



HIL/LHD/ENV/MoEF/702

Date: 23.05.2024

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 Bagru (75.41 ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Lohardaga District of Jharkhand for the period October'23 to March'24.

**Ref:** Environmental Clearance letters no J-11015/585/2007-IA. II (M) dated 04<sup>th</sup> Feb 2011

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Bagru (75.41 ha) Bauxite Mining project of M/s Hindalco Industries Limited**, located in Lohardaga District of Jharkhand for the period October'23 to March'24. The lease detail is as below.

Lease area (ha)	Production Capacity (MT)	Lease Period
75.41	85000	22.01.1974 to 31.03.2030

Hope you will find the same in order.

Thanking You

Yours Sincerely  
FOR M/s Hindalco Industries Limited,

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

Enclosure: - As Above

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Hindalco Industries Limited

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Corporate ID No.: L27020MH1958PLC011238

**Name of the Project** : **Bagru Bauxite Mine (75.41 ha)**  
**M/s Hindalco Industries Ltd**

**Environment Clearance No & date** : **J – 11015/585/2007-IA.II (M), dated 04.02.2011**

**Period of compliance Report** : **From 1<sup>st</sup> October 2023 to 31<sup>st</sup> March 2024**

**CONDITIONS: -**

**Specific Conditions: -**

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

**Reply: -** Implementations of stipulated conditions in NOC are fulfilled post which consent to operate has been obtained from time to time when mine was operational. Presently, Mine is not in operation since November 2013.

**Condition ii: - The environmental clearance is subject to grant of forestry clearance for diversion of 19.56 ha forestland.**

**Reply: -** Compensatory land for forest diversion has been identified and NOC from DFO, AC and Registrar has already been obtained. Registration and Mutation in favor of State Forest Department for CA land have been completed. Obtaining forest clearance is under process (Bagru FC proposal has been recommended by the DFO and CF and has been forwarded to Nodal for further needful action). Presently, Mine is not in operation since November 2013.

**Condition iii:- The mining operation shall be restricted to above ground water table and it should not intersect groundwater table. In case of working below ground water table, prior approval of the Ministry of Environment & Forest and Central Ground Water Authority shall be obtained for which a detailed hydro-geological study shall be carried out.**

**Reply: -** No mining operation has been carried out during the above period. The Mine is not in operation since November 2013.

**Condition iv: - The project proponent shall ensure that no natural water course and/or water resources shall be obstructed due to any mining operations.**

**Reply: -** No mining operation was carried out during above period. Mine has not been in operation since November 2013. No natural water course /water resource was obstructed /will be obstructed due to mining operation.

**Condition v: - Topsoil should be temporarily stacked with proper slope at earmarked site(s) only with adequate measures and it should not be kept unutilized for a period of more than 3 years. The topsoil shall be used for land reclamation and rehabilitation of mined out areas.**

**Reply: -** Sequential backfilling and reclamation of mined out area were exercised when mine was operational. No mining operation was being carried out during the above period and as on date. Mine has not been in operation since November 2013.

**Condition vi :- The entire waste generated shall be backfilled and there shall be no external overburden dump left at the end of the mine life. The entire backfilled area shall be reclaimed by plantation. The backfilling 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 & Forest and its Regional Office, Bhubaneswar on six monthly basis.**

**Reply: -** No mining operation was carried out during above period and as on date. Cumulative 32.05 ha areas have been planted till date. Monitoring and management of rehabilitated areas is in progress through supervision. There is no active external dump. Old dumps are stabilized.

**Condition vii: - The void left unfilled in an area of 1.76 ha shall be converted into water body. The higher benches of excavated void/mining pit shall be traced and plantation done to stabilize the slopes. The slopes of higher benches shall be made gentler for easy accessibility by local people to use the water body. Peripheral fencing shall be carried out along the excavated area.**

**Reply: -** The earlier mined out area converted into water body which still exist. No mining operation has been carried out during the above period and as on date. Mine has not been in operation since November 2013.

**Condition viii :- Catch drains and siltation ponds of appropriate size shall be constructed around the working pit, sub-grade dump, and mineral dumps to arrest flow of silt and sediment directly into Chanpi Nallah, Sukri Nadi and others water bodies. 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 drains settling tanks and check dams of appropriate size, gradient and length shall be constructed for both around the mine pit and sub-grade dump to prevent run off of water and flow sediments directly into Chanpi Nallah, Sukri Nadi and other water**

**bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years date) and maximum discharge in the area adjoin 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:** - Mine has not been in operation since November 2013. No mining operation was carried out during the above period and as on date. Hence, no runoff was generated from mining activities. However, to collect and manage rainwater during monsoon rains, pit sumps were made, part of mined out area were used as settling tank. Settled water was used for sprinkling quarry, roads, green belt development, etc. Compliance to this provision will further continue post resumption of mining operation. Water harvesting pond and sump of adequate capacity exist in lease area to harvest rainwater.



Rainwater Harvesting Pond

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

**Reply:** - The dimensions of retaining wall of OB dumps are based on average rain fall. The dump is stabilized. The compliance to this provision was being practiced when mine was in operation and same will continue post resumption of mining operation. Mine has not in operation since November 2013. No active external dump exists in the mine lease area.

**Condition x: - Plantation shall be raised in an area of 50.11 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 least 1500 trees per year shall be planted with a tree density of 1000 trees per hectare.**

**Reply:** - Plantation on Bagru plateau was carried out progressively. Till date 32.05 Ha areas are already planted. Total no of plantation is 83715 till date.



Plantation at mine

**Bio-diversity Park** - A classic bio park (Birsa Upvan) has been created to validate that all species can grow. We have also developed tea garden, strawberry garden, spice garden, medicinal garden, Nakshatra Van, VR-DOME & butterfly garden to build a unique Bio-diversity Park.

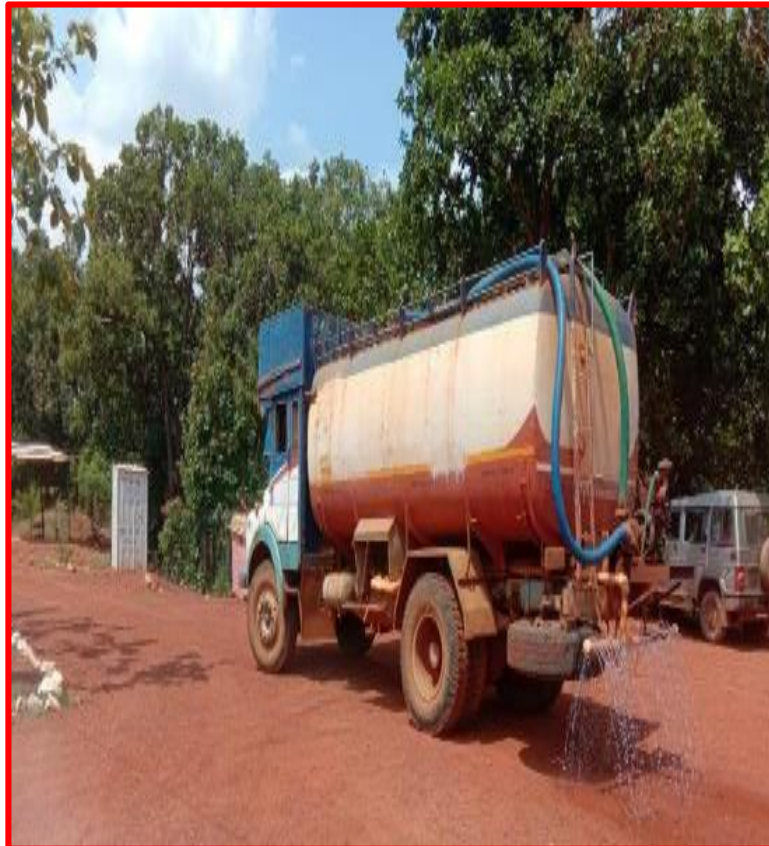


Biodiversity Park at Bagru mine in reclaimed area

**Condition xi:-** Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and all

transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the AAQ parameters conform to the norms prescribed by the central Pollution Control Board in this regard.

**Reply:** - Water sprinkling is being carried out regularly. AAQ and water quality are monitored. Measured AAQ parameters reported are within permissible limit.



Water sprinkling on roads

**Condition xii:-** 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:** - System is in place and same will continue in future post resumption of mining activity. Mine is not in operation since November 2013. Rainwater harvesting pond and sump is already in place as water conservation measures.

**Condition xiii:-** Regular monitoring of ground water level and quality should be carried out 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 - pre-

**monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF, its Regional Office, Bhubaneswar; Central Ground Water Authority and Central Ground Water Board.**

**Reply:** - We are not using ground water for any mining purpose. There is no chance of intersection ground water table during mining operation as it is much below mining horizon.

A piezometer has been installed for monitoring of ground water level. Water quality and level report are attached herewith as **Annexure 1**. Mine is not in operation since November 2013



Piezometer

**Condition xiv:** -The project authority shall obtain necessary prior approval of the competent authority for drawl of requisite quantity of water (surface water and ground water) for the project.

**Reply:** - Rainwater harvested during rainy season is being used for sprinkling on haul roads and raising plantation. No surface water from natural resource was/is being/will be used for mining operation. Mine is not in operation since November 2013.However, we have obtained NOC for drinking water only from CGWB, Patna.

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

**Reply:** - Mine is not in operation since November 2013. No mining operation was being carried out during above period and as on date.



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

**Reply:** - Mine is not in operation since November 2013. No mining operation was carried out during above period and as on date. However, blasting time is fixed during Lunch Time i.e. 1.00 PM -2.00 PM (whenever will be done post resumption of mining operation). Controlled blasting method will be practiced once mine becomes operational. All efforts will be taken to mitigate impact of blasting post resumption of mining activities.

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

**Reply:** - Mine is not in operation since November 2013. No mining operation was being carried out during above period and as on date.

**Condition xviii:- Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.**

**Reply:** - The sewage water from domestic uses is collected and treated in Sewage Treatment Plant. No effluent is generated. However, Effluent treatment mechanism (Oil grease separator) has been constructed at suitable site in Bagru plateau.



Oil & Grease separator

**Condition xix:- Consent to operate should be obtained from SPCB prior to start of production of mine.**

**Reply:** - No mining operation was carried out during the above period and as on date. Mine will be operative post obtaining renewed consent to operate and other clearances as applicable.

**Condition xx:- Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.**

**Reply: -** We believe that the wellbeing of all the labours working within the site should be taken care of on a priority basis, so that they can work in a stress-free environment. Therefore, all the necessary infrastructure and basic facilities mentioned above are being taken care of.

**Condition xxi:- The critical parameters such as RSPM (Particulate matter with size less than 10micron (i.e., PM10, PM2.5 ) and NOX in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closed shall be monitored periodically. Further, quantity of discharged water shall also be monitored [TDS,DO, PH and TSS}The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. J-20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment and Forest, which is available on the website of the Ministry [www.envfor.nic.in](http://www.envfor.nic.in) shall also be referred in this regard for its compliance.**

**Reply: -** Being carried out. Monitoring report is attached as **Annexure-2**. Data is being uploaded on the company website regularly.

**Condition xxii: - 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. FMCP (part area) has also been approved by IBM. Final mine closure plan (FMCP) for total lease area will be prepared in due time as per applicable guideline and timelines mentioned in MCDR/IBM guideline who are competent authority to approve the same. Based on present resource estimate and peak rated production capacity, mining operation will be done.

**General Conditions: -**

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

**Reply: -** Noted. The Mine is not in operation since November 2013.

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

**Reply: -** The Mine is not in operation since November 2013. No mining operation was carried out during the above period and as on date. Report is attached as **Annexure-4**. We agree to comply with the provision stipulated herein post resumption of mining operations.

**Condition iii: - Conservation measures for protection of flora and fauna in the core and buffer zone should be drawn up in consultation with the local forest and wildlife department.**

**Reply: -** The Mine is not in operation since November 2013. Suitable conservation measures were undertaken in past when mine was operational as per plan submitted and is being done continuously.

Also, we have been granted letter of approval for the Integrated Site-specific Wildlife Conservation Plan via Office Order No.29 dated 01.06.2023 by PCCF, Wildlife, Ranchi. No mining operation was carried out during the above period and as on date.

**Condition iv: - Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO<sub>2</sub>, NO<sub>x</sub> 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 the 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 v: - Data on ambient air quality (RPM, SPM, SO<sub>2</sub>, and NO<sub>x</sub>) should be regularly submitted to the Ministry including its Regional office located at Bhopal and the State Pollution Control Board / Central Pollution Control Board once in six months.**

**Reply: -** Monitoring report are attached as **Annexure-2**.

**Condition vi: 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: -** The Mine is not in operation since November 2013. No mining operation was carried out during the above period and as on date. We agree to comply with the provision stipulated herein post resumption of mining operations.

**Condition vii:- 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: -** The Mine is not in operation since November 2013. No mining operation was carried out during the above period and as on date.

We agree to comply with the provision stipulated herein post resumption of mining operation as complied in past.

**Condition viii:- 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, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.**

**Reply:** - The Mine is not in operation since November 2013. No mining operation was carried out during the above period and as on date.

We agree to comply with the provision stipulated herein post resumption of mining operation as complied in past.

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

**Reply:** - The Mine is not in operation since November 2013. No mining operation was carried out during the above period and as on date.

We agree to comply with the provision stipulated herein post resumption of mining operation as complied in past.

**Condition x:- 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:** - Adhering to our environmental policies and in order to create more awareness at mines site regarding environment, separate Environmental Management Cell (EMC) has been constituted and is functioning effectively. Copy is enclosed as **Annexure-3**.

**Condition xi: - 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:** - Mining Plan along with Progressive mine Closure Plan has been approved by IBM, Ranchi. This was an operating Mine, hence provision related to Financial closure is not applicable. Currently, the Regional Office is located at Ranchi.

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

**Reply:** - The funds earmarked for environmental protection measures is being budgeted. Annual expenditure is being reported to the Ministry as attached as **Annexure 5**.

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

**Reply: -** Being complied with. Now the Regional office is at Ranchi.

**Condition xiv: -The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e mail to the Ministry of Environment and Forests, its Regional office Bhubaneshwar, the respective Zonal office of Central Pollution Control Board the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forest, Bhubaneshwar, the respective zonal office of Central Pollution Control Board and the State Pollution Control Board.**

**Reply: -** Six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data by e mail are being submitted to the Ministry of Environment and Forests, its Regional office Ranchi, the respective Zonal office of Central Pollution Control Board the State Pollution Control Board and uploaded in company's website.

**Condition xv: -A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad / Municipal corporation, urban local body and the local NGO, if any, from whom and suggestions / representations if any were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.**

**Reply: -** A copy of clearance letter has been sent to concerned Panchayat, Zila Parisad / Municipal corporation, urban local body and the local NGO.

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

**Reply: -** Displayed.

**Condition xvii: - The environment statement for each financial year ending 31st March in Form V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection)Rules,1986 , as amended subsequently, shall also be put on the website of the company along with the**

**status of compliance of environmental clearance conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail.**

**Reply: - Being submitted.**

**Condition xviii: - 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 Bhubaneshwar.**

**Reply: - Already done (Documents already submitted).**

**Annexure 1**

**Piezometer reading - Bagru Mines**

<b>S No</b>	<b>Month</b>	<b>Depth (meter)</b>
1	Oct-23	34.95
2	Nov-23	34.25
3	Dec-23	34.18
4	Jan-24	35.07
5	Feb-24	35.02
6	Mar-24	35.7

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# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4429	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3955
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate (Ropeway Loading Stn); Bagru Bauxite Mine(75.41ha)
Mines Status	: Non Operational	Sampling Date	: 17.10.2023 to 18.10.2023
Period of Analysis	: 28.10.2023 to 09.11.2023	Sample Received Date	: 28.10.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 55	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; RA2022	57	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	29	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	18.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)

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# ENVIRONMENTAL LABORATORIES &

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

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4429	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



\*\*\*\*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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# ENVIRONMENTAL LABORATORIES &

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

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CIN: U74999JH2013PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4430	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3956
Address	: Lohardaga, Jharkhand-835302	Location	: Administrative Office Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 17.10.2023 to 18.10.2023
Mines Status	: Non Operational	Sample Received Date	: 28.10.2023
Period of Analysis	: 28.10.2023 to 09.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 55	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): 2006; RA2022	58	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): 2001; RA2022	6.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	21.8	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4430	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

  
**Authorised Signatory**  
Jr. 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: U78999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2023/4431	Report Release Date	: 22.11.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3957
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shiv Temple Compound Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 17.10.2023 to 18.10.2023
Mines Status	: Non Operational	Sample Received Date	: 28.10.2023
Period of Analysis	: 28.10.2023 to 09.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 55	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): 2006; RA2022	61	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-2): 2001; RA2022	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	13.7	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<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	<2.0	06 (Annual)

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CIN: U74995JH2018PTC011123

## TEST REPORT

Test Report No. : ELES/RNC/2023/4431	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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>	IS 5182 (Part-1)2006;RA2017	<1.0	05(Annual)
Berizo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

  
Authorised Signatory

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



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CIN: U74999JH2019PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4432	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3958
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bagru Bauxite Mine(75.4Iha)
		Sampling Date	: 17.10.2023 to 18.10.2023
Mines Status	: Non Operational	Sample Received Date	: 28.10.2023
Period of Analysis	: 28.10.2023 to 09.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 25	2	Barometric Pressure (mmHg) : 734
3	Relative Humidity (%) : 55	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): 2006; RA2022	63	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	9.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	24.2	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011175

## TEST REPORT

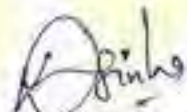
Test Report No. : ELES/RNC/2023/4432	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



\*\*\*\*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/2023/4433	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3959
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 17.10.2023 to 18.10.2023
Mines Status	: Operational	Sample Received Date	: 28.10.2023
Period of Analysis	: 28.10.2023 to 09.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear
5	Longitude	: 84°35'37.93"E	6	Latitude	: 23°29'4.48"N

### 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): 2006; RA2022	49	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): 2001; RA2022	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	18.1	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<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	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4433	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

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



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CIN: U74999JH2018PTC011175

## TEST REPORT

Test Report No. : ELES/RNC/2023/4434	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3960
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 17.10.2023 to 18.10.2023
Mines Status	: Operational	Sample Received Date	: 28.10.2023
Period of Analysis	: 28.10.2023 to 09.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear
5	Longitude	: 84°38'8.14"E	6	Latitude	: 23°27'46.28"N

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): 2006; RA2022	57	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	25	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	5.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	11.2	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<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	<2.0	06 (Annual)

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PYC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4434	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

Authorised Signatory

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



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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4435	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3961
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 17.10.2023 to 18.10.2023
Mines Status	: Operational	Sample Received Date	: 28.10.2023
Period of Analysis	: 28.10.2023 to 09.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear
5	Longitude	: 84°41'28.22"E	6	Latitude	: 23°26'45.48"N

### 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): 2006; RA2022	58	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): 2001; RA2022	5.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	18.2	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

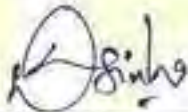
Test Report No. : ELES/RNC/2023/4435	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

  
Authorized Signatory  
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ELES Pvt. Ltd. Technical Manager



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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4436	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3962
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 17.10.2023 to 18.10.2023
Mines Status	: Operational	Sample Received Date	: 28.10.2023
Period of Analysis	: 28.10.2023 to 09.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 55	4	Weather Condition	: Clear
5	Longitude	: 84°41'28.22"E.	6	Latitude	: 23°26'45.48"N

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; RA2022	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-2): 2001; RA2022	5.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	18.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4436	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

  
Authorized Signatory

Dr. Deependra Kumar Sinha  
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# ENVIRONMENTAL LABORATORIES &

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TC-8839

## TEST REPORT

Test Report No. : ELES/RNC/2023/4772	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4242
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate (Ropeway Loading Str): Bagru Bauxite Mine(75.41ha)
Mines Status	: Non Operational	Sampling Date	: 17.11.2023 to 18.11.2023
Period of Analysis	: 24.11.2023 to 09.12.2023	Sample Received Date	: 24.11.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 49	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): 2006; RA2022	64	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	8.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	20.2	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



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

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Page 1 of 1

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## TEST REPORT

Test Report No. : ELES/RNC/2023/4772	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4242
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate (Ropeway Loading Strn); Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 17.11.2023 to 18.11.2023
Mines Status	: Non Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 09.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

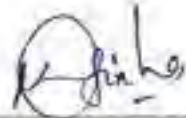
1	Average Temperature (°C) : 20	2	Barometric Pressure (mmHg) : 734
3	Relative Humidity (%) : 49	4	Weather Condition : Clear

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4773	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4243
Address	: Lohardaga, Jharkhand-835302	Location	: Administrative Office Bagru Bauxite Mine(75.41ha)
Mines Status	: Non Operational	Sampling Date	: 17.11.2023 to 18.11.2023
Period of Analysis	: 24.11.2023 to 09.12.2023	Sample Received Date	: 24.11.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

### METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 49	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): 2006; RA2022	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-2): 2001; RA2022	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	23.4	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



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

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Technical Manager

Page 1 of 1

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"Save Environment, Save Future"



# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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

CIN: U74999JH018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4773	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4243
Address	: Lohardaga, Jharkhand-835302	Location	: Administrative Office Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 17.11.2023 to 18.11.2023
Mines Status	: Non Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 09.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

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



# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

TC-8839

## TEST REPORT

Test Report No. : ELES/RNC/2023/4774	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4244
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shiv Temple Compound Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 17.11.2023 to 18.11.2023
Mines Status	: Non Operational	Sample Received Date	: 24.11.2023
		Type of Sample	: Ambient Air
Period of Analysis	: 24.11.2023 to 09.12.2023	Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 20	2	Barometric Pressure (mmHg) : 734
3	Relative Humidity (%) : 49	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): 2006; RA2022	66	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-2): 2001; RA2022	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	18.3	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



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

Authorized Signatory  
Dr. Deependra Kumar Sinha  
P.H. D Environmental Engg  
ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4774	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4244
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shiv Temple Compound Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 17.11.2023 to 18.11.2023
Mines Status	: Non Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 09.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



\*\*\*\*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/2023/4775	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4245
Address	: Lohardaga, Jharkhand-835302.	Location	: Near Weigh Bridge Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 17.11.2023 to 18.11.2023
Mines Status	: Non Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 09.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 49	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; RA2022	67	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	10.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	27.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



*Dr. Deependra Kumar Sinha*

Authorised Signatory

**Dr. Deependra Kumar Sinha**

Ph. D Environmental Engg.

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

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4775	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4245
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 17.11.2023 to 18.11.2023
Mines Status	: Non Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 09.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



\*\*\*\*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/2023/4776	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4246
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine(75.41ha)
Mines Status	: Operational	Sampling Date	: 17.11.2023 to 18.11.2023
Period of Analysis	: 24.11.2023 to 09.12.2023	Sample Received Date	: 24.11.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear
5	Longitude	: 84°35'37.93"E	6	Latitude	: 23°29'4.48"N

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; RA2022	52	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-2): 2001; RA2022	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	20.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



Reviewed by

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

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

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC031125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4776	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4246
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 17.11.2023 to 18.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 09.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear
5	Longitude	: 84°35'37.93"E	6	Latitude	: 23°29'4.48"N

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

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

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4777	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4247
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine(75.41ha)
Mines Status	: Operational	Sampling Date	: 17.11.2023 to 18.11.2023
Period of Analysis	: 24.11.2023 to 09.12.2023	Sample Received Date	: 24.11.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear
5	Longitude	: 84°38'8.14"E	6	Latitude	: 23°27'46.28"N

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; RA2022	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): 2001; RA2022	64	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	12.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	<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	<2.0	06 (Annual)



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

Authorised Signatory  
Dr. Deependra Kumar Sinha

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4777	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4247
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 17.11.2023 to 18.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 09.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear
5	Longitude	: 84°38'8.14"E	6	Latitude	: 23°27'46.28"N

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

Authorised Signatory

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CIN: U74999JH2018PTC011123

TC-8839

## TEST REPORT

Test Report No. : ELES/RNC/2023/4778	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4248
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine(75.41ha)
Mines Status	: Operational	Sampling Date	: 17.11.2023 to 18.11.2023
Period of Analysis	: 24.11.2023 to 09.12.2023	Sample Received Date	: 24.11.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear
5	Longitude	: 84°41'28.22"E	6	Latitude	: 23°26'45.48"N

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; RA2022	61	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-2): 2001; RA2022	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	20.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



Reviewed by

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

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Page 1 of 1

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4778	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4248
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 17.11.2023 to 18.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 09.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

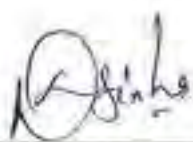
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear
5	Longitude	: 84°41'28.22"E	6	Latitude	: 23°26'45.48"N

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

  
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## TEST REPORT

Test Report No. : ELES/RNC/2023/4779	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4249
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 17.11.2023 to 18.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 09.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear
5	Longitude	: 84°41'28.22"E	6	Latitude	: 23°26'45.48"N

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; RA2022	64	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): 2001; RA2022	6.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	20.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2023/4779	Report Release Date	: 21.12.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4249
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 17.11.2023 to 18.11.2023
Mines Status	: Operational	Sample Received Date	: 24.11.2023
Period of Analysis	: 24.11.2023 to 09.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

### METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear
5	Longitude	: 84°41'28.22"E	6	Latitude	: 23°26'45.48"N

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

Authorised Signatory

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CIN: U74999HR2018PTC013125

## TEST REPORT

Test Report No. : ELES/RAN/2023/3121	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RAN/2023/DW/3008
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 07.11.2023
		Sample Received Date	: 24.11.2023
Mines Status	: Non Operational	Type of Sample	: Drinking Water
Period of Analysis	: 24.11.2023 to 08.12.2023	Source/Location of Sample	: Bagru Bauxite Mines (75.71 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected 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 24.8 °C)	-	APHA 23 <sup>rd</sup> Ed.2017, 4500-H <sup>+</sup>	6.70	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 <sup>rd</sup> Ed.2017, 2130 B	0.30	1.0	5.0
Taste	-	APHA 23 <sup>rd</sup> Ed.2017, 2160 C	Agreeable	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 23 <sup>rd</sup> Ed.2017, 2120B&D	1.0	5	15
Total Dissolved Solids (TDS)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2540B,C&D	186	500	2000
Chloride (as Cl)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 Cl B	30.5	250	1000
Fluoride (as F)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2320 B	60.8	200	600
Total Hardness (as CaCO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2340 C	94.8	200	600
Sulphate (as SO <sub>4</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 SO <sub>4</sub> <sup>-2</sup> -E	9.72	200	400
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 NO <sub>3</sub> -B	4.28	45	No Relaxation
Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/L	IS 3025 (Part-43):1992;RA2019	BDL (DL: 0.0005)	0.001	0.002

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RAN/2023/3121	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		Group : Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Cyanide (as CN)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation
Residual Free Chlorine (RFC)	mg/L	IS 3025 (Part-26):2021	BDL (DL: 0.1)	0.02	1.0
Calcium (as Ca)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3500 Ca B	24.8	75	200
Discipline : Chemical		Group : Residues in Water			
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003; RA2019	BDL (DL: 0.02)	0.03	0.2
Arsenic (as As)	mg/L	IS 3025 (Part 37): 2022	BDL (DL: 0.005)	0.01	No Relaxation
Boron (as B)	mg/L	IS 3025(Part-57): 2005; RA2021	BDL (DL: 0.2)	0.5	1.0
Cadmium (as Cd)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.03)	0.05	1.5
Iron (as Fe)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	0.152	1.0	1.0
Lead (as Pb)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 1994; RA2019	BDL (DL: 0.001)	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2003; RA2019	BDL (DL: 0.01)	0.01	No Relaxation
Zinc (as Zn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.1)	5	15

Remarks: 1. pH & RFC done at Lab.

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CIN: U74999JH2018PT011125

## TEST REPORT

Test Report No. : ELES/RAN/2023/3121	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical			Group : Water	
Parameter	Unit	Test Protocol	Result	Regulatory Limit as per IS 10500:2012
<b>Pesticides</b>				
Alachlor*	µg/L	APHA	BDL (DL: 1.0)	20
Atrazine*	µg/L	APHA	BDL (DL: 1.0)	2
Aldrin/Dieldrin*	µg/L	APHA	BDL (DL: 0.01)	0.03
Alpha HCH*	µg/L	APHA	BDL (DL: 0.001)	0.01
Beta HCH*	µg/L	APHA	BDL (DL: 0.01)	0.04
Butachlor*	µg/L	APHA	BDL (DL: 10)	125
Chlorpyrifos*	µg/L	APHA	BDL (DL: 10)	30
Delta HCH*	µg/L	APHA	BDL (DL: 0.01)	0.04
2,4 dichlorophenoxyacetic acid*	µg/L	APHA	BDL (DL: 10)	30
DDT(o,p and p,p-isomers of DDT,DDE and DDD)*	µg/L	APHA	BDL (DL: 0.5)	1
Endosulfan (alpha, beta, and sulphate)*	µg/L	APHA	BDL (DL: 0.1)	0.4
Ethion*	µg/L	APHA	BDL (DL: 0.5)	3
Gamma HCH (Lindane)*	µg/L	APHA	BDL (DL: 0.5)	2
Isoproturon*	µg/L	APHA	BDL (DL: 0.5)	9

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RAN/2023/3121	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Biological		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Total Coliform	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	Shall not be detected	
Escherichia Coli (E. Coli)	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	Shall not be detected	
Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Anionic Surfactants (as MBAS)*	mg/L	IS 3025 Part 68	BDL (DL: 0.1)	0.2	1.0
Mineral Oil*	mg/L	CL-6, IS: 3025 (P-39)	BDL (DL: 0.1)	1.0	No relaxation
Polynuclear Aromatic Hydrocarbons (PAH)*	mg/L	APHA 23 <sup>rd</sup> Edition	BDL (DL: 0.0001)	0.0001	No relaxation
Polychlorinated Biphenyls (PCB)*	mg/L	APHA 23 <sup>rd</sup> Edition	BDL (DL: 0.0005)	0.0005	No relaxation

Remarks: 1. (\*) Parameters are outsourced to other Lab.



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

  
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ELES Pvt. Ltd. Technical Manager



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## TEST REPORT

Test Report No. : ELES/RAN/2023/3134	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RAN/2023/EF/3021
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 09.11.2023
		Sample Received Date	: 24.11.2023
Mines Status	: Non Operational	Type of Sample	: Effluent Water
Period of Analysis	: 24.11.2023 to 02.12.2023	Source of Sample	: Work Shop Effluent - Bagru Bauxite Mines (75.41 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline: Chemical		Group: Pollution & Environment		Discharge Limits – CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
Dissolved Oxygen (as DO)	mg/L	IS 3025 (Part-38):1989; RA2019	5.0	--	--
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.360	2.0	--
Sulphide (as S)	mg/L	IS 3025 (Part-29) :1986; RA2019	0.84	2.0	--
Discipline: Chemical		Group: Residues in Water			
Lead (as Pb)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111 B	BDL (DL: 0.01)	0.1	--
Manganese (as Mn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111 B	0.242	2.0	--
Mercury (as Hg)	mg/L	IS 3025 (Part-48) :1994; RA2019	BDL (DL: 0.001)	0.01	--
Nickel (as Ni)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111 B	BDL (DL: 0.01)	3.0	--



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

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

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RAN/2023/3133	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

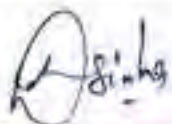
CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RAN/2023/EF/3020
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 09.11.2023
		Sample Received Date	: 24.11.2023
Mines Status	: Non Operational	Type of Sample	: Effluent Water
Period of Analysis	: 24.11.2023 to 02.12.2023	Source of Sample	: STP Outlet- Bagru Bauxite Mines (75.41 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline: Chemical		Group: Pollution & Environment		Discharge Limits - CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
pH (at 25.1 °C)	-	APHA 23 <sup>rd</sup> Ed.2017,4500-H <sup>+</sup> B	6.48	5.5-9.0	5.5-9.0
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	26.5	100	200
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16): 1984; RA2017	745	--	--
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2006; RA2022	72.8	250	--
Biochemical Oxygen Demand (BOD) (at 27 °C for 3 days)	mg/L	IS 3025 (Part-44): 1993; RA2019	10.8	30	100
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	2.4	10	10
Calcium (as Ca)	mg/L	IS 3025 (Part-40):1991; RA2019	30.4	--	--
Discipline: Chemical		Group: Residues in Water			
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003; RA2019	BDL (DL: 0.02)	--	--
Iron (as Fe)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	0.481	3.0	--

Remarks: 1. pH done at Lab



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

  
Authorized Signatory  
Dr. Deependra Kumar Sinha  
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ELES Pvt. Ltd. Technical Manager

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## TEST REPORT

Test Report No. : ELES/RNC/2024/0211	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000194F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4810
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate (Ropeway Loading Stn); Bagru Bauxite Mine(75.41 ha)
		Sampling Date	: 19.12.2023 to 20.12.2023
Mines Status	: Non Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	71	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	38	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	10.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	24.6	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

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CIN: U74999RJ2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/0211	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4810
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate (Ropeway Loading Stn); Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 19.12.2023 to 20.12.2023
Mines Status	: Non Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

  
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 ELES Pvt. Ltd. Technical Manager



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CIN: U74999JH2018PTC031125

## TEST REPORT

Test Report No. : ELES/RNC/2024/0212	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000195F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4811
Address	: Lohardaga, Jharkhand-835302	Location	: Administrative Office Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 19.12.2023 to 20.12.2023
Mines Status	: Non Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

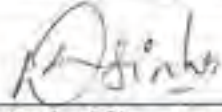
## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	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): 2006; RA2022	64	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-2): 2001; RA2022	8.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	26.1	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



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

  
**Dr. Deependra Kumar Sinha**  
 Ph. D Environmental Engg.  
 ELES Pvt. Ltd. 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/2024/0212	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4811
Address	: Lohardaga, Jharkhand-835302	Location	: Administrative Office Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 19.12.2023 to 20.12.2023
Mines Status	: Non Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



\*\*\*\*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  
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CIN: U76999JH2018PTC011125

TC-8839

## TEST REPORT

Test Report No. : ELES/RNC/2024/0213	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000196F	


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4812
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shiv Temple Compound Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 19.12.2023 to 20.12.2023
Mines Status	: Non Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	71	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	38	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	8.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	22.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

  
 Authorised Signatory  
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 ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999MH2016PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/0213	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4812
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shiv Temple Compound Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 19.12.2023 to 20.12.2023
Mines Status	: Non Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

  
**Authorised Signatory**  
**Dr. Deependra Kumar Sinha**  
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 ELES Pvt. Ltd. Technical Manager



# ENVIRONMENTAL LABORATORIES &

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

## TEST REPORT

Test Report No. : ELES/RNC/2024/0214	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000197F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4813
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 19.12.2023 to 20.12.2023
Mines Status	: Non Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	72	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	12.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	30.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



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

*Dr. Deependra Kumar Sinha*  
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Dr. Deependra Kumar Sinha  
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ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/0214	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4813
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 19.12.2023 to 20.12.2023
Mines Status	: Non Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

  
Authorized Signatory  
Dr. Deependra Kumar Sinha  
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ELES Pvt. Ltd. Technical Manag---

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# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RNC/2024/0215	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000198F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4814
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 19.12.2023 to 20.12.2023
Mines Status	: Non Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	62	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	8.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	22.8	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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>2</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

*Dr. Deependra Kumar Sinha*  
**Authorised Signatory**  
**Dr. Deependra Kumar Sinha**  
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# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/0215	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4814
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 19.12.2023 to 20.12.2023
Mines Status	: Non Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

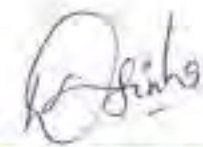
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )*	ug/m <sup>3</sup>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

  
Dr. Deep Kumar Sinha  
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ELES Pvt. Ltd. Technical Manager



# ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

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## TEST REPORT

Test Report No. : ELES/RNC/2024/0216	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000199F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4815
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 19.12.2023 to 20.12.2023
Mines Status	: Non Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	69	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	37	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	7.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	15.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

*Dr. Deependra Kumar Sinha*  
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 ELES Pvt. Ltd. Technical Manager

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## TEST REPORT

Test Report No. : ELES/RNC/2024/0216	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4815
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine(75.41ha)
Mines Status	: Non Operational	Sampling Date	: 19.12.2023 to 20.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Sample Received Date	: 26.12.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

  
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## TEST REPORT

Test Report No.	: ELES/RNC/2024/0217	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000200F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4816
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 19.12.2023 to 20.12.2023
Mines Status	: Non Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	68	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	8.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	23.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



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

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Page 1 of 1

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/0217	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4816
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 19.12.2023 to 20.12.2023
Mines Status	: Non Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/0218	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000201F	

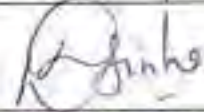
CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4817
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 19.12.2023 to 20.12.2023
Mines Status	: Non Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	71	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	9.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	23.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

  
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 ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/0218	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4817
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine(75.4)ha)
		Sampling Date	: 19.12.2023 to 20.12.2023
Mines Status	: Non Operational	Sample Received Date	: 26.12.2023
Period of Analysis	: 26.12.2023 to 08.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

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>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

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# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No.	: ELES/RNC/2024/0535	Report Release Date	: 06.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000506F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0474
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate (Ropeway Loading Stn); Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 21.01.2024 to 22.01.2024
Mines Status	: Non Operational	Sample Received Date	: 27.01.2024
Period of Analysis	: 27.01.2024 to 05.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	78	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	45	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	12.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	27.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.016	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

*Dr. Deependra Kumar Sinha*  
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# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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CIN: U74599JH0018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/0535	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0474
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate (Ropeway Loading Stn); Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 21.01.2024 to 22.01.2024
Mines Status	: Non Operational	Sample Received Date	: 27.01.2024
Period of Analysis	: 27.01.2024 to 05.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

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>	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



\*\*\*\*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/2024/0536	Report Release Date	: 06.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000507F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0475
Address	: Lohardaga, Jharkhand-835302	Location	: Administrative Office Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 21.01.2024 to 22.01.2024
Mines Status	: Non Operational	Sample Received Date	: 27.01.2024
Period of Analysis	: 27.01.2024 to 05.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	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-2): 2001; RA2022	11.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	28.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.015	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	<2.0	06 (Annual)



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

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

Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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## TEST REPORT

Test Report No. : ELES/RNC/2024/0536	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0475
Address	: Lohardaga, Jharkhand-835302	Location	: Administrative Office Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 21.01.2024 to 22.01.2024
Mines Status	: Non Operational	Sample Received Date	: 27.01.2024
Period of Analysis	: 27.01.2024 to 05.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

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>	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Bertzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



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

Authorised Signatory,  
Dr. Deependra Kumar Sinha  
Ph. D Environmental Engg.  
ELES Pvt. Ltd. Technical Manag<sup>er</sup>

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## TEST REPORT

Test Report No. : ELES/RNC/2024/0537	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000508F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0476
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shiv Temple Compound Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 21.01.2024 to 22.01.2024
Mines Status	: Non Operational	Sample Received Date	: 27.01.2024
Period of Analysis	: 27.01.2024 to 05.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	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): 2006; RA2022	78	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	46	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	11.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	25.4	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



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

*Dr. Deependra Kumar Sinha*  
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CIN: U74999JH2018PTC011175

## TEST REPORT

Test Report No. : ELES/RNC/2024/0537	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0476
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shiv Temple Compound Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 21.01.2024 to 22.01.2024
Mines Status	: Non Operational	Sample Received Date	: 27.01.2024
Period of Analysis	: 27.01.2024 to 05.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

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>	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



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

  
**Authorised Signatory**  
 Dr. Deependra Kumar Sinha  
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 ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/0538	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC88392400000509F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0477
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 21.01.2024 to 22.01.2024
Mines Status	: Non Operational	Sample Received Date	: 27.01.2024
Period of Analysis	: 27.01.2024 to 05.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	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): 2006; RA2022	78	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	46	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	14.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	32.5	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.015	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	<2.0	06 (Annual)



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

Authorized Signatory  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/0538	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0477
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 21.01.2024 to 22.01.2024
Mines Status	: Non Operational	Sample Received Date	: 27.01.2024
Period of Analysis	: 27.01.2024 to 05.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

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>	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



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

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



# ENVIRONMENTAL LABORATORIES &

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ENGINEERING SERVICES PVT. LTD.

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## TEST REPORT

Test Report No. : ELES/RNC/2024/0531	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000502F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0470
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine(75.41)ha)
		Sampling Date	: 21.01.2024 to 22.01.2024
Mines Status	: Non Operational	Sample Received Date	: 27.01.2024
Period of Analysis	: 27.01.2024 to 05.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	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): 2006; RA2022	69	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	38	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	9.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	23.7	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.017	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	<2.0	06 (Annual)



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

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

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/0531	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0470
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 21.01.2024 to 22.01.2024
Mines Status	: Non Operational	Sample Received Date	: 27.01.2024
Period of Analysis	: 27.01.2024 to 05.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

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>	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



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

  
**Authorised Signatory**  
**Dr. Deependra Kumar Sinha**  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/0532	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000503F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0471
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 21.01.2024 to 22.01.2024
Mines Status	: Non Operational	Sample Received Date	: 27.01.2024
Period of Analysis	: 27.01.2024 to 05.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	76	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	43	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	10.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	20.2	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



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

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CIN: U74999JH2018PT001125

## TEST REPORT

Test Report No. : ELES/RNC/2024/0532	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0471
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine(75.4)ha
		Sampling Date	: 21.01.2024 to 22.01.2024
Mines Status	: Non Operational	Sample Received Date	: 27.01.2024
Period of Analysis	: 27.01.2024 to 05.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

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>	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



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

Authorised Signatory

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## TEST REPORT

Test Report No. : ELES/RNC/2024/0533	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000504F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0472
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 21.01.2024 to 22.01.2024
Mines Status	: Non Operational	Sample Received Date	: 27.01.2024
Period of Analysis	: 27.01.2024 to 05.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

### METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

### Discipline : Chemical

### Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	74	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	41	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	11.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	26.9	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



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

*Dr. Deependra Kumar Sinha*  
**Authorised Signatory**  
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CIN: U74999JH2018PTD111125

## TEST REPORT

Test Report No. : ELES/RNC/2024/0533	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0472
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 21.01.2024 to 22.01.2024
Mines Status	: Non Operational	Sample Received Date	: 27.01.2024
Period of Analysis	: 27.01.2024 to 05.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

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>	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



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

  
 Authorised Signatory  
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 ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/0534	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000505F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0473
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine(75.4)ha
		Sampling Date	: 21.01.2024 to 22.01.2024
Mines Status	: Non Operational	Sample Received Date	: 27.01.2024
Period of Analysis	: 27.01.2024 to 05.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	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): 2006; RA2022	79	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	40	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	12.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	27.1	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.015	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	<2.0	06 (Annual)



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

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## TEST REPORT

Test Report No. : ELES/RNC/2024/0534	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0473
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 21.01.2024 to 22.01.2024
Mines Status	: Non Operational	Sample Received Date	: 27.01.2024
Period of Analysis	: 27.01.2024 to 05.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

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>	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



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

Authorised Signatory  
Dr. Daependra Kumar Sircar  
Ph. D Environmental Engg.  
ELES Pvt. Ltd. Technical Manager



# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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TC-8839

## TEST REPORT

Test Report No. : ELES/RNC/2024/0604	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000575F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SL/0639
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 22.01.2024
		Sample Received Date	: 31.01.2024
Mines Status	: Non Operational	Type of Sample	: Soil
		Location of Sample	: Near Workshop, Bagru Bauxite Mines (75.41 ha)
Period of Analysis	: 31.01.2024 to 05.02.2024	Sampling Procedure	: ELES/DOC/SMPL/05
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

Discipline : Chemical		Group : Pollution & Environment	
Parameter	Unit	Test Protocol	Result
pH (1:2) at 24.6 °C	-	IS 2720 (Part 26):1987; RA2021	4.40
Conductivity (1:2) at 24.6 °C	µS/cm	IS 14767: 2000; RA2021	193
Total Organic Carbon (TOC)	%	Soil Testing in India: 2011 (Walkley & Black Method)	1.06
Available Phosphorus (as P) (1:10)	kg/ha	Soil Testing in India: 2011	0.64
Potassium (as K)	mg/kg	IS 9497:1980; RA 2020	1250
Available Nitrogen	%	Soil Testing in India: 2011	0.28
Chloride (1:2)	%	ELES/SOIL/SOP/01	0.08
Lead (as Pb)	mg/kg	US EPA 3050 A&B : 1996	BDL (DL: 0.1)
Cadmium (as Cd)	mg/kg	US EPA 3050 A&B : 1996	BDL (DL: 0.1)
Mercury (as Hg)	mg/kg	US EPA 7473 : 2007	BDL (DL: 0.01)
Magnesium (as Mg)	mg/kg	Soil Testing in India: 2011	281

Remarks: 1. pH done at Lab.



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

*Dr. Deependra Kumar Saini*  
Authorized Signatory  
Dr. Deependra Kumar Saini

Page 1 of 1

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ENGINEERING SERVICES PVT. LTD.

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CIN: U74999JK2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/0604	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SL/0639
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 22.01.2024
		Sample Received Date	: 31.01.2024
Mines Status	: Non Operational	Type of Sample	: Soil
		Location of Sample	: Near Workshop, Bagru Bauxite Mines (75.41 ha)
Period of Analysis	: 31.01.2024 to 05.02.2024	Sampling Procedure	: ELES/DOC/SMPL/05
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

Discipline: Chemical		Group: Pollution & Environment	
Parameter	Unit	Test Protocol	Result
Arsenic (as As)	mg/kg	IS 3025 (Part 37): 2022	BDL (DL: 0.005)
Selenium (as Se)	mg/kg	IS 3025 (Part-56) :2003; RA 2019	BDL (DL: 0.01)



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

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

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CIN: U74999JH2018PTC011125

## TEST REPORT

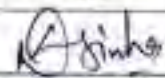
Test Report No. : ELES/RNC/2024/I209	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001145F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1131
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate (Ropeway Loading Stn); Bagra Bauxite Mine(75.41ha)
Mines Status	: Non Operational	Sampling Date	: 10.02.2024 to 11.02.2024
Period of Analysis	: 12.02.2024 to 13.02.2024	Sample Received Date	: 12.02.2024
		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)	:	22
2	Barometric Pressure (mmHg)	:	736
3	Relative Humidity (%)	:	48
4	Weather Condition	:	Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	73	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	39	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	13.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	29.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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>4</sup>	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.016	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

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CIN: U74999JH2018PTC031125

# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RNC/2024/1276	Report Release Date : 26.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1131
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate (Ropeway Loading Stn); Bagru Bauxite Mine(75.41 ha)
		Sampling Date	: 10.02.2024 to 11.02.2024
Mines Status	: Non Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 21.02.2024	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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

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>	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



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

Authorized Signatory

Dr. Deependra Kumar Sinha

Ph D Environmental/Engg.

ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL LABORATORIES &

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ON: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/1210	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001146F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1132
Address	: Lohardaga, Jharkhand-835302	Location	: Administrative Office Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 10.02.2024 to 11.02.2024
Mines Status	: Non Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 13.02.2024	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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	63	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	9.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	25.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



Reviewed by

Authorized Signatory  
Dr. Deependra Kumar Sinha

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

Page 1 of 1

Ph. D Environmental Engg.

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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/2024/1277	Report Release Date : 26.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1132
Address	: Lohardaga, Jharkhand-835302	Location	: Administrative Office Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 10.02.2024 to 11.02.2024
Mines Status	: Non Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 21.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

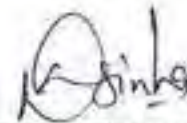
METEOROLOGICAL INFORMATION				
1	Average Temperature (°C)	: 22	2 Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 48	4 Weather Condition	: Clear

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>	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



\*\*\*\*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: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/1211	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001147F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1133
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shiv Temple Compound Bagru Bauxite Mine(75.4Tha)
		Sampling Date	: 10.02.2024 to 11.02.2024
Mines Status	: Non Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 13.02.2024	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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	69	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	39	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	10.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	23.7	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



Reviewed by

*Dr. Deependra Kumar Singh*

Authorised Signatory

Dr. Deependra Kumar Singh

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

Page 1 of 1

Ph. D Environmental Engg.

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CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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

Test Report No. : ELES/RNC/2024/1279	Report Release Date : 26.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1133
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shiv Temple Compound Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 10.02.2024 to 11.02.2024
Mines Status	: Non Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 21.02.2024	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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

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>	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



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Authorised Signatory

Dr. Deependra Kumar Sinha

Ph. D Environmental Engg.

ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PTC011125

TC-8839

## TEST REPORT

Test Report No. : ELES/RNC/2024/1212	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001148F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1134
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 10.02.2024 to 11.02.2024
Mines Status	: Non Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 13.02.2024	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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 48	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); 2006; RA2022	82	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24); 2019	51	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2); 2001; RA2022	15.6	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6); 2006; RA2022	30.3	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9); 1974; RA2019	<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); 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22); 2004; RA2019	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	<2.0	06 (Annual)



*Dr. Deependra Kumar Sinha*

Authorized Signatory  
Dr. Deependra Kumar Sinha  
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Page 1 of 1

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CIN: U74999JH2018PTC011125

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

Test Report No. : ELES/RNC/2024/1280	Report Release Date : 26.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1134
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 10.02.2024 to 11.02.2024
Mines Status	: Non Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 21.02.2024	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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

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>	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



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

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



# ENVIRONMENTAL LABORATORIES &

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TC-8839

## TEST REPORT

Test Report No. : ELES/RNC/2024/1213	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001149F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1135
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine (75.41 ha)
		Sampling Date	: 10.02.2024 to 11.02.2024
Mines Status	: Non Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMP/L/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	64	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	8.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	22.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



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

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

Page 1 of 1

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

Test Report No. : ELES/RNC/2024/1281	Report Release Date : 26.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1135
Address	: Lohardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 10.02.2024 to 11.02.2024
Mines Status	: Non Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 21.02.2024	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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

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>	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



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

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

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/1214	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001150F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1136
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine (75.41ha)
Mines Status	: Non Operational	Sampling Date	: 10.02.2024 to 11.02.2024
Period of Analysis	: 12.02.2024 to 13.02.2024	Sample Received Date	: 12.02.2024
		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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 48	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); 2006; RA2022	71	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24); 2019	40	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2); 2001; RA2022	8.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6); 2006; RA2022	17.6	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9); 1974; RA2019	<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); 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22); 2004; RA2019	0.016	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	<2.0	06 (Annual)



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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/1282	Report Release Date : 26.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1136
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 10.02.2024 to 11.02.2024
Mines Status	: Non Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 21.02.2024	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)	: 22	2 Barometric Pressure (mmHg) : 736
3	Relative Humidity (%)	: 48	4 Weather Condition : Clear

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>	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



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

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

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# ENVIRONMENTAL LABORATORIES &

## ENGINEERING SERVICES PVT. LTD.

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CIN: U74599JH2018PTC011125

### TEST REPORT

Test Report No. : ELES/RNC/2024/1215	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001151F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1137
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 10.02.2024 to 11.02.2024
Mines Status	: Non Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 13.02.2024	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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	78	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	45	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	13.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	27.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



Reviewed by

Signature of Dr. Deependra Kumar Singh  
Authorised Signatory  
Dr. Deependra Kumar Singh  
P. O. Environmental Engg.

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

Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PTC011125

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## TEST REPORT

Test Report No. : ELES/RNC/2024/1283	Report Release Date : 26.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1137
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 10.02.2024 to 11.02.2024
Mines Status	: Non Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 21.02.2024	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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

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>	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



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

  
 Authorised Signatory  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/1216	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001152F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1138
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 10.02.2024 to 11.02.2024
Mines Status	: Non Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 13.02.2024	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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	73	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	37	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	10.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	25.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



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

Dr. Deependra Kumar Sinha  
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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CIN: U74999JH2018PTC011225

## TEST REPORT

Test Report No. : ELES/RNC/2024/1284	Report Release Date : 26.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1138
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 10.02.2024 to 11.02.2024
Mines Status	: Non Operational	Sample Received Date	: 12.02.2024
Period of Analysis	: 12.02.2024 to 21.02.2024	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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

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>	IS 5182 (Part-11); 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12); 2004; RA2019	<0.5	01(Annual)

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



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

  
**Authorised 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/RAN/2024/1318	Report Release Date : 11.03.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RAN/2024/DW/1164
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 10.02.2024
		Sample Received Date	: 14.02.2024
Mines Status	: Operational	Type of Sample	: Drinking Water
Period of Analysis	: 14.02.2024 to 23.02.2024	Source/Location of Sample	: Bagru Bauxite Mines (75.71 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 24.6 °C)	-	APHA 23 <sup>rd</sup> Ed.2017, 4500-H <sup>1</sup>	6.68	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 <sup>rd</sup> Ed.2017, 2130 B	0.18	1.0	5.0
Taste	-	APHA 23 <sup>rd</sup> Ed.2017, 2160 C	Agreeable	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 23 <sup>rd</sup> Ed.2017, 2120B&D	1.0	5	15
Total Dissolved Solids (TDS)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2540B,C&D	282	500	2000
Chloride (as Cl)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 Cl B	52.8	250	1000
Fluoride (as F)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2320 B	104	200	600
Total Hardness (as CaCO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2340 C	126	200	600
Sulphate (as SO <sub>4</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 SO <sub>4</sub> <sup>-2</sup> -E	28.6	200	400
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 NO <sub>3</sub> -B	2.86	45	No Relaxation
Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	IS 3025 (Part-43):1992;RA2019	BDL (DL: 0.001)	0.001	0.002

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CIN: U74999JH2018PTC01125

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## TEST REPORT

Test Report No. : ELES/RAN/2024/1318	Report Release Date : 11.03.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		Group : Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Cyanide (as CN)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation
Residual Free Chlorine (RFC)	mg/L	IS 3025 (Part-26):2021	BDL (DL: 0.1)	0.02	1.0
Calcium (as Ca)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3500 Ca B	33.4	75	200
Discipline : Chemical		Group : Residues in Water			
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003; RA2019	BDL (DL: 0.02)	0.03	0.2
Arsenic (as As)	mg/L	IS 3025 (Part 37): 2022	BDL (DL: 0.005)	0.01	No Relaxation
Boron (as B)	mg/L	IS 3025(Part-57): 2005; RA2021	BDL (DL: 0.2)	0.5	1.0
Cadmium (as Cd)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.03)	0.05	1.5
Iron (as Fe)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	0.210	1.0	1.0
Lead (as Pb)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 1994; RA2019	BDL (DL: 0.001)	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2003; RA2019	BDL (DL: 0.01)	0.01	No Relaxation
Zinc (as Zn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.1)	5	15

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CIN: U74999JH018PTC011125

## TEST REPORT

Test Report No. : ELES/RAN/2024/1318	Report Release Date : 11.03.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
<b>Pesticides</b>					
Alachlor*	µg/L	APHA 23 <sup>rd</sup> Edition 6630 B&C	BDL (DL: 1.0)	20	No Relaxation
Atrazine*	µg/L	APHA 23 <sup>rd</sup> Edition 6630 B&C	BDL (DL: 1.0)	2.0	No Relaxation
Aldrin/Dieldrin*	µg/L	APHA 23 <sup>rd</sup> Edition 6630 B&C	BDL (DL: 0.01)	0.03	No Relaxation
Alpha HCH*	µg/L	USEPA 508:1985	BDL (DL: 0.001)	0.01	No Relaxation
Beta HCH*	µg/L	USEPA 508:1985	BDL (DL: 0.01)	0.04	No Relaxation
Butachlor*	µg/L	APHA 23 <sup>rd</sup> Edition 6630 B&C	BDL (DL: 10)	125	No Relaxation
Chlorpyrifos*	µg/L	USEPA 8141 A	BDL (DL: 10)	30	No Relaxation
Delta HCH*	µg/L	USEPA 508:1985	BDL (DL: 0.01)	0.04	No Relaxation
2,4 dichlorophenoxyacetic acid*	µg/L	APHA 23 <sup>rd</sup> Edition 6640 B	BDL (DL: 10)	30	No Relaxation
DDT(o,p and p,p-isomers of DDT,DDE and DDD)*	µg/L	APHA 23 <sup>rd</sup> Edition 6630 B&C	BDL (DL: 0.5)	1.0	No Relaxation
Endosulfan (alpha, beta, and sulphate)*	µg/L	APHA 23 <sup>rd</sup> Edition 6630 B&C	BDL (DL: 0.1)	0.4	No Relaxation
Ethion*	µg/L	USEPA 1657 A	BDL (DL: 0.5)	3.0	No Relaxation
Gamma HCH (Lindane)*	µg/L	USEPA 508:1985	BDL (DL: 0.5)	2.0	No Relaxation
Isoproturon*	µg/L	USEPA 532:2000	BDL (DL: 0.5)	9.0	No Relaxation



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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RAN/2024/1318	Report Release Date : 11.03.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Biological		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Total Coliform	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	Shall not be detected	
Escherichia Coli (E. Coli)	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	Shall not be detected	
Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Anionic Surfactants (as MBAS)*	mg/L	IS 3025 (Part- 68) : 2019 (RA2023)	BDL (DL: 0.1)	0.2	1.0
Polynuclear Aromatic Hydrocarbons (PAH)*	mg/L	APHA 23 <sup>rd</sup> Edition: 6440 B	BDL (DL: 0.0001)	0.0001	No Relaxation
Polychlorinated Biphenyls (PCB)*	mg/L	APHA 23 <sup>rd</sup> Edition: 6431B	BDL (DL: 0.0005)	0.0005	No Relaxation

Remarks: 1. (\*) Parameters are outsourced to other Lab.



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

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



CHN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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

Test Report No. : ELES/RAN/2024/1330	Report Release Date : 11.03.2024
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RAN/2024/EF/1160
Address	: Lohardaga, Jharkhand-835302.	Sampling Date	: 11.02.2024
		Sample Received Date	: 14.02.2024
Mines Status	: Non Operational	Type of Sample	: Effluent Water
		Source of Sample	: Work Shop Effluent - Bagru Bauxite Mines (75.41 ha)
Period of Analysis	: 14.02.2024 to 21.02.2024	Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline: Chemical		Group: Pollution & Environment		Discharge Limits - CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
Dissolved Oxygen (as DO)	mg/L	IS 3025 (Part-38):1989; RA2019	4.8	--	--
Fluoride (as F)	mg/L	IS 3025 (Part-60):2008; RA2019	0.786	2.0	--
Sulphide (as S)	mg/L	IS 3025 (Part-29):1986; RA2019	0.42	2.0	--
Discipline: Chemical		Group: Residues in Water			
Lead (as Pb)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111 B	BDL (DL: 0.01)	0.1	--
Manganese (as Mn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111 B	BDL (DL: 0.05)	2.0	--
Mercury (as Hg)	mg/L	IS 3025 (Part-48):1994; RA2019	BDL (DL: 0.001)	0.01	--
Nickel (as Ni)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111 B	BDL (DL: 0.01)	3.0	--



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

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

Page 1 of 1

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CIN: U74999JH2018PTC011125

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## TEST REPORT

Test Report No. : ELES/RAN/2024/1329	Report Release Date : 11.03.2024
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RAN/2024/EF/1161
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 11.02.2024
		Sample Received Date	: 14.02.2024
Mines Status	: Non Operational	Type of Sample	: Effluent Water
Period of Analysis	: 14.02.2024 to 21.02.2024	Source of Sample	: STP Outlet- Bagru Bauxite Mines (75.41 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline: Chemical		Group: Pollution & Environment		Discharge Limits – CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
pH (at 24.5 °C)	-	APHA 23 <sup>rd</sup> Ed.2017,4500-H B	7.28	5.5-9.0	5.5-9.0
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	42.0	100	200
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16): 1984; RA2017	1180	--	--
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2006; RA2022	68.4	250	--
Biochemical Oxygen Demand (BOD) (at 27 °C for 3 days)	mg/L	IS 3025 (Part-44): 1993; RA2019	7.6	30	100
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	2.8	10	10
Calcium (as Ca)	mg/L	IS 3025 (Part-40):1991; RA2019	16.4	--	--

Discipline: Chemical		Group: Residues in Water			
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003; RA2019	BDL (DL: 0.02)	--	--
Iron (as Fe)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	0.584	3.0	--

Remarks: 1. pH done at Lab.



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

  
Authorized Signatory  
Dr. Deependra Kumar Sinha  
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ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RAN/2024/1336	Report Release Date : 11.03.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 10.02.2024 to 11.02.2024
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 14.02.2024
		Type of Sample	: Ambient Noise
		Sampling procedure	: ELES/DOC/SMPL/03
Mines Status	: Non Operational	Sampling Done By	: ELES Pvt. Ltd.
		Period of Analysis	: 14.02.2024 to 20.02.2024

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L <sub>eq</sub>	
Near Mine Office Bagru Bauxite Mines (75.41ha)	dB(A)	IS 9989:1981, RA 2020	Day Time	65	75 dB(A) Day Time & 70 dB(A) Night Time
Sample ID: ELES/RAN/2024/AN/1279			Night Time	52	



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

  
**Authorised Signatory**  
**Dr. Deependra Kumar Sinha**  
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 ELES Pvt. Ltd. Technical Manager

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CIN:- U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RAN/2024/1350	Report Release Date : 11.03.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 11.02.2024
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 14.02.2024
		Type of Sample	: Workzone Noise
Mines Status	: Non Operational	Sampling procedure	: ELES/DOC/SMPL/03
		Sampling Done By	: ELES Pvt. Ltd.
		Period of Analysis	: 14.02.2024 to 20.02.2024

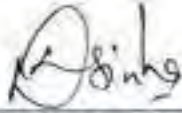
### METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 22	2	Barometric Pressure (mmHg) : 736
3	Relative Humidity (%) : 48	4	Weather Condition : Clear

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L <sub>eq</sub>	
Bagru Crusher Site - Bagru Bauxite Mine(75.41ha)	dB(A)	IS 4758:1968: RA 2017			90 dB (A)
Sample ID: ELES/RAN/2024/WN/1284			Day Time	70	



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

  
**Authorised Signatory**  
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### TEST REPORT

Test Report No. : ELES/RNC/2024/1441	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1188
Address	: Lohardaga, Jharkhand-835302	Location	: Entrance Gate (Ropeway Loading Stn); Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 02.03.2024 to 03.03.2024
Mines Status	: Non Operational	Sample Received Date	: 06.03.2024
Period of Analysis	: 06.03.2024 to 12.03.2024	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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	70	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	36	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	11.6	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	25.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.016	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05	<0.5	01(Annual)

Reviewed by :



(Saswata Burnian Roy, Dy. Quality Manager)

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



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)



### TEST REPORT

Test Report No. : ELES/RNC/2024/1442	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1189
Address	: Lohardaga, Jharkhand-835302	Location	: Administrative Office Bagru Bauxite Mine(75.4 km)
		Sampling Date	: 02.03.2024 to 03.03.2024
Mines Status	: Non Operational	Sample Received Date	: 06.03.2024
Period of Analysis	: 06.03.2024 to 12.03.2024	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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	63	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	9.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	25.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05	<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. : ELES/RNC/2024/1443	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1190
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shiv Temple Compound Bagru Bauxite Mine(75.41ha)
		Sampling Date	: 02.03.2024 to 03.03.2024
Mines Status	: Non Operational	Sample Received Date	: 06.03.2024
Period of Analysis	: 06.03.2024 to 12.03.2024	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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	65	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	9.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	24.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05	<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. : ELES/RNC/2024/1444	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1191
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 02.03.2024 to 03.03.2024
Mines Status	: Non Operational	Sample Received Date	: 06.03.2024
Period of Analysis	: 06.03.2024 to 12.03.2024	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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	88	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	55	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	17.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	34.7	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05	<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. : ELES/RNC/2024/1445	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1192
Address	: Loliardaga, Jharkhand-835302	Location	: Near Daldaliya Village Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 02.03.2024 to 03.03.2024
Mines Status	: Non Operational	Sample Received Date	: 06.03.2024
Period of Analysis	: 06.03.2024 to 12.03.2024	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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	59	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	10.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	24.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05	<0.5	01(Annual)

Reviewed by :



Saswata Burman Roy, Dy. Quality Manager)

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



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)



# ENVIROCHECK

REGISTRATION NO. (AIR) JH/01/2011 (NABU) & (AIR) JH/01/2011 (NABU)  
REGISTRATION NO. (WATER) JH/01/2011 (NABU) & (WATER) JH/01/2011 (NABU)  
Lab: MIG, R-3 Housing Colony, Dibruidi, Pin - 826001, State - Jharkhand | 9830067044 / 9304513737



## TEST REPORT

Test Report No. : ELES/RNC/2024/1446	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1193
Address	: Lohardaga, Jharkhand-835302	Location	: Aditya School Gangupara Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 02.03.2024 to 03.03.2024
Mines Status	: Non Operational	Sample Received Date	: 06.03.2024
Period of Analysis	: 06.03.2024 to 12.03.2024	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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	68	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	36	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	9.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	19.2	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05	<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. : ELES/RNC/2024/1447	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1194
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Unloading Station Bagru Bauxite Mine (75.41ha)
		Sampling Date	: 02.03.2024 to 03.03.2024
Mines Status	: Non Operational	Sample Received Date	: 06.03.2024
Period of Analysis	: 06.03.2024 to 12.03.2024	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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	64	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	39	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	10.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	25.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05	<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. : ELES/RNC/2024/1448	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1195
Address	: Lohardaga, Jharkhand-835302	Location	: Ropeway Angle Station Bagru Bauxite Mine (75.4) ha)
		Sampling Date	: 02.03.2024 to 03.03.2024
Mines Status	: Non Operational	Sample Received Date	: 06.03.2024
Period of Analysis	: 06.03.2024 to 12.03.2024	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)	: 22	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	69	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	8.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	22.8	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05	<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. : ELES/RNC/2024/1555	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SM/1398
Address	: Lohardaga, Jharkhand-835302	Location	: Bagru (75.41 ha) Bauxite Mine DG (25 KVA)
		Sampling Date	: 02.03.2024
Mines Status	: Operational	Sample Received Date	: 15.03.2024
Period of Analysis	: 15.03.2024 to 23.03.2024	Type of Sample	: Flue Gas
		Sampling Procedure	: ELES-DOC/SMPL/02(A)
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

GENERAL INFORMATION	
1	Particular of the Plant : Bauxite Mines
2	Emission Due to : Burning of HSD
3	Stack Connected to : DG 25 KVA
4	Material of Construction of Stack : MS
5	Stack Height from Ground Level (m) : 11.0
6	Height of Sampling Port from Ground Level (m) : 7.0
7	Inner Diameter of Stack at Sampling Point (m) : 0.07
8	Shape of the Stack : Circular
9	Working Load of the Stack : 25 KVA
10	Pollution Control System : N/A
11	Ladder & Platform : Temporary

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

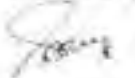


### TEST REPORT

Test Report No. : ELES/RNC/2024/1555	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Results
Particulate Matter (PM)	mg/Nm <sup>3</sup>	IS 11255 (Part-1): 1985; RA2019	34
Sulphur Di-Oxide (SO <sub>2</sub> )	mg/Nm <sup>3</sup>	USEPA 6C:2017	48
Oxides of Nitrogen (NO <sub>x</sub> )	mg/Nm <sup>3</sup>	USEPA 7E :2020	74
Carbon Monoxide (CO)	mg/Nm <sup>3</sup>	USEPA 10B :2017	25
Carbon Di- Oxide (CO <sub>2</sub> )	%	IS 13270:1992; RA2019	4.7
Flue Gas Temperature	°C	IS 11255 (Part-3): 2008; RA2018	130
Barometric Pressure	mmHg	IS 11255 (Part-3): 2008; RA2018	741
Velocity of Flue Gas	m/sec	IS 11255 (Part-3): 2008; RA2018	11.14
Quantity of Gas Flow	Nm <sup>3</sup> /hr	IS 11255 (Part-3): 2008; RA2018	111

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

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

Authorised Signatory :



(Bapan Das, Dy. Technical Manager)





Annexure 3

Date – 28.10.2023

### Office Order

Environmental Cell has been re-constituted at Bagru Bauxite Mine (Area 75.41 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. Raj Sinha (Coordinator)
2. Mr. Gauri Shankar Prasad (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-5

### **BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2023-24**

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), Pakhar (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 2023-24</b>	<b>Actual (in Rupees) FY 2023-24 (From Oct'23 to Mar'24)</b>
1	Pollution Control & Environment monitoring	1,57,41,102.00	73,14,906.01
2	Reclamation/ Back filing & Rehabilitation**	1,36,62,095.00	6,53,29,973.21
3	Green belt, Plantation & Water sprinkling arrangement	67,45,898.00	32,08,288.90
4	Rural Development	6,19,33,534.00	2,08,14,673.36

\*\*Part of OB removed cost.



Basudev Gangopadhyay  
AVP (Planning, Environment & Compliance)