Bauxite Mine (75.41 ha)
		Sampling Date	: 09.09.2024 to 10.09.2024
Mines Status	: Non Operational	Sample Received Date	: 12.09.2024
Period of Analysis	: 12.09.2024 to 19.09.2024	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)	: 26	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 71	4	Weather Condition	: 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	51	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	23	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	7.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	17.7	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 (NDR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.008	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\*\*\*\*

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

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RNC/2024/5276	Report Release Date : 19.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003189F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2024/AA/6030	Location : Aditya School Gangupara Bagru Bauxite Mine (75.41ha)
Mines Status : Non Operational	Period of Analysis : 12.09.2024 to 19.09.2024	Sampling Date : 09.09.2024 to 10.09.2024	Sample Received Date : 12.09.2024
		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) : 26	2	Barometric Pressure (mmHg) : 742
3	Relative Humidity (%) : 71	4	Weather Condition : 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	59	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	7.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	19.8	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 (NIR 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)

  
 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/2024/5277	Report Release Date : 19.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003190F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6031
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 09.09.2024 to 10.09.2024
Mines Status	: Non Operational	Sample Received Date	: 12.09.2024
Period of Analysis	: 12.09.2024 to 19.09.2024	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)	: 26	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 71	4	Weather Condition	: 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	55	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec I): 2023	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	19.3	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 (NIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.007	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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# ENVIRONMENTAL LABORATORIES &

DEEP KUMAR WADHAWAN ENCLAVE TOPIC  
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## TEST REPORT

Test Report No. : ELES/RNC/2024/5278	Report Release Date : 19.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003191F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lantariaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2024/AA/6032	Location : Ropeway Angle Station Bagru Bauxite Mine (75.41ha)
Mines Status : Non Operational	Period of Analysis : 12.09.2024 to 19.09.2024	Sampling Date : 09.09.2024 to 10.09.2024	Sample Received Date : 12.09.2024
		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) : 26	2	Barometric Pressure (mmHg) : 742
3	Relative Humidity (%) : 71	4	Weather Condition : 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	30	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	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 (NIR Method)	1.08	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.006	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-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/5355	Report Release Date : 23.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003268F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 11.09.2024 to 12.09.2024
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 16.09.2024
		Type of Sample	: Ambient Noise
Mines Status	: Operational	Sampling procedure	: ELES/DOC/SMPL/03
		Sampling Done By	: ELES Pvt. Ltd.
		Period of Analysis	: 16.09.2024 to 23.09.2024

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 71	4	Weather Condition	: Cloudy

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 <sub>eq</sub>	75 dB(A) Day Time & 70 dB(A) Night Time
			Day Time	67	
Sample ID: ELES/RNC/2024/AN/6189			Night Time	48	



Reviewed by

\*\*\*\*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 &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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Website : [www.elespl.co.in](http://www.elespl.co.in)



CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/5360	Report Release Date : 23.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003273F	

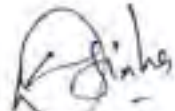
CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 12.09.2024
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 16.09.2024
		Type of Sample	: Workzone Noise
Mines Status	: Operational	Sampling procedure	: ELES/DOC/SMPL/03
		Sample Drawn By	: ELES Pvt. Ltd.
		Period of Analysis	: 16.09.2024 to 23.09.2024

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 69	4	Weather Condition	: Cloudy

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L <sub>eq</sub>	
Bhusar Mines Pit- II Bhusar Bauxite Mine (65.31ha)	dB(A)	IS 4758: 2017	Day Time	71	90 dB (A)
Sample ID: ELES/RNC/2024/WN/6194					



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

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

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Annexure 3

Date – 20.05.2024

### Office Order

Environmental Cell has been re-constituted at Bhusar Bauxite Mine (Area 65.31 ha) comprising below mentioned team members. The team will ensure compliance of Environment Act, Regulation & Rule in respect of the said mines of Hindalco Industries Limited.

1. Mr. Rajesh Ranjan Ambastha (Coordinator)
2. Mr. Malay Kumar Prushty (Geologist)
3. Ms. Abhilasha Singh (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 act rule and regulation for the above mine.

A handwritten signature in blue ink, appearing to read 'Basudev', is positioned above the printed name.

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

## Annexure 4

<b>Production, Mined Out, Back Filled and Over Burden removal from April'24 to September'24</b>								
<b>S No</b>	<b>Name of the Mines</b>	<b>Mining lease area (ha)</b>	<b>Production Capacity (MT)*</b>	<b>Lease Period*</b>	<b>Production (MT)</b>	<b>Mined out area (ha)</b>	<b>Back filled area (ha)</b>	<b>Over burden (Cu.M)</b>
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	82481	0.25	0.57	191521.65
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	63197	0.45	0.35	26905.95
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	96744	4.29	8.89	365249.34
7	Sherangdag-A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	6200	0.23	0.2	10200.00
8	Serangdag-B Bauxite Mine	77.89	100000	04.10.1978 to 31.03.2030	49850	0.96	0.85	104303.82
9	Jalim & Sanai Bauxite Mine	12.14	50000	16.10.1974 to 31.03.2030	12450	0.14	0.12	13050.63
10	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	96115	4.69	2.46	185023.98
11	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	7175	0.97	0.43	21377.24
12	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	49120	5.28	3.56	137098.55
13	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	87109	2.153	0.987	225462.85



**Annexure 4**

<b>Minerals &amp; Minerals Limited</b>								
14	Pakhar (109.507) Bauxite Mine	109.507	280000	26.07.2008 to 25.07.2058	147714.95	2.06	2.60	160334.49
15	Pakhar (15.58) Bauxite Mine	15.58	60000	28.04.1965 to 31.03.2030	NIL	NIL	NIL	NIL
16	Bimarla Bauxite Mine	134.526	300000	18.07.2009 to 17.07.2059	78750	4.44	7.35	116233.81
17	Amtipani Chirodih Bauxite Mine	130.01	450000	11.01.2017 to 10.01.2067	140900	4.25	1.50	235195.494

\*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 2023-24 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.

<b>S No</b>	<b>Description</b>	<b>Budget (in Rupees) FY 2024-25 (From Apr'24 to Sep'24)</b>	<b>Actual (in Rupees) FY 2024-25 (From Apr'24 to Sep'24)</b>
1	Pollution Control & Environment monitoring	61,35,000.00	53,47,442.83
2	Reclamation/ Back filing & Rehabilitation**	5,62,80,000.00	5,60,24,564.93
3	Green belt, Plantation & Water sprinkling arrangement	73,42,000.00	69,41,114.17
4	Rural Development	2,75,00,000.00	2,05,55,592.67

\*\*Part of OB removed cost.



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