



HIL/LHD/ENV/MoEF/431

Date: 25.11.2023

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

**Sub:** Compliance Report of EC conditions for Amtipani Bauxite Mining project of M/s Hindalco Industries Limited located in Dist- Gumla, Jharkhand for the period April'23 to September'23.

**Ref:** Environmental Clearance letter no J-11015/241/2005-IA II (M) dated 14<sup>th</sup> August 2006

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Amtipani** Bauxite mining project of **M/s Hindalco Industries Limited** located in Gumla, Jharkhand for the period April'23 to September'23.

The lease details are as below.

Lease area (ha)	Production Capacity (MT)	Lease Period
190.95	150000	13.03.2006 to 12.03.2056

Hope you will find the same in order.

Thanking You

Yours Sincerely  
FOR HINDALCO INDUSTRIES LIMITED

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

Enclosure: - As Above

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Hindalco Industries Limited

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Corporate ID No.: L27020MH1958PLC011238

**Name of the Project** : **Amtipani Bauxite Mine (190.95 ha)**  
**M/s Hindalco Industries Ltd**

**Environment Clearance No & date** : **J - 11015/241/2005-IA.II (M), dated 14.08.2006.**

**Period of compliance Report** : **From 1<sup>st</sup> April 2023 to 30<sup>th</sup> September 2023**

### **Specific Conditions**

**Condition 1- All the conditions stipulated by the State Pollution Control Board in their NOC should be effectively implemented.**

**Reply to Condition 1-** Implementations of stipulated conditions in NOC are full filled post which consent to operate has been granted by SPCB from time to time. The existing consent to operate is valid up to 31.12.2025. Productions of bauxite are within limits specified in Consent to Operate.

**Condition 2- The mining operations shall not intersect the groundwater table. Prior approval of the MoEF and CGWA shall be obtained for mining below the water table.**

**Reply to Condition 2-** The mining operation confined within shallow depth (20 m max) and did not intersect ground water. In future also, working zones will be restricted to above ground water table. We undertake that no mining is/was carried out below ground water table and the same status will be maintained in future as well.

**Condition 3- The environmental clearance is subject to approval of the state land use Department, Government of Jharkhand for diversion of agricultural land for non-agricultural use.**

**Reply to Condition 3-** Land acquisition is being done with the permission of the competent authority of the State Government i.e. concerned Deputy Commissioner (D.C.) under CNT Act. The land lease agreement has been made with raiyat (Landowner) after permission of the State Govt including provision of returning the land as per the norms set by D.C. The compensation and facilities are being provided as per norms set in the agreement. Thus, land acquisition has the approval of the State Government.

**Condition 4- Topsoil shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas.**



Topsoil dump



Reclaimed area

**Reply to Condition 4-** Topsoil is being stacked temporarily, if applicable and stacked separately with proper slope & is being used for reclamation and rehabilitation simultaneously with mining operation.

**Condition 5-** The waste generated in the initial period shall be dumped temporarily and backfilled in the mined-out area. There shall be no permanent external OB dump in the project area. Concurrent backfilling should start from the fifth year onwards. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests on six monthly basis.

**Reply to Condition 5-** During mining concurrent backfilling of waste in worked out quarry is in practice. We are reviewing progress on a continuous basis. Monitoring and management of rehabilitation are continuous through supervision. All three existing dumps have been exhausted by backfilling in the mine voids in a systematic and scientific manner. Compliance status is being submitted to the Ministry of Environment & Forests & Climate Change on six monthly basis.

**Condition 6-** Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil and mineral dump. 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 (size, gradient and length) shall be constructed for mine pit and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.

**Reply to Condition 6-** No run-off is generated from mining activities. However, to collect & manage rainwater during monsoon, part of mined out area is used as a settling tank for the runoff. Rainwater stored is being used for watering the mine area, roads, green belt development and sprinkling as necessary.

Catch drains, Garland drains of appropriate size are being constructed in both around the mine pit to prevent runoff of water and flow of sediments directly into the agricultural field and water bodies, if applicable. Sump of adequate capacity is being provided and maintained as required.



Retaining wall and siltation pit to prevent solid wash-



Garland drains around mine pit.

**Condition 7-** Plantation shall be raised in an area of 79.3 ha including a green belt of adequate width by planting the native species around the ML area, roads, etc. in consultation with the local DFO/Agriculture Department. The density of the trees should be around 1500 plants per ha.

**Reply to Condition 7-** Progressive plantation is being carried out. During FY 2023-24 a total of 2700 nos. of trees have been planted in 1.20 ha. Total 18.13 ha areas have been planted till date. In addition to this agricultural activity is going on in reclaimed land with the consent of landowners. The Green belt development programme is in progress with the progress of mining activities.



Plantation and Agricultural activity on reclaimed land and Safety zone

**Condition 8-** 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 to Condition 8-** Suitable conservation measures to augment ground water have been taken as directed in NOC granted by CGWB e.g. Constructing water harvesting pond etc. Catchment areas are being enhanced for accumulation of surface water in the harvested pond. Catchment drains are also being made and are being repaired from time to time. We are not using any ground water for mining activities.

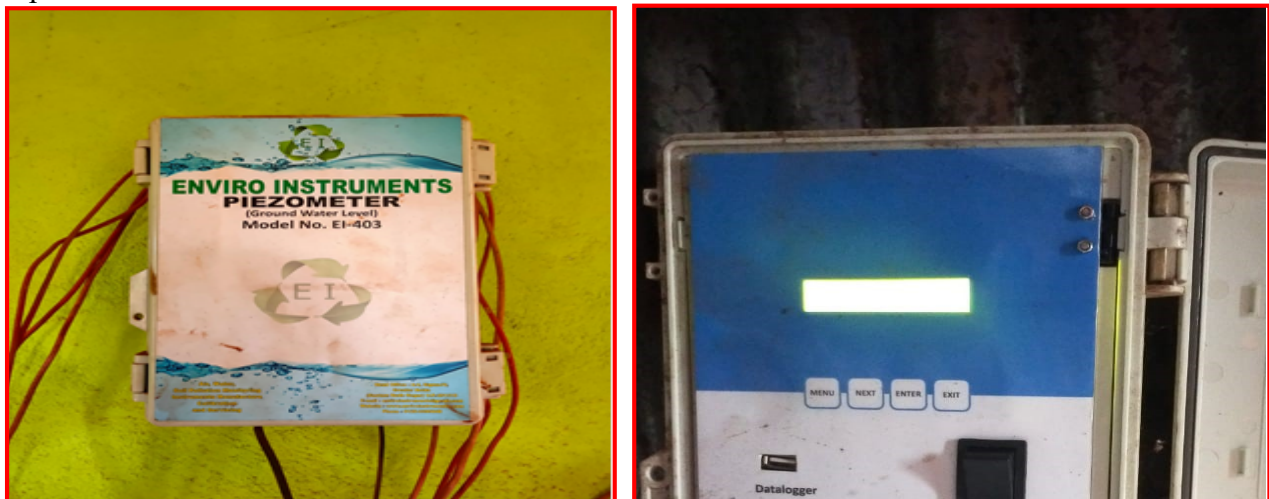


Rainwater Harvesting Pond at Mines

**Condition 9-** 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, Central Ground Water Authority and Regional Director Central Ground Water Board.

**Reply to Condition 9-** The mining operation is not intersecting ground water table. We are not using ground water for any mining purpose.

A piezometer has been installed for monitoring of ground water level. Water quality and water level report are attached herewith as **Annexure 1**.



Piezometer Installed at Mines

**Condition 10- Prior permission from the competent authority should be obtained for the drawl of water from the surface water bodies.**

**Reply to Condition 10-** Rainwater harvested during rainy season is being used for sprinkling on haul roads, mining activities, and raising plantation. We are using water harvested by us and not stream water/surface water bodies for mining purposes.

**Condition 11- The project proponent shall monitor the spring discharge on long term basis (at least one major spring) both in terms of quantity and quality of water and records maintained. Six monthly reports should be submitted to the Ministry of Environment and Forests and its Regional Office located at Bhubaneswar.**

**Reply to Condition 11-** Spring is being monitored; Analysis report is attached as **Annexure 2**. Currently MoEF regional office is located at Ranchi.

**Condition 12- 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 minerals. The vehicles should be covered with a tarpaulin and shall not be overloaded.**

**Reply to Condition 12-** Regular maintenance of vehicles is being done to minimize vehicular emission. All measures are being taken to control vehicular emission. The vehicles are being covered with tarpaulin while transportation of mineral.



Ore Transportation with tarpaulin covered truck.

Form 59  
[See rules 115 (2)]

**Pollution Under Control Certificate**  
Authorised By :  
Government of Jharkhand

Date : 22/08/2023  
Time : 17:57:59 PM  
Validity upto : 21/02/2024

Certificate SL No. : JH00103430001711  
Registration No. : JH01BN3297  
Date of Registration : 28/Feb/2015  
Month & Year of Manufacturing : November-2014  
Valid Mobile Number : \*\*\*\*9693  
Emission Norms : BHARAT STAGE III  
Fuel : DIESEL  
PUC Code : JH0010343  
GSTIN :  
Fees : Rs. 300.00 (GST to be paid extra as applicable)  
Nil observation : No

Vehicle Photo with Registration plate  
60 mm x 30 mm

Sr. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (upto 2 decimal places)
1	Carbon Monoxide (CO)	percentage (%)		
Idling Emissions	Hydrocarbon, (THC/HC)	ppm		
	CO	percentage (%)		
High idling emissions	RPM	RPM	2500 ± 200	
	Lambda	-	1 ± 0.03	
Smoke Density	Light absorption coefficient	1/metre	2.45	0.47

This PUC certificate is system generated through the national register of motor vehicles and does not require any signature.

Note : 1. Vehicle owners to link their mobile numbers to registered vehicle by logging to <https://puc.parivahan.gov.in>

Authorised Signature with stamp of PUC operator  
60mm x 20 mm

PUC Certificate.

**Condition 13- Drills should either be operated with dust extractors or should be equipped with a water injection system.**

**Reply to Condition 13-** Wet drilling is in practice.



Wet drilling is in practice.

**Condition 14- 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 to Condition 14-** Blasting time is fixed during Lunch Time i.e. 1.00 PM -2.00 PM. Controlled blasting method is in practice. All efforts such as use of Nonel and delay, reduction in charge per delay etc. are being taken to mitigate impact of blasting.

**Condition 15- Consent to operate should be obtained from SPCB prior to start of production of mine.**

**Reply to Condition 15-** We have obtained valid Consent to operate prior to start of production.

**Condition 16- Sewage treatment plants should be installed for the colony. ETP should also be provided for workshops and wastewater generated from mining operations.**

**Reply to Condition 16-** There is no industrial wastewater generation from workshop within mine lease area. Hence, ETP has not been installed.

However, for washing of HEMM, Effluent treatment mechanism (Oil and grease trap) has been installed in Amtipani mine lease area. The sewage water from domestic uses is being collected through individual septic tanks & soak pits.





Oil And Grease Trap at Mines

**Condition 17- Land ouster and land loser/affected people should be compensated and rehabilitated as per the National Policy on Resettlement and Rehabilitation of project Affected Families (NPRR), 2003**

**Reply to Condition 17-** Land ouster and land loser/affected people are being compensated and rehabilitated as per statute/guidelines.

**Condition 18- The higher benches of the excavated void to be converted into water reservoir shall be terraced and afforested to stabilize the slopes. Peripheral fencing shall be done along the excavated area.**

**Reply to Condition 18-** Water harvesting pond has been terraced and afforested to stabilize slopes. Peripheral fencing provided along excavated area.

**Condition 19- 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 to Condition 19-** Mining Plan along with progressive mine closure plan has been approved by Indian Bureau of Mines. Final Mine Closure Plan will be submitted 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 mentioned in EC, Mining operation is being carried out.

### **General Conditions**

**Condition 1- No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.**

**Reply to Condition 1- Noted**

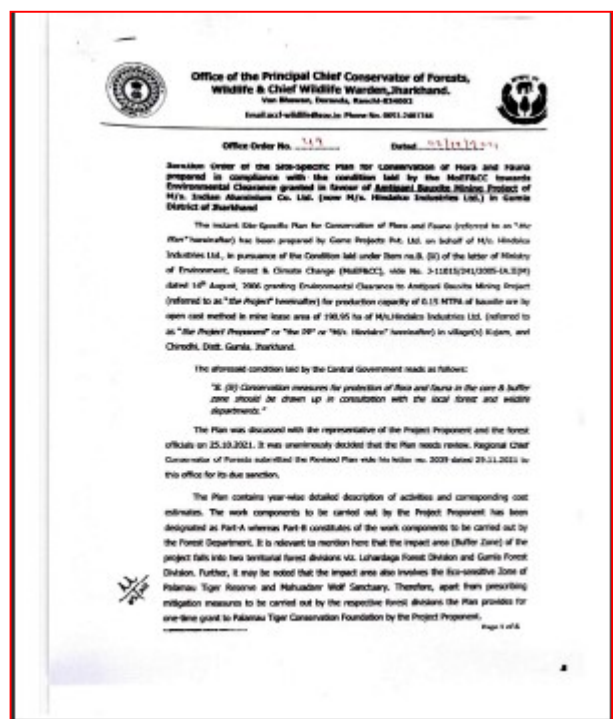
**Condition 2- No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.**

**Reply to Condition 2-** Calendar plan including excavation, quantum of mineral bauxite and waste is being done as per IBM approved mining scheme and in scientific manner. Report is attached herewith as **Annexure 4**.

**Condition 3- Conservation measures for protection of flora and fauna in the core & buffer zone should be drawn up in consultation with the local forest and wildlife departments.**

**Reply to Condition 3-** We have prepared Wildlife Conservation Plan in consultation with State Forest Department and obtained approval letter from Principal Chief Conservator of Forest, Wildlife & Chief Wildlife Warden, Jharkhand for conservation and protection of flora and fauna in the core and buffer zone for Amtipani Bauxite Mines.

Approval letter (Memo No 1863, dated 02.12.2021) has been submitted to your good office on 21.02.2022.



Wildlife Conservation Plan

**Condition 4- Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO2, NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and**

**environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.**

**Reply to Condition 4-** 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 5-** 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 to Condition 5-** Being adhered to. The Regional office of the ministry is located at Ranchi. Monitoring report is attached as **Annexure-2**.

**Condition 6-** 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 to Condition 6-** Mobile water tanker with sprinkling facility has been provided along the haul roads, loading, unloading & at transfer points to arrest dust generation.



Mobile water tanker for dust suppression

**Condition 7-** 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 to Condition 7-** Being Complied. PPEs are provided to workers.

**Condition 8-** Industrial wastewater (workshop and wastewater from the mine) should be properly collected and treated so as to confirm 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 to Condition 8-** There is no industrial wastewater generation from workshop within mine lease area. We are not discharging any wastewater outside the mine lease area. However, for washing of HEMM, Effluent treatment mechanism (Oil and grease trap) has been installed in Amtipani mine lease area.



Oil and Grease Trap at Mines

**Condition 9-** 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 to Condition 9-** PPEs provided. Periodic training on safety & occupational health are being imparted to workers and health checkups are being conducted.

**Condition 10-** 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 to Condition 10-** A separate environmental management cell with suitable qualified personnel is already formed and informed. The copy of the same is attached as **Annexure 3**.

**Condition 11-** The project authorities should inform the Regional Office located at Bhubaneswar regarding the date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.

**Reply to Condition 11-** Mining Plan along with progressive mine closure plan has been approved by IBM, Ranchi. This is an operating mine, hence provision related to financial closure not applicable. Currently, the Regional Office is located at Ranchi.

**Condition 12-** The funds earmarked for environmental protection measures should be kept in a 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 to Condition 12-** Every year budget is earmarked for environmental protection measures being prepared for purpose and its expenditure is being reported to the ministry. The copy of the same is attached as **Annexure 5**. Currently, the Regional Office is located at Ranchi.

**Condition 13-** The project authorities should inform the Regional Office located at Bhubaneswar regarding the date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.

**Reply to Condition 13-** Already mentioned above vide Point no. 11.

**Condition 14-** The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.

**Reply to Condition 14-** Agreed and is being done. Currently, the Regional Office of the ministry is located at Ranchi.

**Condition 15-** A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom and suggestion / representation has been received while processing the proposal.

**Reply to Condition 15-** Complied.

**Condition 16-** 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 to Condition 16-** Noted.

**Condition 17-** 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 Bhubaneswar.

**Reply to Condition 17-** Complied. (Documents already submitted).

## **Annexure 1**

### **Piezometer reading - Amtipani Bauxite Mines**

<b>S No</b>	<b>Month</b>	<b>Depth (meter)</b>
1	Apr-23	34.67
2	May-23	33.92
3	Jun-23	32.95
4	Jul-23	33.15
5	Aug-23	32.88
6	Sep-23	32.32

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

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

**Amtipani Bauxite Mine-Environmental Monitoring Report**

**April 2023**





## CONTENT

Hindalco Industries : Amtipani Bauxite Mine		Environmental Monitoring Report	April 2023
<b>Amtipani Bauxite Mine</b>			
<b>AMBIENT AIR QUALITY- CORE ZONE</b>			
1	Mine Entrance Gate		
2	Near Mine Office/WB		
3	Mines Near Quarry - 1C		
4	Mines Near Quarry - 7A		
<b>AMBIENT AIR QUALITY- BUFFER ZONE</b>			
1	Near Pakri Gada Village		
2	Near Pol Pol Village		
3	Near Shakhuapani Village		
4	Near Dipa Kujam Village		





# ENVIRONMENTAL LABORATORIES &

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

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



DN: U74999JH2018PTC011122

## TEST REPORT

Test Report No.	: ELES/RNC/2023/1972	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC88392300000933F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1399
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate
		Sampling Date	: Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sample Received Date	: 11.04.2023 to 12.04.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: 10.05.2023
		Sampling Procedure	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

## NABL Accredited

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	65	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	8.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	13.8	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	0.014	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  
Ph.D. Environmental Engg.  
ELES Pvt. Ltd, Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2023/1972	Report Release Date	: 12.06.2023
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/1399
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate
Plant Status	: Operational	Sampling Date	: Amtipani Bauxite Mine (190.95 ha)
Period of Analysis	: 10.05.2023 to 08.06.2023	Sample Received Date	: 11.04.2023 to 12.04.2023
		Type of Sample	: 10.05.2023
		Sampling Procedure	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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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# ENVIRONMENTAL LABORATORIES &

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

## TEST REPORT

Test Report No. : ELES/RNC/2023/1973	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000000934F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1400
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB
		Sampling Date	: Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sample Received Date	: 11.04.2023 to 12.04.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: 10.05.2023
		Sampling Procedure	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

## NABL Accredited

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	34	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	12.5	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	<0.002	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)



Authorized Signatory

Dr. Deependra Kumar Sinha

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

Ph. D. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

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CIN: U24999JH2018PTC011225

## TEST REPORT

Test Report No. : ELES/RNC/2023/1973	Report Release Date : 12.06.2023
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/1400
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB
		Sampling Date	: Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sample Received Date	: 11.04.2023 to 12.04.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: 10.05.2023
		Sampling Procedure	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	$\mu\text{g}/\text{m}^3$	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	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/2023/1974	Report Release Date : 12.06.2023
Work Order No. : M06/842300610	Work Order Date : 04.07.2022
Work Order No. : TC883923000000935F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/1401	Location : Mines Near Quarry - 1C
Plant Status : Operational	Period of Analysis : 10.05.2023 to 08.06.2023	Sampling Date : 11.04.2023 to 12.04.2023	Sample Received Date : 10.05.2023
		Type of Sample : Ambient Air	Sampling Procedure : ELES/DOC/SMPL/02
		Sample Drawn By : ELES/DOC/SMPL/02	Sample Condition : Sealed & Preserved

METEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 30	2	Barometric Pressure (mmHg) : 743
3	Relative Humidity (%) : 58	4	Weather Condition : Clear

NABL Accredited				
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	38	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	7.8	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	0.012	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)



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Authorized Signatory  
Dr. Deepshikha Singh  
Ph. 0. Environmental Engg.

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CIN: U74999JH2018PTE01125

## TEST REPORT

Test Report No. : ELES/RNC/2023/1974	Report Release Date : 12.06.2023
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/1401
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 1C
		Sampling Date	: Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sample Received Date	: 11.04.2023 to 12.04.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: 10.05.2023
		Sampling Procedure	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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.



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Authorized Signatory  
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ELES Pvt. Ltd. Technical Manager

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TC-8839

## TEST REPORT

Test Report No. : ELES/RNC/2023/1975	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000000936F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1402
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 7A
		Sampling Date	: Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sample Received Date	: 11.04.2023 to 12.04.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: 10.05.2023
		Sampling Procedure	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

NABL Accredited				
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	7.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	24.9	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	0.007	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)



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Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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CIN: U74909JH40018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/1975	Report Release Date : 12.06.2023
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/1402
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 7A
		Sampling Date	: Arntipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sample Received Date	: 11.04.2023 to 12.04.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: 10.05.2023
		Sampling Procedure	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	$\mu\text{g}/\text{m}^3$	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	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 Manager

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# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No.	: ELES/RNC/2023/1964	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000925F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1391
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 11.04.2023 to 12.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

NABL Accredited				
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	34	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	6.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	15.5	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\*\*\*\*

*Dr. Deependra Kumar Sinha*  
**Authorized Signatory**  
Dr. Deependra Kumar Sinha  
Pvt. 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/2023/1964	Report Release Date	: 12.06.2023
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/1391
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 11.04.2023 to 12.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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 Singh  
Ph. D. Environmental Engg.  
ELES Pvt. Ltd, Technical Manager

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"Save Environment, Save Future"



# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No.	: ELES/RNC/2023/1965	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000926F		

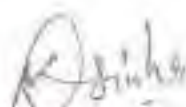
CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1392
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 11.04.2023 to 12.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

NABL Accredited				
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	55	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	15.2	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)



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

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

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CIN: U74399JH2018PT0011123

## TEST REPORT

Test Report No.	: ELES/RNC/2023/1965	Report Release Date	: 12.06.2023
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/1392
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 11.04.2023 to 12.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene <sup>a</sup>	µg/m <sup>3</sup>	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene <sup>a</sup>	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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## TEST REPORT

Test Report No.	: ELES/RNC/2023/1966	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC88392300000927F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1393
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 11.04.2023 to 12.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

NABL Accredited				
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	62	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	19.2	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)



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

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

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

CIN: U74999JH2012PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/1966	Report Release Date : 12.06.2023
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/1393
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhwapani Village
		Sampling Date	: 11.04.2023 to 12.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m <sup>3</sup>	IS:5182 (part-11); 2006;RA2017	<1.0	05(Annual)
Benzo (s) 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: U74999JH2018PTC011123

## TEST REPORT

Test Report No. : ELES/RNC/2023/1967	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000000928F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1394
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 11.04.2023 to 12.04.2023
Plant Status	: Operational	Sample Received Date	: 10.05.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

NABL Accredited				
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	7.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	15.6	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	<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)



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

Authorized Signatory

Dr. Deependra Kumar Sinha  
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# ENVIRONMENTAL LABORATORIES &

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CIN: U72905JH2019PT001132

## TEST REPORT

Test Report No. : ELES/RNC/2023/1967	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/1394	Location : Near Dipa Kujam Village
Plant Status : Operational	Period of Analysis : 10.05.2023 to 08.06.2023	Sampling Date : 11.04.2023 to 12.04.2023	Sample Received Date : 10.05.2023
		Type of Sample : Ambient Air	Sample Drawn By : ELES/DOC/SMPL/02
		Sample Condition : Sealed & Preserved	


METEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 30	2	Barometric Pressure (mmHg) : 743
3	Relative Humidity (%) : 62	4	Weather Condition : Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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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QIN/ U74999MH2018PTC011229

## TEST REPORT

Test Report No. : ELES/RAN/2023/0494	Report Release Date : 06.05.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

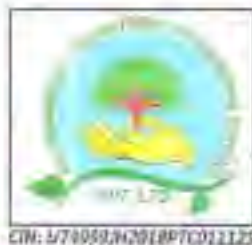
CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RAN/2023/DW/0379
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 06.04.2023
		Sample Received Date	: 26.04.2023
Mines Status	: Operational	Type of Sample	: Drinking Water
		Source/Location of Sample	: Amtipani Bauxite Mines (190.95ha)
Period of Analysis	: 26.04.2023 to 05.05.2023	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 25.2°C)	-	APHA 23 <sup>rd</sup> Ed.2017, 4500-H <sup>+</sup>	6.64	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 <sup>rd</sup> Ed.2017, 2130 B	0.23	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	218	500	2000
Chloride (as Cl)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 Cl B	40.4	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	70.4	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	15.8	200	400
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 NO <sub>3</sub> -B	1.78	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

Page 1 of 4

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RAN/2023/0494	Report Release Date : 06.05.2023
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	23.8	75	200

Discipline : Chemical		Group : Residues in Water			
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003; RA2019	BDL (DL: 0.02)	0.03	0.2
Arsenic (as As)	mg/L	IS 3025 (Part 37): 2022	BDL (DL: 0.005)	0.01	No Relaxation
Boron (as B)	mg/L	IS 3025(Part-57): 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	0.218	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.



### TEST REPORT

Test Report No. : ELES/RAN/2023/0494	Report Release Date : 06.05.2023
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: U74999JH2012PTC011138

## TEST REPORT

Test Report No. : ELES/RAN/2023/0494	Report Release Date : 06.05.2023
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\*\*\*\*

*Rikha Saxena*  
 Authorised Signatory  
**Rekha Saxena**  
 B. Sc. M. Sc. (Botany)  
 Director  
 ELES Pvt. Ltd.

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

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

**Amtipani Bauxite Mine-Environmental Monitoring Report**

**May 2023**



## CONTENT

Hindalco Industries : Amtipani Bauxite Mine		Environmental Monitoring Report		May 2023	
Amtipani Bauxite Mine					
<b>AMBIENT AIR QUALITY- CORE ZONE</b>					
1	Mine Entrance Gate				
2	Near Mine Office/WB				
3	Mines Near Quarry - 1C				
4	Mines Near Quarry - 7A				
<b>AMBIENT AIR QUALITY- BUFFER ZONE</b>					
1	Near Pakri Gada Village				
2	Near Pol Pol Village				
3	Near Shakhuapani Village				
4	Near Dipa Kujam Village				





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## TEST REPORT

Test Report No.	: ELES/RNC/2023/2303	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001225F		

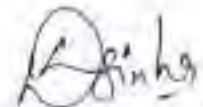
CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1776
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate
		Sampling Date	: Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sample Received Date	: 07.05.2023 to 08.05.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: 06.06.2023
		Sampling Procedure	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

NABL Accredited				
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	30	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.8	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	0.008	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)



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

  
Dr. **Deependra Kumar Sinha**  
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Page 1 of 1

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CIN: U74999JH2018PTC011225

## TEST REPORT

Test Report No. : ELES/RNC/2023/2303	Report Release Date : 01.07.2023
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/1776
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate
		Sampling Date	: Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sample Received Date	: 07.05.2023 to 08.05.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: 06.06.2023
		Sampling Procedure	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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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## TEST REPORT

Test Report No.	: ELES/RNC/2023/2304	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001226F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1777
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB
		Sampling Date	: Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sample Received Date	: 07.05.2023 to 08.05.2023
		Type of Sample	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Sampling Procedure	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

## NABL Accredited

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	29	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	9.2	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)



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

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ELES Pvt. Ltd., Technical Manager

Page 1 of 1

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CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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## TEST REPORT

Test Report No. : ELES/RNC/2023/2304	Report Release Date : 01.07.2023
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/1777
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB
		Sampling Date	: Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sample Received Date	: 07.05.2023 to 08.05.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: 06.06.2023
		Sampling Procedure	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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: U74399JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2305	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001227F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/1778	Location : Mines Near Quarry - 1C
Plant Status : Operational	Period of Analysis : 06.06.2023 to 09.06.2023	Sampling Date : Amtipani Bauxite Mine (190.95 ha)	Sample Received Date : 07.05.2023 to 08.05.2023
		Type of Sample : 06.06.2023	Sampling Procedure : Ambient Air
		Sample Drawn By : ELES/DOC/SMPL/02	Sample Condition : Sealed & Preserved

METEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 35	2	Barometric Pressure (mmHg) : 743
3	Relative Humidity (%) : 60	4	Weather Condition : Clear

NABL Accredited				
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	30	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	25.2	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	0.015	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\*\*\*\*

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

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CIN: U74909JH2018PTC011225

## TEST REPORT

Test Report No. : ELES/RNC/2023/2305	Report Release Date : 01.07.2023
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/1778
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 1C
		Sampling Date	: Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sample Received Date	: 07.05.2023 to 08.05.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: 06.06.2023
		Sampling Procedure	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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## TEST REPORT

Test Report No.	: ELES/RNC/2023/2306	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001228F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1779
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 7A
		Sampling Date	: Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sample Received Date	: 07.05.2023 to 08.05.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: 06.06.2023
		Sampling Procedure	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

## NABL Accredited

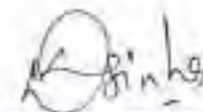
Discipline : Chemical

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	32	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	18.7	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	0.007	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)



\*\*\*\*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/2023/2306	Report Release Date : 01.07.2023
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/1779
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 7A
		Sampling Date	: Amtipani Bauxite Mine (190.95 ha)
Plant Status	: Operational	Sample Received Date	: 07.05.2023 to 08.05.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: 06.06.2023
		Sampling Procedure	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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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TC-8839

## TEST REPORT

Test Report No.	: ELES/RNC/2023/2295	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001217F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1768
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 08.05.2023 to 09.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

NABL Accredited				
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	60	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	5.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	13.3	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	<0.002	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)

Reviewed by

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

Authorized Signatory  
Dr. Debjyoti Saha Sinha

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CIN: U74302JH2012PT001115

## TEST REPORT

Test Report No. : ELES/RNC/2023/2295	Report Release Date : 01.07.2023
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/1768
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 08.05.2023 to 09.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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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## TEST REPORT

Test Report No.	: ELES/RNC/2023/2296	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001218F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1769
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 08.05.2023 to 09.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited				
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	28	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	12.8	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	<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\*\*\*\*

Authorized Signatory  
Dr. Chandan Kumar Sinha  
Engr.

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

PL-07/NO-50-MAHARAJGARH ENCLAVE, FUTURE  
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Website: [www.elespl.co.in](http://www.elespl.co.in)

## TEST REPORT

Test Report No. : ELES/RNC/2023/2296	Report Release Date : 01.07.2023
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/1769
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 08.05.2023 to 09.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	µg/m <sup>3</sup>	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benz(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. Debajyoti Kumar Sinha  
 Director, Environmental Lab  
 ELES Pvt. Ltd., Raipur, Jharkhand



# ENVIRONMENTAL LABORATORIES &

FLOT NO-80, AIRBORNE/AR ENCLAVE, TURKICAMA  
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TC-8889

## TEST REPORT

Test Report No. : ELES/RNC/2023/2297	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001219F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1770
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 08.05.2023 to 09.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited				
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	6.6	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	16.8	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>2</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)



Reviewed by

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

Signature of Authorized Signatory  
Dr. Authorized Signatory Sinha  
Pg. 01 Environmental Engrg.  
ELES PVT. LTD. Technical Manager

Page 1 of 1

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## TEST REPORT

Test Report No. : ELES/RNC/2023/2297	Report Release Date : 01.07.2023
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/1770
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
Plant Status	: Operational	Sampling Date	: 08.05.2023 to 09.05.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Sample Received Date	: 06.06.2023
		Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	$\mu\text{g}/\text{m}^3$	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



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

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



# ENVIRONMENTAL LABORATORIES &

MOOT NO-30, KANKSAROVAR ENCLAVE, PURUDAM  
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## TEST REPORT

Test Report No. : ELES/RNC/2023/2298	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001220F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1771
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 08.05.2023 to 09.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited				
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	58	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	6.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	13.9	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	<0.002	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)



Reviewed by

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

Signature of Dr. Debashree Anwar Sinha  
 Dr. Debashree Anwar Sinha  
 Environmental Engg.  
 Technical Manager

Page 1 of 1

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GST NO- 30AAICE37130121

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Phone No.: 0653-2280103  
Website: [www.elespl.co.in](http://www.elespl.co.in)

## TEST REPORT

Test Report No. : ELES/RNC/2023/2298	Report Release Date : 01.07.2023
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/1771
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 08.05.2023 to 09.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	$\mu\text{g}/\text{m}^3$	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



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

*Authorized Signatory*  
 Dr. Deepanshu Kumar Sinha  
 P.L. Environmental Engg.  
 ELES PVT. LTD. Technical Manager

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

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

**Amtipani Bauxite Mine-Environmental Monitoring Report**



**June 2023**





## CONTENT

<b>Hindalco Industries : Amtipani Bauxite Mine</b>		<b>Environmental Monitoring Report</b>		<b>June 2023</b>	
<b>Amtipani Bauxite Mine</b>					
<b>AMBIENT AIR QUALITY- CORE ZONE</b>					
1	Mine Entrance Gate				
2	Near Mine Office/WB				
3	Mines Near Quarry - 1C				
4	Mines Near Quarry - 7C				
<b>AMBIENT AIR QUALITY- BUFFER ZONE</b>					
1	Near Pakri Gada Village				
2	Near Pol Pol Village				
3	Near Shakhuapani Village				
4	Near Dipa Kujam Village				





# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RNC/2023/2767	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001632F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1947
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 08.06.2023 to 09.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	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)	: 35	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

NABL Accredited				
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	58	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	6.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	22.7	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	<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)



*Dr. Deependra Kumar Sinha*

Authorised Signatory

Dr. Deependra Kumar Sinha

Ph.D. Environmental Engg.

ELES Pvt. Ltd, Technical Manager

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

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74900MH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2767	Report Release Date : 29.07.2023
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/1947
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amitpani Bauxite Mine (190.95 ha)
		Sampling Date	: 08.06.2023 to 09.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	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)	: 35	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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 &

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

Test Report No. : ELES/RNC/2023/2768	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001633F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1948
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 08.06.2023 to 09.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	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)	: 35	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

NABL Accredited				
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	58	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	25	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	6.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	14.6	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	<0.002	1 (24hrs)
Nickel (Ni)	ng/in <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/in <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

*(Signature)*  
**Authorised Signatory**  
**Jr. Deependra Kumar Sinha**  
 Ph. D. Environmental Engg.  
 ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

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CIN: 078995WU2008PT011121

## TEST REPORT

Test Report No. : ELES/RNC/2023/2768	Report Release Date : 29.07.2023
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/1948
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 08.06.2023 to 09.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	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)	: 35	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

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

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# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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CIN: U74999HR2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2769	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001634F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1949
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - IC Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 08.06.2023 to 09.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	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)	: 35	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

NABL Accredited				
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	56	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	24	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	7.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	22.6	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	0.009	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\*\*\*\*

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

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PT0011125

## TEST REPORT

Test Report No.	: ELES/RNC/2023/2769	Report Release Date	: 29.07.2023
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/1949
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 1C Antipani Bauxite Mine (190.95 ha)
		Sampling Date	: 08.06.2023 to 09.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	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)	: 35	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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 &

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

## TEST REPORT

Test Report No. : ELES/RNC/2023/2770	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001635F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hfndalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1950
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry – 7C Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 08.06.2023 to 09.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	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)	: 35	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

NABL Accredited				
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	56	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	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	21.7	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	<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\*\*\*\*

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

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC021125

## TEST REPORT

Test Report No.	: ELES/RNC/2023/2770	Report Release Date	: 29.07.2023
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/1950
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry – 7C Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 08.06.2023 to 09.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	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)	: 35	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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  
Jr. Deependra Kumar Sinha  
Ph. D. Environmental Engg.  
ELES Pvt. Ltd., Technical Manager

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-80, MAKASANDVAB ENCLAVE, JALPAIGURI  
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 Website: www.elespl.co.in



## TEST REPORT

Test Report No. : ELES/RNC/2023/2763	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001628F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1943
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 07.06.2023 to 08.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

NABL Accredited				
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	27	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	6.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	17.9	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	<0.002	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\*\*\*\*

*K. Sinha*  
 Authorised Signatory  
 Jr. Deependra Kumar Sinha

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Ph. D. Environmental Engg  
 ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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## TEST REPORT

Test Report No. : ELES/RNC/2023/2763	Report Release Date : 29.07.2023
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/1943
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 07.06.2023 to 08.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

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

Jr. Deependra Kumar Singh  
Ph. D. Environmental Engg.  
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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## TEST REPORT

Test Report No. : ELES/RNC/2023/2764	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001629F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1944
Address	: Lohardaga, Jharkhand-835302	Location	: Near Poi Poi Village
		Sampling Date	: 07.06.2023 to 08.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

NABL Accredited				
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	32	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	16.3	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	<0.002	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

Jr. Deependra Kumar Singh

Ph. D. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

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## TEST REPORT

Test Report No.	: ELES/RNC/2023/2764	Report Release Date	: 29.07.2023
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/1944
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 07.06.2023 to 08.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	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)	: 33	2	Barometric Pressure (mm Hg)	: 741
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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 Singh  
Ph. D. Environmental Engg.  
ELES Pvt. Ltd. Technical Manager

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## TEST REPORT

Test Report No. : ELES/RNC/2023/2765	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
LLR No. : TC883923000001630F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1945
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 08.06.2023 to 09.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited				
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	53	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	24	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	5.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	19.4	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*  
 Ph. D. Deependra Kumar Singh  
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 ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74902JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2765	Report Release Date : 29.07.2023
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/1945
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 08.06.2023 to 09.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

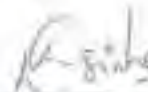
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

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

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## TEST REPORT

Test Report No. : ELES/RNC/2023/2766	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001631F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1946
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 08.06.2023 to 09.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited				
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	52	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	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	15.3	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	<0.002	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)



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

*R. Singh*  
 Authorized Signatory  
 Mr. Daependra Kumar Sin...  
 P.D. Environmental Engg.  
 ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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## TEST REPORT

Test Report No.	: ELES/RNC/2023/2766	Report Release Date	: 29.07.2023
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/1946
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 08.06.2023 to 09.06.2023
Mines Status	: Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 26.06.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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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## TEST REPORT

Test Report No. : ELES/RNC/2023/2732	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001597F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/DW/2203
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 09.06.2023
		Sample Received Date	: 26.06.2023
Mines Status	: Operational	Type of Sample	: Drinking Water
Period of Analysis	: 26.06.2023 to 12.07.2023	Source/Location of Sample	: Amtipani Bauxite Mines (190.95ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd
		Sample Condition	: Sealed & Preserved

### NABL Accredited

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 25.1 °C)	-	APHA 23 <sup>rd</sup> Ed.2017, 4500-H	6.53	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 <sup>rd</sup> Ed.2017, 2130 B	0.02	1.0	5.0
Taste	-	APHA 23 <sup>rd</sup> Ed.2017, 2160 C	Agreeable	Agreeable	
Odour	-	IS 3025 (Part-5) :2018	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	178	500	2000
Chloride (as Cl)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 Cl-B	6.8	250	1000
Fluoride (as F)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 F-D	<0.1	1.0	1.5
Sulphate (as SO <sub>4</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 SO <sub>4</sub> <sup>-2</sup> -E	11.8	200	400
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2320 B	90.6	200	600
Total Hardness (as CaCO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2340 C	69.8	200	600
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 NO <sub>3</sub> -B	<0.1	45	No Relaxation
Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/L	IS 3025 (Part-43):1992;RA2019	<0.005	0.001	0.002

Page 1 of 2

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**ENVIRONMENTAL LABORATORIES & ENGINEERING  
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Plot No.30, Mansarovar Enclave, Tupudana,Hatia,Ranchi-834003,  
Jharkhand.

**Amtipani Bauxite Mine-Environmental Monitoring Report**



**July 2023**



## CONTENT

Hindalco Industries : Amtipani Bauxite Mine		Environmental Monitoring Report		July 2023	
<b>Amtipani Bauxite Mine</b>					
<b>AMBIENT AIR QUALITY- CORE ZONE</b>					
1	Mine Entrance Gate				
2	Near Mine Office/WB				
3	Mines Near Quarry - 1C				
4	Mines Near Quarry - 7C				
<b>AMBIENT AIR QUALITY- BUFFER ZONE</b>					
1	Near Pakri Gada Village				
2	Near Pol Pol Village				
3	Near Shakhuapani Village				
4	Near Dipa Kujam Village				





# ENVIRONMENTAL LABORATORIES &

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CIN: U74999HR2018PT011125

## TEST REPORT

Test Report No.	: ELES/RNC/2023/2906	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001753F		

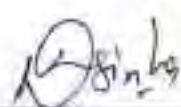
CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2448
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gale Antipani Bauxite Mine (190.95 ha)
		Sampling Date	: 11.07.2023 to 12.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	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)	: 26	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

NABL Accredited				
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	51	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	23	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 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	20.5	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	0.009	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\*\*\*\*

  
Dr. **Deependra Kumar Sinha**  
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Page 1 of 1

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CIN: U74090JH0018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2906	Report Release Date : 08.08.2023
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/2448
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 11.07.2023 to 12.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	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)	: 26	2 Barometric Pressure (mmHg) : 739
3	Relative Humidity (%)	: 64	4 Weather Condition : Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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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## TEST REPORT

Test Report No. : ELES/RNC/2023/2907	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001754F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2449
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 11.07.2023 to 12.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	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)	: 26	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

NABL Accredited				
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	53	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	5.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	17.2	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)



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

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

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CIN: U74999JH2018PTC011225

## TEST REPORT

Test Report No. : ELES/RNC/2023/2907	Report Release Date : 08.08.2023
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/2449
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 11.07.2023 to 12.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	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)	: 26	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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\*\*\*\*

  
Dr. Deepankar K. Sinha  
Ph. D. Environmental Engg.  
ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RNC/2023/2908	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001755F	

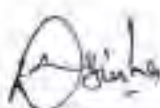
CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2450
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - IC Antipani Bauxite Mine (190.95 ha)
		Sampling Date	: 11.07.2023 to 12.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	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)	: 26	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

NABL Accredited				
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	53	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	22	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	19.4	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\*\*\*\*

  
Authorized Signatory  
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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## TEST REPORT

Test Report No. : ELES/RNC/2023/2908	Report Release Date : 08.08.2023
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/2450
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 1C Antipani Bauxite Mine (190.95 ha)
		Sampling Date	: 11.07.2023 to 12.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	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)	: 26	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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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## TEST REPORT

Test Report No.	: ELES/RNC/2023/2909	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001756F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2451
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry – 7C Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 11.07.2023 to 12.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	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)	: 26	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

## NABL Accredited

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	52	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	5.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	18.4	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	<0.002	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)



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

Authorized Signatory  
Dr. Deependra Kumar Sinha  
Bh. D. Sinha, Engineer  
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2909	Report Release Date : 08.08.2023
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/2451
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 7C Antipani Bauxite Mine (190.95 ha)
		Sampling Date	: 11.07.2023 to 12.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	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)	: 26	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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 &

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

Test Report No.	: ELES/RNC/2023/2902	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001749F		


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2444
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 10.07.2023 to 11.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	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)	: 27	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

NABL Accredited				
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	51	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	5.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	14.5	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	<0.002	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)

*Reviewed by*  
  
 Dr. Deependra Kumar Singh  
 Technical Manager

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

*Authorised Signatory*  
  
 Dr. Deependra Kumar Singh  
 Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

**ENGINEERING SERVICES PVT. LTD.**

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## TEST REPORT

Test Report No. : ELES/RNC/2023/2902	Report Release Date : 08.08.2023
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/2444
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gadu Village
		Sampling Date	: 10.07.2023 to 11.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	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)	: 27	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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. Daependra Kumar Sinha*  
**Authorized Signatory**  
 Dr. Daependra Kumar Sinha  
 Ph. D. Environmental Engg.  
 ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No.	: ELES/RNC/2023/2903	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001750F		


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2445
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pal Pal Village
		Sampling Date	: 10.07.2023 to 11.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/03
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

NABL Accredited				
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	56	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 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	14.5	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	<0.002	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)



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

  
**Authorised Signatory**  
 Dr. Deependra Kumar Sinha  
 Ph. D. Environmental Engg.  
 IIT Patna, Bihar, India

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSADEVAR ENCLAVE, TUPLIDANA  
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ENGINEERING SERVICES PVT. LTD.

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Phone no.: 0651-2290103

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

## TEST REPORT

Test Report No. : ELES/RNC/2023/2903	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/2445	Location : Near Pol Pol Village
Mines Status : Operational	Period of Analysis : 17.07.2023 to 24.07.2023	Sampling Date : 10.07.2023 to 11.07.2023	Sample Received Date : 17.07.2023
		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) : 27	2	Barometric Pressure (mmHg) : 739
3	Relative Humidity (%) : 65	4	Weather Condition : Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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/2023/2904	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001751F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2446
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupari Village
		Sampling Date	: 11.07.2023 to 12.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	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)	: 26	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

NABL Accredited				
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	48	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	20	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	5.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	31.8	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	<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\*\*\*\*

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

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# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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## TEST REPORT

Test Report No. : ELES/RNC/2023/2904	Report Release Date : 08.08.2023
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/2446
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 11.07.2023 to 12.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	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)	: 26	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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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## TEST REPORT

Test Report No.	: ELES/RNC/2023/2905	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001752F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2447
Address	: Lohardaga, Jharkhand-835502	Location	: Near Dipa Kujam Village
		Sampling Date	: 11.07.2023 to 12.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMP/L02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

NABL Accredited				
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	46	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	22	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	13.6	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	<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)



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

Authorised Signatory

Dr. Deepantra Kumar Singh

Ph. D. Environmental Engg.  
ELES PVT. LTD. Rajnchi, Jharkhand

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PLOT NO-30, MAVSAROVAR ENCLAVE, TUPLUDANA  
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CIN: U74999JH2018PT011113

## TEST REPORT

Test Report No. : ELES/RNC/2023/2905	Report Release Date : 08.08.2023
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/2447
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 11.07.2023 to 12.07.2023
Mines Status	: Operational	Sample Received Date	: 17.07.2023
Period of Analysis	: 17.07.2023 to 24.07.2023	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)	: 26	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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\*\*\*\*

  
**Authorised Signatory**  
 Dr. Dhirendra Kumar Sinha  
 Fr. O, Environmental Engg  
 ELES Pvt. Ltd, Technical Manager

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

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

**Amtipani Bauxite Mine-Environmental Monitoring Report**

**August 2023**



## CONTENT

<b>Hindalco Industries : Amtipani Bauxite Mine</b>		<b>Environmental Monitoring Report</b>	<b>August 2023</b>
<b>Amtipani Bauxite Mine</b>			
<b>AMBIENT AIR QUALITY- CORE ZONE</b>			
1	Mine Entrance Gate		
2	Near Mine Office/WB		
3	Mines Near Quarry - 1C		
4	Mines Near Quarry - 7C		
<b>AMBIENT AIR QUALITY- BUFFER ZONE</b>			
1	Near Pakri Gada Village		
2	Near Pol Pol Village		
3	Near Shakhuapani Village		
4	Near Dipa Kujam Village		





# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No.	: ELES/RNC/2023/3353	Report Release Date	: 09.09.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000002121F		

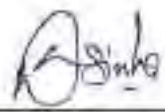
CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2850
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 09.08.2023 to 10.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	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)	: 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

NABL Accredited				
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	42	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	19	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	17.3	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	0.006	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  
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  
MATIA, RANCHI-834003 (JHARKHAND)  
GST NO: 20AAECE97130124

ENGINEERING SERVICES PVT. LTD.

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

CIN: U74909JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/3353	Report Release Date : 09.09.2023
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/2850
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 09.08.2023 to 10.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

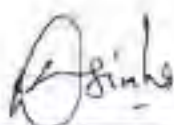
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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 &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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Website: www.elespl.co.in



## TEST REPORT

Test Report No. : ELES/RNC/2023/3354	Report Release Date : 09.09.2023
Work Order No. : I3612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002122F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2851
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 09.08.2023 to 10.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	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)	: 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

NABL Accredited				
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	54	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	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	19.6	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	<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)



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

Authorized Signatory  
Dr. Deependra Kumar Sinha

Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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ENGINEERING SERVICES PVT. LTD.

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CIN: U74999JH2018PTC014425

## TEST REPORT

Test Report No. : ELES/RNC/2023/3354	Report Release Date : 09.09.2023
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/2851
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Antipari Bauxite Mine (190.95 ha)
		Sampling Date	: 09.08.2023 to 10.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	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)	: 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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 Kauria Sinha  
 Ph. D. Environmental Engg.  
 ELES Pvt. Ltd. Technical Manager



# ENVIRONMENTAL LABORATORIES &

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



## TEST REPORT

Test Report No. : ELES/RNC/2023/3355	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002123F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2852
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - IC Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 09.08.2023 to 10.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	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)	: 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

NABL Accredited				
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	48	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	20	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	5.3	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	0.007	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)



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

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

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# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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Phone no.: 0653-2290103  
Website : [www.elespl.co.in](http://www.elespl.co.in)

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/3355	Report Release Date : 09.09.2023
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/2852
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 1C Amtipari Bauxite Mine (190.95 ha)
		Sampling Date	: 09.08.2023 to 10.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

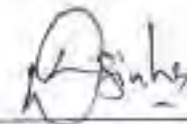
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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 &

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

Test Report No.	: ELES/RNC/2023/3356	Report Release Date	: 09.09.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000002124F		

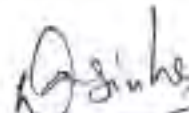
CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2853
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry – 7C Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 09.08.2023 to 10.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	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)	: 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

NABL Accredited		Group : Atmospheric Pollution		
Discipline : Chemical				
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	47	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	22	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	5.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	15.5	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	<0.002	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)



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

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

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# ENVIRONMENTAL LABORATORIES &

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CR: U74999JH2018HFC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/3356	Report Release Date : 09.09.2023
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/2853
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry – 7C Antipani Bauxite Mine (190.95 ha)
		Sampling Date	: 09.08.2023 to 10.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	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)	: 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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/2023/3349	Report Release Date : 09.09.2023
Work Order No. : L3612310218	Work Order Date : 21.04.2023
U.I.R No. : TC883923000002117F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2846
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paluri Gada Village
		Sampling Date	: 08.08.2023 to 09.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	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)	: 24	2	Barometric Pressure (mmHg)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

NABL Accredited				
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	44	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	19	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	16.3	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	<0.002	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\*\*\*\*

*Dr. Deshpande*  
**Authorised Signatory**  
 Dr. Deshpande Nandini Shree  
 Dr. C. Bhadrachari Reddy  
 ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL & WATER TESTING LAB

## TEST REPORT

Test Report No. : ELES/RNC/2023/3349	Report Release Date : 09.09.2023
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/2846
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 08.08.2023 to 09.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	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)	: 24	2 Barometric Pressure (mmHg)
3	Relative Humidity (%)	: 65	4 Weather Condition
5	Longitude	: 84°14'52.25"N	6 Latitude
			: 23°17'41.21"E

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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.

  
 \_\_\_\_\_  
 Reviewed By

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

  
 \_\_\_\_\_  
 Authorized Signatory  
 Environmental & Water Testing Lab  
 13612310218

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## TEST REPORT

Test Report No. : ELES/RNC/2023/3350	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002118F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2847
Address	: Lohariaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 08.08.2023 to 09.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	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)	: 24	2	Barometric Pressure (mmHg)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Diagnostics - 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	50	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	22	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	5.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	12.7	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	<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\*\*\*\*

*(Signature)*  
**Authorised Signatory**  
 Dr. Deepanjana Mishra Sinha  
 Pn. C. Environmental Engg.

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# ENVIRONMENTAL LABORATORY

ISO 9001:2015 Certified (Certificate No. 22/175902)  
 ISO 14001:2015 Certified (Certificate No. 22/175902)  
 ISO 45001:2018 Certified (Certificate No. 22/175902)

ELES Environmental Laboratory Pvt. Ltd.  
 Plot No. 10, Sector 10, Gurgaon, Haryana  
 India - 122001

## TEST REPORT

Test Report No. : ELES/RNC/2023/3350	Report Release Date : 09.09.2023
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/2847
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 08.08.2023 to 09.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	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)	: 24	2 Barometric Pressure (mmHg) : 737
3	Relative Humidity (%)	: 65	4 Weather Condition : Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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**  
 ELES Environmental Laboratory Pvt. Ltd.  
 Plot No. 10, Sector 10, Gurgaon, Haryana  
 India - 122001

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**TEST REPORT**

Test Report No. : ELES/RNC/2023/3351	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002119F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2848
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 09.08.2023 to 10.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	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) : 736
3	Relative Humidity (%)	: 66	4 Weather Condition : Partly Cloudy

NABL Accredited				
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	42	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	18	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	<5.0	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	<0.002	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\*\*\*\*

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

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# ENVIRONMENTAL LABORATORY SERVICES

Address: 10/1, Sector-10, Gurgaon, Haryana  
Phone: +91 98999 99999  
Email: info@elspl.com

Lab. No. : ELES/RNC/2023/3351  
Work Order No. : 13612310218

## TEST REPORT

Test Report No. : ELES/RNC/2023/3351	Report Release Date : 09.09.2023
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/2848
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 09.08.2023 to 10.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	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)	: 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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  
 Environmental Laboratory Services Pvt. Ltd.  
 Gurgaon, Haryana  
 ELES Pvt. Ltd. Technical Manager

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### TEST REPORT

Test Report No. : ELES/RNC/2023/3352	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
LLR No. : TC883923000002126F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2849
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujan Village
		Sampling Date	: 11.08.2023 to 12.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	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)	: 735
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

NABL Accredited				
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	41	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	19	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	16.1	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	<0.002	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\*\*\*\*

*(Signature)*  
**Authorised Signatory**  
 Dr. Deependra Kumar Singh  
 Sr. B. Environmental Engg.  
 ELES Pvt. Ltd. Technical Office

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# ENVIRONMENTAL LABORATORIES INDIA

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## TEST REPORT

Test Report No. : ELES/RNC/2023/3352	Report Release Date : 09.09.2023
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/2849
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 11.08.2023 to 12.08.2023
Mines Status	: Operational	Sample Received Date	: 14.08.2023
Period of Analysis	: 14.08.2023 to 21.08.2023	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)	: 735
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	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.



Reviewed by

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



Authorized Signatory

Dr. S. Srinivas Kumar, Sr. Manager

Env. & Environmental Engg.

ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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CIN: U74999JH2013NP1001125

## TEST REPORT

Test Report No. : ELES/RAN/2023/1716	Report Release Date : 10.09.2023
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/1603
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 06.08.2023
		Sample Received Date	: 28.08.2023
Mines Status	: Operational	Type of Sample	: Drinking Water
		Source/Location of Sample	: Amtipani Bauxite Mines (190.95ha)
Period of Analysis	: 28.08.2023 to 09.09.2023	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>	6.68	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 <sup>rd</sup> Ed.2017, 2130 B	0.26	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	208	500	2000
Chloride (as Cl)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 Cl B	46.8	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	78.4	200	600
Total Hardness (as CaCO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2340 C	96.6	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	20.8	200	400
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 NO <sub>3</sub> -B	2.48	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

Page 1 of 4

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"Save Environment, Save Future"



# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RAN/2023/1716	Report Release Date : 10.09.2023
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	24.4	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	0.246	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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## TEST REPORT

Test Report No. : ELES/RAN/2023/1716	Report Release Date : 10.09.2023
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(ο,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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CW: U74999JH2018PTC011225

## TEST REPORT

Test Report No. : ELES/RAN/2023/1716	Report Release Date : 10.09.2023
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		
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\*\*\*\*

*Rekha Saxena*  
Authorized Signatory  
Rekha Saxena  
B. Sc. M. Sc. (Botany)  
Director  
ELES Pvt. Ltd.

**ENVIRONMENTAL LABORATORIES & ENGINEERING  
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Plot No.30, Mansarovar Enclave, Tupudana, Hatia, Ranchi-834003,  
Jharkhand.

**Amtipani Bauxite Mine-Environmental Monitoring Report**

**September- 2023**



## CONTENT

<b>Hindalco Industries : Amtipani Bauxite Mine      Environmental Monitoring Report      September- 2023</b>	
<b>Amtipani Bauxite Mine</b>	
	<b>AMBIENT AIR QUALITY- CORE ZONE</b>
1	Mine Entrance Gate
2	Near Mine Office/WB
3	Mines Near Quarry - 1C
4	Mines Near Quarry – 7C
	<b>AMBIENT AIR QUALITY- BUFFER ZONE</b>
1	Near Pakri Gada Village
2	Near Pol Pol Village
3	Near Shakhuapani Village
4	Near Dipa Kujam Village
	SPRING WATER
	<b>AMBIENT NOISE</b>
	<b>WORKZONE NOISE</b>





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## TEST REPORT

Test Report No. : ELES/RNC/2023/3961	Report Release Date : 28.10.2023
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/3196
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 06.09.2023 to 07.09.2023
Mines Status	: Operational	Sample Received Date	: 12.09.2023
Period of Analysis	: 12.09.2023 to 23.09.2023	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)	: 736
3	Relative Humidity (%)	: 74	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	36	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	17	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	5.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	19.6	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	<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)

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CIN: U74999JH2018PTC012125

# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RNC/2023/3961	Report Release Date : 28.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

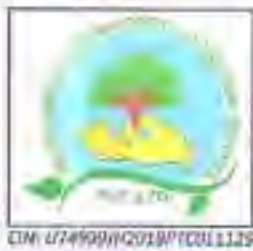
Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )*	µg/m <sup>3</sup>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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## TEST REPORT

Test Report No. : ELES/RNC/2023/3962	Report Release Date : 28.10.2023
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/3197
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 06.09.2023 to 07.09.2023
Mines Status	: Operational	Sample Received Date	: 12.09.2023
Period of Analysis	: 12.09.2023 to 23.09.2023	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)	: 736
3	Relative Humidity (%)	: 74	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	46	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	20	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	15.8	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	<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)



# ENVIRONMENTAL LABORATORIES &

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

## TEST REPORT

Test Report No. : ELES/RNC/2023/3962	Report Release Date : 28.10.2023
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 &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74909JH2016PTC0111125

## TEST REPORT

Test Report No. : ELES/RNC/2023/3963	Report Release Date : 28.10.2023
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/3198
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 1C Antipari Bauxite Mine (190.95 ha)
		Sampling Date	: 06.09.2023 to 07.09.2023
Mines Status	: Operational	Sample Received Date	: 12.09.2023
Period of Analysis	: 12.09.2023 to 23.09.2023	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)	: 736
3	Relative Humidity (%)	: 74	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	39	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	17	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	5.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	21.6	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	<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

# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT


Test Report No. : ELES/RNC/2023/3963	Report Release Date : 28.10.2023
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  
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ELES Pvt. Ltd. Technical Manager



# ENVIRONMENTAL LABORATORIES &

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QW: U74999JH2018PTC031125

## TEST REPORT

Test Report No. : ELES/RNC/2023/3964	Report Release Date : 28.10.2023
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/3199
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry – 7C Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 06.09.2023 to 07.09.2023
Mines Status	: Operational	Sample Received Date	: 12.09.2023
Period of Analysis	: 12.09.2023 to 23.09.2023	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)	: 736
3	Relative Humidity (%)	: 74	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	41	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	19	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	17.2	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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CIN: U74999JH2018PTC012125

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## TEST REPORT

Test Report No. : ELES/RNC/2023/3964	Report Release Date : 28.10.2023
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

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### TEST REPORT

Test Report No. : ELES/RNC/2023/3957	Report Release Date : 28.10.2023
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/3192
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 05.09.2023 to 06.09.2023
Mines Status	: Operational	Sample Received Date	: 12.09.2023
Period of Analysis	: 12.09.2023 to 23.09.2023	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)
3	Relative Humidity (%)	: 74	4 Weather Condition
5	Longitude	: 84°14'52.25"N	6 Latitude
			: 23°17'41.21"E

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	39	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	22	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	5.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	18.7	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	<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)

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# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT


Test Report No. : ELES/RNC/2023/3957	Report Release Date : 28.10.2023
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**  
Mr. Deependra Kumar Singh  
En. C. Environmental Engg.  
ELES Pvt. Ltd. Technical Manager



## TEST REPORT

Test Report No. : ELES/RNC/2023/3958	Report Release Date : 28.10.2023
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/3193
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 05.09.2023 to 06.09.2023
Mines Status	: Operational	Sample Received Date	: 12.09.2023
Period of Analysis	: 12.09.2023 to 23.09.2023	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) : 742
3	Relative Humidity (%) : 74	4	Weather Condition : Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	43	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	20	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	15.5	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)



# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RNC/2023/3958	Report Release Date : 28.10.2023
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**  
Ujjwal Kumar Singh  
P. D. Environmental Engg.  
Pvt. Ltd. Technical Manager





# ENVIRONMENTAL LABORATORIES PVT. LTD.

PLOT NO. 02, WANAARDI HR INC, INC. RAIPUR  
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GST NO. - 20AAACD7723D223

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## TEST REPORT

Test Report No. : ELES/RNC/2023/3959	Report Release Date : 28.10.2023
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/3194
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 06.09.2023 to 07.09.2023
Mines Status	: Operational	Sample Received Date	: 12.09.2023
Period of Analysis	: 12.09.2023 to 23.09.2023	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)	: 26	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	42	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	17	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	<5.0	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	<0.002	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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## TEST REPORT


Test Report No. : ELES/RNC/2023/3959	Report Release Date : 28.10.2023
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> ) <sup>*</sup>	µg/m <sup>3</sup>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene <sup>*</sup>	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**  
Mr. Udayendra Kumar Sinha  
Ph. D. Environmental Engg.  
E.ES.Pvt. Ltd. Technical Manager



### TEST REPORT

Test Report No. : ELES/RNC/2023/3960	Report Release Date : 28.10.2023
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/3195
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dīpa Kujam Village
		Sampling Date	: 07.09.2023 to 08.09.2023
Mines Status	: Operational	Sample Received Date	: 12.09.2023
Period of Analysis	: 12.09.2023 to 23.09.2023	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)
3	Relative Humidity (%)	: 70	4 Weather Condition
			: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	48	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	24	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	17.3	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	<0.002	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)



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## TEST REPORT

Test Report No. : ELES/RNC/2023/3960	Report Release Date : 28.10.2023
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> ) <sup>*</sup>	µg/m <sup>3</sup>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene <sup>*</sup>	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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

  
Reviewed by  


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

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



# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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

CIN: U74909RJ2012PTC01125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4107	Report Release Date : 31.10.2023
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/SW/3499
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 06.09.2023
		Sample Received Date	: 29.09.2023
Mines Status	: Operational	Type of Sample	: Surface Water
		Source of Sample	: Spring Water
Period of Analysis	: 29.09.2023 to 17.10.2023	Location of Sample	: Amtipani Bauxite Mine (190.95 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.9 °C)	-	IS 3025 (Part 11) : 2022	6.63	6.5-8.5
Colour	Hazen	IS 3025 (Part -4) : 2021	5.0	300
Odour	-	IS 3025 (Part-5) : 2018	Unobjectionable	--
Taste	-	APHA 23 <sup>rd</sup> Ed.2017, 2160 C	N/A	--
Turbidity	mg/L	IS 3025 (Part-10) :1984;RA2017	0.64	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	202	1500
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	IS 3025 (Part-23) :1986; RA2019	79.5	--
Total Hardness (as CaCO <sub>3</sub> )	mg/L	IS 3025 (Part-21) : 2009; RA2019	98.8	--
Sulphate (as SO <sub>4</sub> )	mg/L	IS 3025 (Part 24) : 1986; RA2019	4.3	400
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 NO <sub>3</sub> -B	1.92	50
Chloride (as Cl)	mg/L	IS 3025 (Part-32) :1988; RA2019	15.2	600
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.134	1.5
Cyanide (as CN)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05
Phenols Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/L	IS 3025 (Part-43): 1992;RA2019	BDL (DL: 0.0005)	0.005

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CIN: U74999JH2018FTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4107	Report Release Date : 31.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline: Chemical		Group: Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 1991; RA2019	26.3	--
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26): 2021	BDL (DL: 0.1)	--
Discipline: Chemical		Group: Residues in Water		
Aluminium (as Al)	mg/L	IS 3025 (Part-55): 2003; RA2019	BDL (DL: 0.02)	--
Arsenic (as As)	mg/L	IS 3025 (Part 37): 2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57): 2021	BDL (DL: 0.2)	--
Cadmium (as Cd)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0.03)	--
Copper (as Cu)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	0.214	50
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)	--
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 1994; RA2019	BDL (DL: 0.001)	--
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2003; RA2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111 B	BDL (DL: 0.1)	15
Discipline: Biological		Group: Water		
Total Coliform	CFU/100 mL	IS 15185: 2016; RA2021	63	5000
Escherichia Coli	CFU/100 mL	IS 15185: 2016; RA2021	9.0	--

Remarks: 1. pH & RFC done at Lab.



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## TEST REPORT


Test Report No. : ELES/RNC/2023/4107	Report Release Date : 31.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline: Chemical		Group: Water	
Parameter	Unit	Test Protocol	Result
Anionic Surfactants (as MBAS)*	mg/L	IS 3025 Part 68	<0.1
Mineral Oil*	mg/L	CL-6, IS: 3025 (P-39)	<0.1
Polynuclear Aromatic Hydrocarbons (PAH)*	mg/L	APHA 23 <sup>rd</sup> Edition	<0.0001
<b>Pesticides</b>			
Alachlor*	µg/L	APHA	<1.0
Atrazine*	µg/L	APHA	<1.0
Aldrin/Dieldrin*	µg/L	APHA	<0.01
Alpha HCH*	µg/L	APHA	<0.001
Beta HCH*	µg/L	APHA	<0.01
Butachlor*	µg/L	APHA	<10
Chlorpyrifos*	µg/L	APHA	<10
Delta HCH*	µg/L	APHA	<0.01
2,4 dichlorophenoxyacetic acid*	µg/L	APHA	<10
DDT(o,p and p,p-isomers of DDT,DDE and DDD)*	µg/L	APHA	<0.5
Endosulfan (alpha, beta, and sulphate)*	µg/L	APHA	<0.1
Ethion*	µg/L	APHA	<0.5
Gamma HCH (Lindane)*	µg/L	APHA	<0.5
Isoproturon†	µg/L	APHA	<0.5

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

  
Reviewed by

\*\*\*\*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/2023/4135	Report Release Date : 31.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 06.09.2023 to 07.09.2023
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 30.09.2023
		Type of Sample	: Ambient Noise
Mines Status	: Operational	Sampling procedure	: ELES/DOC/SMPL/03
		Sample Drawn By	: ELES Pvt. Ltd.
		Period of Analysis	: 30.09.2023 to 10.10.2023

### METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 25	2	Barometric Pressure (mmHg) : 736
3	Relative Humidity (%) : 74	4	Weather Condition : Cloudy

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	Leq	
Near Mine Office Antipani Bauxite Mine (190.95 ha)	dB(A)	IS 9989:1981, RA 2020	Day Time	65	75 dB(A) Day Time & 70 dB(A) Night Time
			Night Time	44	
Sample ID: ELES/RNC/2023/AN/3527					



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

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

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CIN: U74999JH0180FTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4157	Report Release Date : 31.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sampling Date	: 06.09.2023
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 30.09.2023
		Type of Sample	: Workzone Noise
Mines Status	: Operational	Sampling procedure	: ELES/DOC/SMPL/03
		Sample Drawn By	: ELES Pvt. Ltd.
		Period of Analysis	: 30.09.2023 to 11.10.2023

METEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 25	2	Barometric Pressure (mmHg) : 734
3	Relative Humidity (%) : 68	4	Weather Condition : Cloudy

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	$L_{eq}$	
Mines Near Quarry – 7C Amtipani Bauxite Mine (190.95 ha)	dB(A)	IS 4758:1968; RA 2017	Day Time	73	90 dB (A)
Sample ID: ELES/RNC/2023/WN/3549					



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

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



Annexure 3

Date – 01.11.2023

### Office Order

Environmental Cell has been re-constituted at Amtipani Bauxite Mine (Area 190.95 ha) comprising below mentioned team members. The team will ensure compliance with the Environment Act, Regulation & Rule in respect of the said mines of Hindalco Industries Limited.

1. Mr. Yogendra Lilhare (Coordinator)
2. Mr. Preet Ranjan Kuanr - Geologist
3. Ms. Swetapadma Nanda-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 Gangopadhyay", is written over a horizontal line.

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

## Annexure 4

Production, Mined Out, Back Filled and Over Burden removal from April'23 to September'23								
S No	Name of the Mines	Mining lease area (ha)	Production Capacity (MT)*	Lease Period*	Production (MT)	Mined out area (ha)	Back filled area (ha)	Over burden (Cu.M)
1	Bagru bauxite Mine	75.41	85000	22.01.1974 to 31.03.2030	0	0	0.00	0.00
2	Bhusar Bauxite Mine	65.31	280000	11.07.1981 to 31.03.2030	148918	0.92	0.45	163157.26
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	56738	0.4	0.49	27329.28
4	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	102270	2.1	1.61	157784.02
5	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	61110	3.02	1.21	134785.10
6	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	100700	2.91	1.00	125875.50
7	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	78106	3.07	2.38	242675.00
8	Shrengdag A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	14860	0.39	0.35	14280
9	Shrengdag B Bauxite Mine	140.07	100000	04.10.1978 to 31.03.2030	43320	1.12	1.15	77170
10	Jalim & Sanai Bauxite Mine	12.14	50000	16.10.1974 to 31.03.2030	26725	0.21	0.2	8750
11	Orsapat Bauxite Mine	196.36	200000	17.07.1986 to 16.07.2036	NIL	NIL	NIL	NIL
12	Chiro Kukud bauxite Mine	152.57	100000	29.01.1985 to 28.01.2035	NIL	NIL	NIL	NIL
13	Pakhar (8.09)	8.09	80000	16.05.1973 to 31.03.2030	NIL	NIL	NIL	NIL
14	Pakhar (35.12)	35.12	200000	17.04.1975 to 31.03.2030	NIL	NIL	NIL	NIL

## Annexure 4

15	Pakhar (115.13)	115.13	300000	19.07.1996 to 31.03.2030	147508.00	2.29	0.4	532571.87
<b>Minerals &amp; Minerals Limited</b>								
16	Pakhar (15.58)	15.58	60000	28.04.1965 to 31.03.2030	80.00	0.00	0.00	0.00
17	Pakhar (109.507)	109.507	280000	26.07.2008 to 25.07.2058	97720.00	1.93	0.71	237280.85
18	Bimarla Bauxite Mine	134.37	300000	18.07.2009 to 17.07.2059	39550	2.21	0.8	64913.65
19	Amtipani Chirodih Bauxite Mines	130.01	450000	11.01.2017 to 10.01.2067	84678	3.96	1.15	98519.66

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



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## 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 Pakhar (115.13 ha), Pakhar (15.58 ha), Pakhar (109.507 ha), Pakhar (8.09 ha), Pakhar (35.12 ha), Serengdag (140.06 ha), Serengdag (155.81 ha), Jalim & Sanai (12.14 ha), Gurdari (584.19 ha), Amtipani (190.95 ha), Kujam I (80.97 ha) Kujam II (157.38 ha), Bagru (75.41 ha), Hisri New (14.55 ha), Chiro kukud (152.57 ha), Orsa pat (196.36 ha), Bhusar (65.31 ha), Bimarla Bauxite Mines (134.52 ha) and Amtipani Chirodih (130.01 ha) Bauxite Mine.

S No	Description	Budget (in Rupees) FY 2023-24	Actual (in Rupees) FY 2023-24 (From April'23 to September'23)
1	Pollution Control & Environment monitoring	1,57,41,102.00	82,15,825.36
2	Reclamation/ Back filing & Rehabilitation**	1,36,62,095.00	6,66,42,814.70
3	Green belt, Plantation & Water sprinkling arrangement	67,45,898.00	19,34,590.20
4	Rural Development	6,19,33,534.00	1,83,73,453.27

\*\*Part of OB removed cost.

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