

**Name of the Project** : **Pakhar Bauxite Mine (8.09 ha)**  
**M/s Hindalco Industries Limited**

**Environment Clearance No. & date** : **J-11015/135/2006-IA.II(M), dated 24.01.2007**

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

**Specific Conditions: -**

**Condition i: - All the conditions stipulated by SPCB in their NOC shall be effectively implemented.**

**Reply: -** Winning of Bauxite is closed w.e.f Nov 2014 due to exhaustion of resources and field activity of final Mine closure plan are completed.

**Condition ii: - 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: -** Winning of Bauxite is closed w.e.f Nov 2014 due to exhaustion of resources and field activity of final Mine closure plan are completed.

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

**Reply: -** The Mine is not in operation since Nov 2014.  
Winning of bauxite operation not carried out in this lease till September'23- due to exhaustion of mineral reserve.  
Final Mine Closure Plan has been approved by Indian Bureau of Mines.  
Field activity of final Mine closure plan are completed.

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

**Reply: -** No natural water course was obstructed during mining in past. Winning of bauxite operation not carried out in this lease till September'23- due to exhaustion of mineral reserve.  
Mine is not in operation since Nov 2014.

Field activity of final Mine closure plan are completed.

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

**Reply: -** The Mine is not in operation since Nov 2014. Winning of bauxite operation not carried out in this lease till September'23 due to exhaustion of mineral reserve.

Field activity of final Mine closure plan are completed.

**Condition vi: - The waste generated shall be concurrently backfilled in the mined-out area. There shall be no external OB dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forest on six monthly basis.**

**Reply:** - Mine is not in operation since Nov 2014. Winning of bauxite operation not carried out in this lease till September'23 due to exhaustion of mineral reserve.

No external OB dump is in mine lease area.

Field activity of final Mine closure plan are completed.

**Condition vii: - Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly.**

**Garland drain (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 setting of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.**

**Reply:** - Winning of bauxite operation not carried out in this lease till September'23 due to exhaustion of mineral reserve.

The Mine is not in operation since Nov 2014

Field activity of final Mine closure plan are completed.

**Condition viii:- Plantation shall be raised in an area of 6.35 ha including a green belt of adequate width by planting the native species around the ML area, roads, reclaimed area etc. in consultation with the local DFO / Agriculture Department. The density of the trees should be around 1500 plants per ha.**

**Reply:** - Mine is not in operation since Nov 2014 due to exhaustion of reserves. FMCP approved by IBM. Mine Voids are reclaimed and rehabilitated. Water body is also created. Plantation done.

Entire land is utilized for meaningful purpose.

Field activity of final Mine closure plan are completed.

**Condition ix: - 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:** - Winning of bauxite operation not carried out in this lease till September'23 due to exhaustion of mineral reserve. Mine is not in operation since Nov 2014 due to exhaustion of reserves. FMCP approved by IBM. Mine Voids are reclaimed and rehabilitated. Water body is also created.

Field activity of final Mine closure plan are completed.

**Condition x: - 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:** - Mine is not in operation since Nov 2014 due to exhaustion of reserves. FMCP approved by IBM. Mine Voids are reclaimed and rehabilitated. Water body is also created. Field activity of final Mine closure plan are completed.

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

**Reply:** - Winning of bauxite operation not carried out in this lease till September'23 due to exhaustion of mineral reserve.  
The Mine is not in operation since Nov 2014.  
Field activity of final Mine closure plan are completed.

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

**Reply:** - Winning of bauxite operation not carried out in this lease till September'23 due to exhaustion of mineral reserve.  
The Mine is not in operation since Nov 2014.  
FMCP approved by IBM. Mine Voids are reclaimed and rehabilitated. Water body is also created. Field activity of final Mine closure plan are completed.

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

**Reply:** - Winning of bauxite operation not carried out in this lease till September'23 due to exhaustion of mineral reserve.  
The Mine is not in operation since Nov 2014.  
FMCP approved by IBM. Mine Voids are reclaimed and rehabilitated. Water body is also created. Field activity of final Mine closure plan are completed.

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

**Reply:** - Winning of bauxite operation not carried out in this lease till September'23 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014.  
FMCP approved by IBM. Mine Voids are reclaimed and rehabilitated. Water body is also created. Field activity of final Mine closure plan are completed.

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

**Reply:** - The Mine is not in operation since Nov 2014. Winning of bauxite operation not carried out in this lease till September'23 due to exhaustion of mineral reserve. FMCP approved by IBM. Mine Voids are reclaimed and rehabilitated. Water body is also created. Field activity of final Mine closure plan are completed.

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

**Reply:** - The Mine is not in operation since Nov 2014. Winning of bauxite operation not carried out in this lease till September'23 due to exhaustion of mineral reserve. FMCP approved by IBM. Mine Voids are reclaimed and rehabilitated. Water body is also created. Field activity of final Mine closure plan are completed.

**Condition xvii: - The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna such as Indian Python etc. Spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. Copy of action plan may be submitted to the Ministry and its Regional Office within 3 months.**

**Reply:** - Winning of bauxite operation not carried out in this lease till September'23 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014. Field activity of final Mine closure plan are completed.

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

**Reply:** - Approval letter of Final Mine closure plan duly approved by Indian Bureau of Mines is hereby attached as **Annexure-6**.

**General Conditions: -**

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

**Reply:** - Winning of bauxite operation not carried out in this lease till September'23 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014.

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

**Reply: -** Winning of bauxite operation not carried out in this lease till September'23 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014. Enclosed as **Annexure 4.**

Field activity of final Mine closure plan are completed.

**Condition iii: - Four ambient air quality-monitoring station should be established in the core zone as well as in the buffer zone for RPM, SPM, SO<sub>2</sub>, NO<sub>x</sub> monitoring. Location of the stations should be decided based on the metrological 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: -** Monitoring Reports of Pakhar Plateau is enclosed as **Annexure 2.**

**Condition iv: - 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 Bhubneshwar and the State Pollution Control Board / Central pollution Control Board once in six months.**

**Reply: -** Monitoring Reports of Pakhar Plateau is enclosed in **Annexure-2.**

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

**Reply: -** Winning of bauxite operation not carried out in this lease till September'23 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014. Water spraying is being done around Mine Lease in dust prone areas.

Field activity of final Mine closure plan are completed.

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

**Reply: -** Winning of bauxite operation not carried out in this lease till September'23 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014.

Field activity of final Mine closure plan are completed.

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

**Reply: -** Winning of bauxite operation not carried out in this lease till September'23 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014.

Field activity of final Mine closure plan are completed.

**Condition viii: - Personnel working in dusty areas should wear protective respiratory devices and they should also 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:** - Winning of bauxite operation not carried out in this lease till September'23 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014. Field activity of final Mine closure plan are completed.

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

**Reply:** - Winning of bauxite operation not carried out in this lease till September'23 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014. We have Environment Management Cell for our Pakhar Group of Mines. The same is looking after Environment issues of this Mine, Attached as **Annexure-3**. Field activity of final Mine closure plan are completed.

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

**Reply:** - Winning of bauxite operation not carried out in this lease till September'23 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014. This was an operational mine and hence provision related to financial closure not applicable. Field activity of final Mine closure plan are completed.

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

**Reply:** - Statement of budgetary provision and actual expenses for environmental protection measure is enclosed as **Annexure-5**. Currently, the Regional Office is located at Ranchi. Field activity of final Mine closure plan are completed.

**Condition xii: - The Regional Office of this Ministry located at Bhubneshwar 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:** - Agreed. Currently, the Regional Office is located at Ranchi.

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

**Reply: - Complied**

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

**Reply: - Displayed.**

**Condition xv: - The project authorities should advertise at least in two local newspapers widely circulated, one of which locality concerned, within 7days 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 Bhubneshwar.**

**Reply: - Complied. Copies, of the advertisement made in the local newspapers, have already been submitted to the Regional Office.**



# ENVIRONMENTAL LABORATORIES &

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

Test Report No.	: ELES/RNC/2023/2012	Report Release Date	: 12.06.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: TC883923000000973F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1439
Address	: Lohardaga, Jharkhand-835302.	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 09.04.2023 to 10.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

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	36	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	19.2	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.016	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



*Dr. Deendra Kumar Sinha*

Authorized Signatory

Dr. Deendra Kumar Sinha

Ph. D. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

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

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2013PT0011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2012	Report Release Date : 12.06.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1439
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 09.04.2023 to 10.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

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/2023/2013	Report Release Date	: 12.06.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: TC883923000000974F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1440
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 09.04.2023 to 10.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

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	70	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	12.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	24.6	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	0.015	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

Authorized Signatory

Dr. Deependra Kumar Sinha  
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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: U74999JH2018PRF001125

## TEST REPORT

Test Report No.	: ELES/RNC/2023/2014	Report Release Date	: 12.06.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: TC883923000000975F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/T441
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No- MI Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 09.04.2023 to 10.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

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	64	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	37	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	10.0	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	21.3	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	0.013	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



Authorized 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 &

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

Test Report No.	: ELES/RNC/2023/2014	Report Release Date	: 12.06.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1441
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 09.04.2023 to 10.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

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



# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No.	: ELES/RNC/2023/2015	Report Release Date	: 12.06.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: TC883923000000976F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1442
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 09.04.2023 to 10.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

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	36	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	8.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	22.8	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.010	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



Authorized Signatory

Dr. Deependra Kumar Sinha

Pt. O. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

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

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/2023/2015	Report Release Date : 12.06.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1442
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
Plant Status	: Operational	Sampling Date	: 09.04.2023 to 10.04.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

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 Egg.  
ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-36, MANSAROVAR ENCLAVE, YUPINDAMA  
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## TEST REPORT

Test Report No.	: ELES/RNC/2023/1936	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000897F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1363
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bunglapart Village Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 19.04.2023 to 20.04.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 743
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)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	63	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	14.4	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-16): 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

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

Authorized Signatory

Dr. Deependra Kumar Saha

Page 1 of 1

For. Dr. Deependra Kumar Saha  
ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RNC/2023/1936	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/1363
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bunglapart Village Pakhar Bauxite Mine
		Sampling Date	: 19.04.2023 to 20.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 61	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: (a)-Parameters are outsourced to other Lab.



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

  
 Authorized Signatory:  
 Dr. Desperina Pratiksha Saha  
 Ph. D., Environmental Engg.  
 ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-20, MANSARDIYA ENCLAVE, TINDIADANA  
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CIN: U71900JH2014PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2023/1937	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000898F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name:	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1364
Address:	: Lohardaga, Jharkhand-835302	Location:	: Yatri Shed (Near K-10) Pakhar Bauxite Mine
Plant Status:	: Operational	Sampling Date	: 19.04.2023 to 20.04.2023
Period of Analysis:	: 10.05.2023 to 08.06.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 743
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)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	67	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	36	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2004; RA2022	10.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	17.6	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

*Dr. Debajyoti Kumar Sinha*  
Authorized Signatory  
Dr. Debajyoti Kumar Sinha  
Ph.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/2023/1937	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/1364
Address	: Lohardaga, Jharkhand-835302	Location	: Yatri Shed (Near K-10) Pakhar Bauxite Mine
		Sampling Date	: 19.04.2023 to 20.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 61	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: (a)-Parameters are outsourced to other Lab.



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

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



# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No.	: ELES/RNC/2023/1938	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000899F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1365
Address	: Lohardaga, Jharkhand-835302	Location	: Near Ulkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 19.04.2023 to 20.04.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 743
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)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	58	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	29	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	13.4	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)



Reviewed by

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

Authorized Signatory

Dr. Debanjan Kumar Sinha

Page 1 of 1

PH: 0 Environmental Engg.  
ELES/DOC/1111 Technical Manager

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# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RNC/2023/1938	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/1365
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalyaya Bunglapart Village Pakhar Bauxite Mine
		Sampling Date	: 19.04.2023 to 20.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 743
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)
Berizo (a) Pyrene*	ng/m <sup>3</sup>	IS:5182 (Part-12); 2004;RA2019	<0.5	01(Annual)

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



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

  
**Authorized Signatory**  
 Dr. Deepa Singh  
 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/BNC/2023/1939	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000900F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1366
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 19.04.2023 to 20.04.2023
Period of Analysis	: 10.05.2023 to 08.06.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 743
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	66	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	7.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	13.5	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)



Reviewed by

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

Authorized Signatory

Dr. Dipendra Kumar Singh

Ph. D. Environmental Engg.  
Chief Executive & Technical Manager

Page 1 of 1

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CIN: U74939JH2008PT001125

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## TEST REPORT

Test Report No.	: ELES/RNC/2023/1939	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/1366
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
		Sampling Date	: 19.04.2023 to 20.04.2023
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)	: 33	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 61	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)
Benz(a) Pyrene <sup>b</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. Deepenita Kumar Sinha  
Ph. D. Environmental Engg.  
ELES Pvt. Ltd. Technical Manager



# ENVIRONMENTAL LABORATORIES &

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QW: U74993MH2028PLC011225

## TEST REPORT

Test Report No. : ELES/RAN/2023/0510	Report Release Date : 06.05.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RAN/2023/DW/0395
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 15.04.2023
		Sample Received Date	: 26.04.2023
Mines Status	: Non Operational	Type of Sample	: Drinking Water
		Source/Location of Sample	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
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 25.3 °C)	-	APHA 23 <sup>rd</sup> Ed.2017, 4500-H <sup>1</sup>	6.76	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 <sup>rd</sup> Ed.2017, 2130 B	0.38	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	212	500	2000
Chloride (as Cl)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 Cl B	28.6	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	78.8	200	600
Total Hardness (as CaCO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2340 C	82.6	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	19.6	200	400
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 NO <sub>3</sub> -B	1.96	45	No Relaxation
Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/L	IS 3025 (Part-43):1992;RA2019	BDL (DL: 0.0005)	0.001	0.002

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2918PYC012125

## TEST REPORT

Test Report No. : ELES/RAN/2023/0510	Report Release Date : 06.05.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

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	21.8	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	0.386	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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ENGINEERING SERVICES PVT. LTD.

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CIN:U74999JH2018PTC011115

## TEST REPORT

Test Report No. : ELES/RAN/2023/0510	Report Release Date : 06.05.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

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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## TEST REPORT

Test Report No. : ELES/RAN/2023/0510	Report Release Date : 06.05.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

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\*\*\*\*

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



# ENVIRONMENTAL LABORATORIES &

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TC-0039

## TEST REPORT

Test Report No. : ELES/RNC/2023/2343	Report Release Date : 01.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000001265F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1816
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
Plant Status	: Operational	Sampling Date	: 21.05.2023 to 22.05.2023
Period of Analysis	: 06.06.2023 to 07.06.2023	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)	: 36	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

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	31	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	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	0.013	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

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

Page 1 of 1

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"Save Environment, Save Future"



# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No.	: ELES/RNC/2023/2343	Report Release Date	: 01.07.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1816
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.05.2023 to 22.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 07.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 36	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

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/2023/2344	Report Release Date : 01.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000001266F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1817
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
Plant Status	: Operational	Sampling Date	: 21.05.2023 to 22.05.2023
Period of Analysis	: 06.06.2023 to 07.06.2023	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)	: 36	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

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	64	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	10.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	22.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

*Dr. Deependra Kumar Sinha*  
Authorized Signatory  
Dr. Deependra Kumar Sinha

Page 1 of 1

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## TEST REPORT

Test Report No.	: ELES/RNC/2023/2344	Report Release Date	: 01.07.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1817
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.05.2023 to 22.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 07.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 36	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

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/2023/2345	Report Release Date : 01.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000001267F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1818
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.05.2023 to 22.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 07.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 36	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

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	8.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	18.9	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	0.008	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

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

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CIN: U74999JH2028PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2345	Report Release Date : 01.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1818
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
Plant Status	: Operational	Sampling Date	: 21.05.2023 to 22.05.2023
Period of Analysis	: 06.06.2023 to 07.06.2023	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)	: 36	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

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-36, MANSAROVAR ENCLAVE, TUPUDANA  
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## TEST REPORT

Test Report No. : ELES/RNC/2023/2346	Report Release Date : 01.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000001268F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1819
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.05.2023 to 22.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 07.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 36	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

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	29	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	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	0.008	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

*Dr. Deependra Kumar Sinha*  
Authorized Signatory  
Dr. Deependra Kumar Sinha  
P.T. Dr. Environmental Engg.  
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74998JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2346	Report Release Date : 01.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1819
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.05.2023 to 22.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 07.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 36	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

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 &

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## TEST REPORT

Test Report No. : ELES/RNC/2023/2267	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001189F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1740
Address	: Lehardaga, Jharkhand-835302	Location	: Near Bunglapart Village Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 21.05.2023 to 22.05.2023
Period of Analysis	: 06.06.2023 to 08.06.2023	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

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	67	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.0	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	16.2	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*  
Authorized Signatory  
Ph. D. Environmental Engg  
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RNC/2023/2267	Report Release Date : 01.07.2023
Work Order No. : 13612319218	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/1740	Location : Near Bunglapart Village Pakhar Bauxite Mine
Plant Status : Operational	Period of Analysis : 06.06.2023 to 08.06.2023	Sampling Date : 21.05.2023 to 22.05.2023	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*	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)3004;RA2019	<0.5	01(Annual)

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



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

  
 Authorized Signatory  
 Dr. Desendra Kumar Sinha  
 B.Tech Environmental Engg.  
 ELES/DOC/26 Technical Manager

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2013PP001125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2268	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001190F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/174	Location : Yatri Shed (Near K-10) Pakhar Bauxite Mine
Plant Status : Operational	Period of Analysis : 06.06.2023 to 08.06.2023	Sampling Date : 21.05.2023 to 22.05.2023	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

## 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	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	7.6	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	14.2	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	0.008	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26): 2020	<6.0	30 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

*Deependra Kumar Sinha*  
Authorized Signatory  
Dr. Deependra Kumar Sinha  
ELES/RNC/2023/AA/174  
Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No.	: ELES/RNC/2023/2268	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/1741
Address	: Lohardaga, Jharkhand-835302	Location	: Yarn Shed (Near K-10) Pakhar Bauxite Mine
		Sampling Date	: 21.05.2023 to 22.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 08.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DGC/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 <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\*\*\*

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

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# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No.	: ELES/RNC/2023/2269	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001191F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1742
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Bunglapan Village Pakhar Bauxite Mine
		Sampling Date	: 21.05.2023 to 22.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 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)	: 34	2	Barometric Pressure (mmHg)	: 763
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	54	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	5.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	10.9	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\*\*\*

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

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

## ENGINEERING SERVICES PVT. LTD.

PLT NO 39, MAHARODDAR ENCLAVE, TUPHIDAMA  
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### TEST REPORT

Test Report No.	: ELES/RNC/2023/2269	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/1742
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Bungalow Village Pakhar Bauxite Mine
		Sampling Date	: 21.05.2023 to 22.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 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)	: 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 <sup>®</sup>	µg/m <sup>3</sup>	IS-5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benz(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\*\*\*\*

  
 Authorized Signatory  
 Dr. Deepshikha Kunter Saha  
 Ph. 2. Environmental Engg.  
 ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-20, MANSAROVAR ENCLAVE, TUPUDANA,  
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## TEST REPORT

Test Report No. : ELES/RNC/2023/2270	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
U/LR No. : TC883923000001192F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1743
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarsh Rajkiya Pradhik Vidyalaya Dumrapur Village Pakhar Bauxite Mine
		Sampling Date	: 21.05.2023 to 22.05.2023
Plant Status	: Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 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)	: 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	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-3): 2001; RA2022	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	11.9	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\*\*\*\*

*Dr. Deependra Kumar Sinha*  
**Authorized Signatory**  
 Dr. Deependra Kumar Sinha  
 Ph.D. Environmental Engg.  
 ELES/Doc. Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-39, MANSARVAR ENCLAVE TUPU/DANA  
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## TEST REPORT

Test Report No.	: ELES/RNC/2023/2270	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/1743
Address	: Lohardaga, Jharkhand-835302	Location	: Near Ukamit Raikya Prathamik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
Plant Status	: Operational	Sampling Date	: 21.05.2023 to 23.05.2023
Period of Analysis	: 06.06.2023 to 08.06.2023	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*	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: U24599JH2018PTC011225

## TEST REPORT

Test Report No. : ELES/RNC/2023/2827	Report Release Date : 29.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000001692F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2159
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 18.06.2023 to 19.06.2023
Mines Status	: Non Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 07.07.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 759
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

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	52	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	7.6	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	25.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<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\*\*\*\*

Authorized Signatory  
Dr. Deependra Kumar Sinha  
Ph. U. 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/2023/2827	Report Release Date : 29.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2159
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 18.06.2023 to 19.06.2023
Mines Status	: Non Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 07.07.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 759
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

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



# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011225

## TEST REPORT

Test Report No. : ELES/RNC/2023/2828	Report Release Date : 29.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000001693F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2160
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 18.06.2023 to 19.06.2023
Mines Status	: Non Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 07.07.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

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	69	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	40	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	13.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	25.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<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\*\*\*\*

Page 1 of 1

  
Authorized Signatory  
Dr. Deependra Kumar Sinha  
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# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018P/CO11125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2828	Report Release Date : 29.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2160
Address	: Lohardaga, Jharkhand-838302	Location	: Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 18.06.2023 to 19.06.2023
Mines Status	: Non Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 07.07.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

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



# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH7013PT001125

## TEST REPORT

Test Report No.	: ELES/RNC/2023/2829	Report Release Date	: 29.07.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: TC883923000001694F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2161
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 18.06.2023 to 19.06.2023
Mines Status	: Non Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 07.07.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

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	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	17.2	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	0.005	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

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

Page 1 of 1

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CIN: U74989JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2829	Report Release Date : 29.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2161
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 18.06.2023 to 19.06.2023
Mines Status	: Non-Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 07.07.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

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

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Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2023/2830	Report Release Date	: 29.07.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: FC883923000001695F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2162
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 18.06.2023 to 19.06.2023
Mines Status	: Non Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 07.07.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

## 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	50	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	5.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	19.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



\*\*\*\*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/2023/2830	Report Release Date : 29.07.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2162
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 18.06.2023 to 19.06.2023
Mines Status	: Non Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 07.07.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

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



# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No.	: ELES/RNC/2023/2823	Report Release Date	: 29.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001688F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2155
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bunglapart Village Pakher Bauxite Mine
		Sampling Date	: 17.06.2023 to 18.06.2023
Mines Status	: Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 06.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMP/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 739
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	62	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	7.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	18.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	<0.002	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\*\*\*\*

*Deependra Kumar Sinha*  
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## TEST REPORT

Test Report No. : ELES/RNC/2023/2823	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/2155
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bunglapart Village Pakhar Bauxite Mine
		Sampling Date	: 17.06.2023 to 18.06.2023
Mines Status	: Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 06.07.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

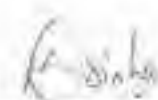
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

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

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# ENVIRONMENTAL LABORATORIES &

Plot No-36, Mansarovar Enclave, Tupudana  
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Phone no.: 0651-2290103  
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## TEST REPORT

Test Report No. : ELES/RNC/2023/2824	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001689F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/2156	Location : Yatri Shed (Near K-10) Pakhar Bauxite Mine
Mines Status : Operational	Period of Analysis : 26.06.2023 to 06.07.2023	Sampling Date : 18.06.2023 to 19.06.2023	Sample Received Date : 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)	: 739
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	31	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	8.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	16.8	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	0.005	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

*(Signature)*  
**Authorised Signatory**  
**Jr. Deependra Kumar Sinha**  
 Ph. D. Environmental Engg.  
 ELES Pvt. Ltd. Ranchi, Jharkhand

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# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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## TEST REPORT

Test Report No. : ELES/RNC/2023/2824	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/2156
Address	: Lohardaga, Jharkhand-835302	Location	: Yatri Shed (Near K-10) Pakhar Bauxite Mine.
		Sampling Date	: 18.06.2023 to 19.06.2023
Mines Status	: Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 06.07.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 739
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;RA:2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m <sup>3</sup>	IS:5182 (Part-12): 2004;RA:2019	<0.5	01(Annual)

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



\*\*\*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 &

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## TEST REPORT

Test Report No. : ELES/RNC/2023/2825	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001690F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2157
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
		Sampling Date	: 17.06.2023 to 18.06.2023
Mines Status	: Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 06.07.2023	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)	: 32	2	Barometric Pressure (mmHg)	: 739
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	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	6.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	12.6	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\*\*\*\*

*R. Sinha*  
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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FLOT NO-31, MAYASAROVAR ENCLAVE, TUPUDANA  
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CIN: U74309JH2016PP0051122A

## TEST REPORT

Test Report No. : ELES/RNC/2023/2825	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/2157
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
		Sampling Date	: 17.06.2023 to 18.06.2023
Mines Status	: Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 06.07.2023	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)	: 32	2	Barometric Pressure (mmHg)	: 739
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\*\*\*

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

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# ENVIRONMENTAL LABORATORIES &

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

Test Report No.	: ELES/RNC/2023/2826	Report Release Date	: 29.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001691F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2158
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
		Sampling Date	: 18.06.2023 to 19.06.2023
Mines Status	: Operational	Sample Received Date	: 26.06.2023
Period of Analysis	: 26.06.2023 to 06.07.2023	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)	: 33	2	Barometric Pressure (mmHg)	: 739
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	57	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	7.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	10.5	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\*\*\*\*

*Dr. Deependra Kumar Sinha*  
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  
MAFIA, RANCHI-834003 (JHARKHAND)  
GET NO. 2044EC97110124

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## TEST REPORT

Test Report No. : ELES/RNC/2023/2826	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/2158
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
Mines Status	: Operational	Sampling Date	: 18.06.2023 to 19.06.2023
Period of Analysis	: 25.06.2023 to 06.07.2023	Sample Received Date	: 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)	: 739
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\*\*\*\*

Authorized Signatory  
.. Deependra Kumar Sinha  
Pri. 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/2023/2954	Report Release Date	: 08.08.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: TC883923000001801F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2625
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.07.2023 to 22.07.2023
Mines Status	: Non Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 03.08.2023	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)	: 27	2	Barometric Pressure (mmHg)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

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	23	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	20.4	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	0.005	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

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

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

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

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2954	Report Release Date : 08.08.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No	: ELES/RNC/2023/AA/2625
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.07.2023 to 22.07.2023
Mines Status	: Non Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 03.08.2023	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)	: 27	2	Barometric Pressure (mmHg)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

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. Deependra Singh  
Authorized Signatory  
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/2023/2955	Report Release Date : 08.08.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2626
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.07.2023 to 22.07.2023
Mines Status	: Non Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 03.08.2023	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)	: 27	2	Barometric Pressure (mmHg)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

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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TC-8639

## TEST REPORT

Test Report No.	: ELES/RNC/2023/2956	Report Release Date	: 08.08.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: TC883923000001803F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2627
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.07.2023 to 22.07.2023
Mines Status	: Non Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 03.08.2023	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)	: 27	2	Barometric Pressure (mmHg)	: 737
3	Relative Humidity (%)	: 63	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

## 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	51	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	7.1	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	0.009	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)



Authorised Signatory

Dr. Deependra Kumar Sinha

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

Page 1 of 1

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

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# ENVIRONMENTAL LABORATORIES &

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

CIN: U74999JM2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2956	Report Release Date : 08.08.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Minerals & Minerals Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/2627	Location : Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
Mines Status : Non Operational	Period of Analysis : 25.07.2023 to 03.08.2023	Sampling Date : 21.07.2023 to 22.07.2023	Sample Received Date : 25.07.2023
		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 (mm Hg)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

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/2023/2957	Report Release Date : 08.08.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000001804F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Minerals & Minerals Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/2628	Location : Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
Mines Status : Non Operational	Period of Analysis : 25.07.2023 to 03.08.2023	Sampling Date : 21.07.2023 to 22.07.2023	Sample Received Date : 25.07.2023
		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) : 737
3	Relative Humidity (%) : 65	4	Weather Condition : Partly Cloudy
5	Longitude : 84°36'8.99"E	6	Latitude : 23°32'13.12"N

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	46	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	23	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	5.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	15.4	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/SOP01	<2.0	06 (Annual)



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

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

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CIN: U74999JH2018PT0011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2957	Report Release Date : 08.08.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2628
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 21.07.2023 to 22.07.2023
Mines Status	: Non Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 03.08.2023	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)	: 27	2	Barometric Pressure (mmHg)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

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

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# ENVIRONMENTAL LABORATORIES &

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PH: 07499910030/01101123

## TEST REPORT

Test Report No. : ELES/RNC/2023/2950	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923006001797F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/2621	Location : Near Bungalow Village Pakhar Bauxite Mine
Mines Status : Operational	Period of Analysis : 25.07.2023 to 02.08.2023	Sampling Date : 20.07.2023 to 21.07.2023	Sample Received Date : 25.07.2023
		Type of Sample : Ambient Air	Sampling Procedure : ELES/DOC/SAMPL-02
		Sample Drawn By : ELES Pvt. Ltd.	Sample Condition : Sealed & Preserved

METEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 28	2	Barometric Pressure (mmHg) : 738
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	52	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	37	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	6.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	15.9	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\*\*\*\*

Authorised Signatory

Dr. Deependra Kumar Sinha

Environmental Engineer

ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

**ENGINEERING SERVICES PVT. LTD.**

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CIN: U74999RJ2019PT0021122

## TEST REPORT

Test Report No.	: ELES/RNC/2023/2950	Report Release Date	: 08.08.2023
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/2621
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bungalapan Village Pakhar Bauxite Mine
		Sampling Date	: 20.07.2023 to 21.07.2023
Mines Status	: Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 02.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SAMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 28	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

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

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



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

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

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## TEST REPORT

Test Report No. : ELES/RNC/2023/2951	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000801798F	

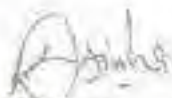
CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2622
Address	: Lohardaga, Jharkhand-835302	Location	: Yatri Shed (Near K-10) Pakhar Bauxite Mine
		Sampling Date	: 21.07.2023 to 22.07.2023
Mines Status	: Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 02.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPU02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION			
1. Average Temperature (°C)	: 27	2. Barometric Pressure (mmHg)	: 737
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)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	51	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-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	15.2	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	3 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

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

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IN - 0739904211890011123

## TEST REPORT

Test Report No. : ELES/RNC/2023/2951	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/2622
Address	: Lohardaga, Jharkhand-835302	Location	: Yatri Shed (Near B-10) Pakhar Bauxite Mine
Mines Status	: Operational	Sampling Date	: 21.07.2023 to 22.07.2023
Period of Analysis	: 25.07.2023 to 02.08.2023	Sample Received Date	: 25.07.2023
		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)	: 737
3	Relative Humidity (%)	: 65	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\*\*\*

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

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## TEST REPORT

Test Report No. : ELES/RNC/2023/2952	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
U.I.R No. : TC883923000001799F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : (ohardaga, Jharkhand-835302)	Sample Ref. No. : ELES/RNC/2023/AA/2623	Location : Near Utikarmoli Rajkiya Prathmik Vidyalaya Bungalpart Village Pakhar Bauxite Mine
Mines Status : Operational	Period of Analysis : 25.07.2023 to 02.08.2023	Sampling Date : 20.07.2023 to 21.07.2023	Sample Received Date : 25.07.2023
		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) : 28	2	Barometric Pressure (mmHg) : 738
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	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	5.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	15.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	<0.002	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 Sinha  
PR. O. B. Wansakar Singh  
ELES Pvt. Ltd. Technical Manager

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### TEST REPORT

Test Report No. : ELES/RNC/2023/2952	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/3623	Location : Near Utkarmit Rajkiya Prathamik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
Mines Status : Operational	Period of Analysis : 25.07.2023 to 02.08.2023	Sampling Date : 20.07.2023 to 21.07.2023	Sample Received Date : 25.07.2023
		Type of Sample : Ambient Air	Sampling Procedure : ELES/DOC/SMP/02
		Sample Drawn By : ELES Pvt. Ltd.	Sample Condition : Sealed & Preserved

METEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 28	2	Barometric Pressure (mmHg) : 738
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\*\*\*

*Asihs*  
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/2023/2953	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001800F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2624
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarsh Rajkya Prathmik Vidyalaya Dumrapari Village Pakhar Bauxite Mine
		Sampling Date	: 21.07.2023 to 22.07.2023
Mines Status	: Operational	Sample Received Date	: 25.07.2023
Period of Analysis	: 25.07.2023 to 02.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMP/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 737
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)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	51	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	8.8	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)



*R. Sinha*  
Authorized Signatory

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

Dr. Dipankar Kumar Sinha

Page 1 of 1

Ph. D. Environmental Engg.

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CIN: U74999JH2019PT0011125

# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO.: 20AAACE9713D124

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

## TEST REPORT

Test Report No. : ELES/RNC/2023/2933	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/2624
Address	: Lohardaga, Jharkhand-835303	Location	: Near Utkarshi Rajkiya Prathmik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
Mines Status	: Operational	Sampling Date	: 21.07.2023 to 22.07.2023
Period of Analysis	: 25.07.2023 to 02.08.2023	Sample Received Date	: 25.07.2023
		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)	: 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*	pg/m <sup>3</sup>	IS-5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



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

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

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# ENVIRONMENTAL LABORATORIES &

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



CIN: U74999JH2018RYCO11125

## TEST REPORT

Test Report No. : ELES/RNC/2023/3397	Report Release Date : 09.09.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000002165F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3021
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 19.08.2023 to 20.08.2023
Mines Status	: Non Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	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 (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

## 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	43	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	21	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	5.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	17.6	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	0.008	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

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

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CIN: U74999HR2018PTC011125

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

Test Report No. : ELES/RNC/2023/3397	Report Release Date : 09.09.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3021
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 19.08.2023 to 20.08.2023
Mines Status	: Non Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	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 (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

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/2023/3398	Report Release Date : 09.09.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000002166F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Minerals & Minerals Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/3022	Location : Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
Mines Status : Non Operational	Period of Analysis : 26.08.2023 to 08.09.2023	Sampling Date : 19.08.2023 to 20.08.2023	Sample Received Date : 26.08.2023
		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 (%) : 65	4	Weather Condition : Partly Cloudy
5	Longitude : 84°36'34.50"E	6	Latitude : 23°32'26.21"N

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	28	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	19.2	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<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)



Reviewed by

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

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

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/3398	Report Release Date : 09.09.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3022
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 19.08.2023 to 20.08.2023
Mines Status	: Non Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	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 (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

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/2023/3399	Report Release Date : 09.09.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000002167F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Minerals & Minerals Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2023/AA/3023	Location : Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
Mines Status : Non Operational	Period of Analysis : 26.08.2023 to 08.09.2023	Sampling Date : 19.08.2023 to 20.08.2023	Sample Received Date : 26.08.2023
		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 (%) : 65	4	Weather Condition : Partly Cloudy
5	Longitude : 84°36'6.67"E	6	Latitude : 23°32'9.19"N

## 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	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	8.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	14.2	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	0.009	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. Deependra Kumar Sinha*  
**Authorised Signatory**  
Dr. Deependra Kumar Sinha  
ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2023/3399	Report Release Date	: 09.09.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3023
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 19.08.2023 to 20.08.2023
Mines Status	: Non Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	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 (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

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, TUPIDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAEECE97130124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com  
Phone no.: 0651-2290103  
Website : www.elespl.co.in



CIN: U74999JH2018PTC0011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/3400	Report Release Date : 09.09.2023
Work Order No: : M&M/23-24/01	Work Order Date : 31.03.2023
ULR No. : TC883923000002168F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3024
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 19.08.2023 to 20.08.2023
Mines Status	: Non Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	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 (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

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	20	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	5.5	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)



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

Dr. Deependra Kumar Singh  
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  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAECE97130124

ENGINEERING SERVICES PVT. LTD.

Email: [info@elespl.co.in](mailto:info@elespl.co.in), [eles.ranchi@gmail.com](mailto:eles.ranchi@gmail.com)  
Phone no.: 0651-2290103  
Website : [www.elespl.co.in](http://www.elespl.co.in)

CIN: U74399JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2023/3400	Report Release Date	: 09.09.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3024
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 19.08.2023 to 20.08.2023
Mines Status	: Non Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	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 (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

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 PVT. LTD.

Plot No. 11, Sector 10, Gurgaon, Haryana  
GATEWAY TO THE NORTH  
SO. NO. 104/10/2011/11/11

Plot No. 11, Sector 10, Gurgaon, Haryana  
GATEWAY TO THE NORTH  
SO. NO. 104/10/2011/11/11



## TEST REPORT

Test Report No. : ELES/RNC/2023/3465	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002173F	


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3029
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bunglapan Village Pakhar Bauxite Mine
		Sampling Date	: 18.08.2023 to 19.08.2023
Mines Status	: Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	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)	: 736
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	48	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	25	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	5.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	14.2	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\*\*\*\*

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

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

Environmental Laboratories & Environmental Services Pvt. Ltd.  
 C-75, Sector-10, Gurgaon-122001  
 Gurgaon, Haryana

Environmental Laboratories & Environmental Services Pvt. Ltd.  
 Phone No.: 09860220610/05  
 Website: www.elses.com

## TEST REPORT

Test Report No. : ELES/RNC/2023/3405	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/3029
Address	: Lohardaga, Jharkhand-835302	Location	: Near Sunglapart Village Pakhar Bauxite Mine
Mines Status	: Operational	Sampling Date	: 18.08.2023 to 19.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	Sample Received Date	: 26.08.2023
		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)	: 26	2	Barometric Pressure (mmHg)	: 736
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\*\*\*

*(Signature)*  
**Authorised Signatory**  
 Of Quality and Compliance  
 P. O. Environmental, Esgg  
 ELES Pvt. Ltd. Technical Manager



# ENVIRONMENTAL LABORATORY

Plot No. 2, Sector 14, Phase 1, Gurgaon, Haryana  
GATEWAY TO GURGAON  
GATEWAY TO GURGAON

Phone: 0129-4151111, 0129-4151112  
Phone No.: 98962 20020  
Website: www.environmentallab.com



## TEST REPORT

Test Report No. : ELES/RNC/2023/3406	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002174F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3030
Address	: Lohardaga, Jharkhand-835302	Location	: Yatri-Shed (Near K-10) Pakhar Bauxite Mine
		Sampling Date	: 19.08.2023 to 20.08.2023
Mines Status	: Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	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)	: 24	2	Barometric Pressure (mmHg)	: 735
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	47	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	23	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	18.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	<0.002	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. Deepshikha Kumar Sinha  
Ph. D. Environmental Engg.  
ELES Pvt. Ltd. Gurgaon, Haryana

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES

Corporate Office: 10/10, Sector-10, Gurgaon, Haryana  
Branch Office: 10/10, Sector-10, Gurgaon, Haryana  
Phone: 01299-421122

Branch Office: 10/10, Sector-10, Gurgaon, Haryana  
Phone: 01299-421122  
Email: info@eles.com

## TEST REPORT

Test Report No. : ELES/RNC/2023/3406	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	Address : Lehardaga, Jharkhand-835302	Mines Status : Operational	Period of Analysis : 26.08.2023 to 08.09.2023
Sample Ref. No. : ELES/RNC/2023/AA/3030	Location : Yatri Shed (Near K-10) Pakhar Bauxite Mine	Sampling Date : 19.08.2023 to 20.08.2023	Sample Received Date : 26.08.2023
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)	: 735
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\*\*\*\*

*[Signature]*  
**Authorised Signatory**  
Dr. Geopandra Kumar Saha  
Ph. D. Environmental Engg  
ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL LABORATORY

Environmental Laboratory Pvt. Ltd.  
B-10, Sector-10, Gurgaon-122001  
Haryana, India

Environmental Laboratory Pvt. Ltd.  
B-10, Sector-10, Gurgaon-122001  
Haryana, India



## TEST REPORT

Test Report No. : ELES/RNC/2023/3407	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002175F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3031
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Bunglapani Village Pakhar Bauxite Mine
		Sampling Date	: 18.08.2023 to 19.08.2023
Mines Status	: Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SAMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 736
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)	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	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	13.6	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/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 Siroha*  
**Authorised Signatory**  
Dr. Deependra Kumar Siroha  
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES

Unit 1, Industrial Estate, Sector 10, Gurgaon, Haryana  
Gurgaon, Haryana - 122002

Sample Ref. No. : ELES/RNC/2023/AA/3031  
Work Order No. : 13612310218  
Date of Analysis : 26.08.2023 to 08.09.2023

## TEST REPORT

Test Report No. : ELES/RNC/2023/3407	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/3031
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Banglapart Village Pakhar Bauxite Mine
		Sampling Date	: 18.08.2023 to 19.08.2023
Mines Status	: Operational	Sample Received Date	: 26.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 736
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\*\*\*

*(Signature)*  
**Authorised Signatory**  
 Dr. Deepankar Kumar Sinha  
 Ph. E. Officer (Environment)  
 ELES Pvt. Ltd. Technical Manager

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## TEST REPORT

Test Report No. : ELES/RNC/2023/3408	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002176F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3032
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya-Dumrapan Village Pakhar Bauxite Mine
Mines Status	: Operational	Sampling Date	: 19.08.2023 to 20.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	Sample Received Date	: 26.08.2023
		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)	: 735
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	46	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	5.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2021	9.2	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	<0.002	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\*\*\*

*Deendra Kumar Singh*  
**Authorised Signatory**  
Dr. Deendra Kumar Singh  
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORY

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## TEST REPORT

Test Report No. : ELES/RNC/2023/3408	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/3032
Address	: Lolardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Dumrapart Village- Pakhar Bauxite Mine
Mines Status	: Operational	Sampling Date	: 19.08.2023 to 20.08.2023
Period of Analysis	: 26.08.2023 to 08.09.2023	Sample Received Date	: 26.08.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPLE/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 735
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**  
 Sr. Manager, Quality Control  
 P.O. Environmental Group  
 ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PTC011125

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ENGINEERING SERVICES PVT. LTD.

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

Test Report No. : ELES/RAN/2023/1733	Report Release Date : 10.09.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RAN/2023/DW/1620
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 15.08.2023
		Sample Received Date	: 28.08.2023
Mines Status	: Non Operational	Type of Sample	: Drinking Water
Period of Analysis	: 28.08.2023 to 09.09.2023	Source/Location of Sample	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		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>	6.84	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 <sup>rd</sup> Ed.2017, 2130 B	0.28	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	364	500	2000
Chloride (as Cl)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 Cl B	54.8	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	130	200	600
Total Hardness (as CaCO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2340 C	148	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	20.2	200	400
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 NO <sub>3</sub> -B	1.48	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

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"Save Environment, Save Future"



# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RAN/2023/1733	Report Release Date : 10.09.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

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	34.2	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	0.248	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.



CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No.	: ELES/RAN/2023/1733	Report Release Date	: 10.09.2023
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023

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

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CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RAN/2023/1733	Report Release Date : 10.09.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

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



# ENVIRONMENTAL LABORATORIES &

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CIN: U74993RJ2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4005	Report Release Date : 28.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3422
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 15.09.2023 to 16.09.2023
Mines Status	: Non Operational	Sample Received Date	: 29.09.2023
Period of Analysis	: 29.09.2023 to 10.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	40	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	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	16.5	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	0.006	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)

Page 1 of 2

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CIN: U74993JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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

Test Report No. : ELES/RNC/2023/4005	Report Release Date : 28.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

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.

  
Reviewed by

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

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





# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4006	Report Release Date : 28.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3423
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 15.09.2023 to 16.09.2023
Mines Status	: Non Operational	Sample Received Date	: 29.09.2023
Period of Analysis	: 29.09.2023 to 10.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	64	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	37	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	22.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.010	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)

Page 1 of 2

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**"Save Environment, Save Future"**



# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2015PTC031125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4006	Report Release Date : 28.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

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



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## TEST REPORT

Test Report No. : ELES/RNC/2023/4007	Report Release Date : 28.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3424
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 15.09.2023 to 16.09.2023
Mines Status	: Non Operational	Sample Received Date	: 29.09.2023
Period of Analysis	: 29.09.2023 to 10.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	49	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	7.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	17.5	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	0.006	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

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## TEST REPORT

Test Report No. : ELES/RNC/2023/4007	Report Release Date : 28.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

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

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



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

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



# ENVIRONMENTAL LABORATORIES &

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CIN: U72905UP2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4008	Report Release Date : 28.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3425
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
		Sampling Date	: 15.09.2023 to 16.09.2023
Mines Status	: Non Operational	Sample Received Date	: 29.09.2023
Period of Analysis	: 29.09.2023 to 10.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	47	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	5.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	19.2	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.008	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)

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CIN: U74599JH2016PT001125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4008	Report Release Date : 28.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

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



### TEST REPORT

Test Report No. : ELES/RNC/2023/4013	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/3430
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bunglapart Village Pakhar Bauxite Mine
		Sampling Date	: 14.09.2023 to 15.09.2023
Mines Status	: Operational	Sample Received Date	: 29.09.2023
Period of Analysis	: 29.09.2023 to 10.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 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	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	15.1	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)



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CIN: U71999JH01BPT011129

## TEST REPORT


Test Report No. : ELES/RNC/2023/4013	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>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: (<sup>a</sup>)-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 &

ENGINEERING SERVICES PVT. LTD.

PLOT NO-30, MANSARDVAR ENCLAVE, TURUDANA  
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## TEST REPORT

Test Report No. : ELES/RNC/2023/4014	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/3431
Address	: Lohardaga, Jharkhand-835302	Location	: Yatri Shed (Near K-10) Pakhar Bauxite Mine
		Sampling Date	: 14.09.2023 to 15.09.2023
Mines Status	: Operational	Sample Received Date	: 29.09.2023
Period of Analysis	: 29.09.2023 to 10.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	43	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	5.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	17.5	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)



CIN: U74999JH29167TC011125

**ENVIRONMENTAL LABORATORIES &****ENGINEERING SERVICES PVT. LTD.**PLOT NO-30, MANSAROVAR ENCLAVE, TURUDANA  
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Test Report No. : ELES/RNC/2023/4014	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

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

Page 2 of 2

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**Save Environment - Save Future!**



# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RNC/2023/4015	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/3452
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
Mines Status	: Operational	Sampling Date	: 15.09.2023 to 16.09.2023
Period of Analysis	: 29.09.2023 to 10.10.2023	Sample Received Date	: 29.09.2023
		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)	: 24	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 68	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	35	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	16	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	15.9	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)

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# ENVIRONMENTAL LABORATORIES &

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GRI: U74999JH2018PT001123

## TEST REPORT

Test Report No. : ELES/RNC/2023/4015	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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CIN: U74999JH3018970011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4016	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/3433
Address	: Lohardaga, Jharkhand-835302	Location	: Near Utkarmit Rajkiya Prathamik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
		Sampling Date	: 15.09.2023 to 16.09.2023
Mines Status	: Operational	Sample Received Date	: 29.09.2023
Period of Analysis	: 29.09.2023 to 10.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 68	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	41	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	17	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	7.3	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	30 (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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CIN: U74999JH02877001225

## TEST REPORT

Test Report No. : ELES/RNC/2023/4016	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**  
 Dr. Deependra Kumar Sinha  
 Ph. D. Environmental Engg.  
 ELES Pvt. Ltd. Technical Manager

Page 2 of 2

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# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RNC/2023/4147	Report Release Date : 31.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Minerals & Minerals Limited	Address : Lohardaga, Jharkhand-835302	Mines Status : Non Operational	Period of Analysis : 30.09.2023 to 10.10.2023
Sampling Date : 15.09.2023 to 16.09.2023	Sampling Received Date : 30.09.2023	Type of Sample : Ambient Noise	Sampling procedure : ELES/DOC/SMPL/03
Sample Drawn By : ELES Pvt. Ltd.			

METEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 24	2	Barometric Pressure (mmHg) : 736
3	Relative Humidity (%) : 68	4	Weather Condition : Cloudy

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	Leq	
Near Mine Office Pakhar Bauxite Mine (15.58 ha)	dB(A)	IS 9989:1981, RA 2020	Day Time	63	75 dB(A) Day Time & 70 dB(A) Night Time
			Night Time	50	
Sample ID: ELES/RNC/2023/AN/3539					



Reviewed by

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

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



# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No. : ELES/RNC/2023/4168	Report Release Date : 31.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sampling Date	: 15.09.2023
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 30.09.2023
		Type of Sample	: Workzone Noise
Mines Status	: Non 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)	: 27	2 Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 64	4 Weather Condition	: Partly Cloudy

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	Leq	
Near Weigh Bridge – Pakhar Bauxite Mine (15.58 ha)	dB(A)	IS 4758:1968; RA 2017			90 dB (A)
Sample ID: ELES/RNC/2023/WN/3560			Day Time	75	



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

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





# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4111	Report Release Date : 31.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/SW/3503
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 15.09.2023
		Sample Received Date	: 29.09.2023
Mines Status	: Non Operational	Type of Sample	: Surface Water
		Source of Sample	: Spring Water
Period of Analysis	: 29.09.2023 to 17.10.2023	Location of Sample	: Pakhar Bauxite Mine (15.58 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 24.8 °C)	-	IS 3025 (Part 11) : 2022	6.66	6.5-8.5
Colour	Hazen	IS 3025 (Part -4) : 2021	3.0	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	0.44	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	158	1500
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	IS 3025 (Part-23) :1986; RA2019	55	--
Total Hardness (as CaCO <sub>3</sub> )	mg/L	IS 3025 (Part-21) : 2009; RA2019	75	--
Sulphate (as SO <sub>4</sub> )	mg/L	IS 3025 (Part 24) : 1986; RA2019	5.0	400
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 NO <sub>3</sub> -B	BDL (DL: 0.5)	50
Chloride (as Cl)	mg/L	IS 3025 (Part-32):1988; RA2019	12.3	600
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	BDL (DL: 0.1)	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

Page 1 of 3

The Document stated as Test Report, is issued by the Laboratory under General Terms and Conditions, only on Company letter head in pre-approved format. The results shown in the Test Report refer or relates only to the job/analysis done by the Laboratory only. The information stated on the Test Report reflects the findings done by the Laboratory at the time of involvement only and within the limits of client's instructions. The Laboratory is responsible for all the information or data provided on the report, except the information which is provided by the client. The Report cannot be reproduced except in full and any part of the report is not taken out of context, without prior written approval of the Laboratory. The Report in full or in part shall not be published, advertise, used for any legal actions unless prior permission has been secured from the Management of the Laboratory. Attention is drawn to the limitation of liability, compensation and jurisdiction issues. Any unauthorized alteration & falsification of the content or appearance of the Test Report is unlawful and offenders may be prosecuted to the fullest extent of the law. All the samples are retained for 30days from the Date of release/issue of the Test Report. The samples from Regulatory bodies are to be retained as specified. Any type of Observations or Complaints regarding the Reports shall be done within 15days from the Date of Test Report released/issued. After the time period stated before, no complaints will be accepted. The entire Time schedule mentioned in Test Report is in 24hours format. Abbreviation used: N/A (Not Applicable); BDL (Below Detection Limit); LDL (Lower Detection Limit).

"Save Environment, Save Future"



# ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles.ranchi@gmail.com

Phone no.: 0651-2290103

Website: www.elespl.co.in

## TEST REPORT

Test Report No. : ELES/RNC/2023/4111	Report Release Date : 31.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

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	20	—
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	APHA23 <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	0.283	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	2.90×10 <sup>3</sup>	5000
Escherichia Coli	CFU/100 ml.	IS 15185:2016; RA2021	6.36×10 <sup>2</sup>	—

Remarks: 1. pH & RFC done at Lab.



# ENVIRONMENTAL LABORATORIES &

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

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Email: [info@elespl.co.in](mailto:info@elespl.co.in) , [eles.ranchi@gmail.com](mailto:eles.ranchi@gmail.com)

Phone no.: 0651-2290103

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

## TEST REPORT

Test Report No. : ELES/RNC/2023/4111	Report Release Date : 31.10.2023
Work Order No. : M&M/23-24/01	Work Order Date : 31.03.2023

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\*\*\*\*

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

Page 3 of 3

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"Save Environment, Save Future"

# MINERALS & MINERALS LIMITED

Regd. Office- Court Road, P.O. & Distt.-Lohardaga, Jharkhand-835302

Tel.-06526-223163

CIN NO. U26990JH1970PLC000875

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Ref. :

Date .....

Annexure 3

Date – 28.10.2023

## Office Order

Environmental Cell has been re-constituted at Pakhar Bauxite Mine (Area 15.58 ha) comprising below mentioned team members. The team will ensure compliance of Environment Act, Regulation & Rule in respect of the said mines of Minerals & Minerals Limited.

1. Mr. Deepak Kumar Jha (Coordinator)
2. Mr. Sayantan Das (Geologist)
3. Ms. Abhilasha Singh– Environment Engineer
4. Mr. Anand Prakash Tiwari – Environment Engineer

The Undersigned is the in charge of above Environment Management Cell constituted for the purpose of ensuring compliances of environmental act rule and regulation for the above mine.

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



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

## Annexure-5

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

The composite cost during the year 2023-24 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely 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.

Basudev Gangopadhyay  
AVP (Planning, Environment & Compliance)

Registered Parcel



**GOVERNMENT OF INDIA  
MINISTRY OF MINES  
INDIAN BUREAU OF MINES  
OFFICE OF THE REGIONAL CONTROLLER OF MINES**

Telephone: (0651) 2242889  
(0651) 2242903  
Fax: (0651) 2242903  
E-mail: ro.ranchi@ibm.gov.in

No.: RAN/LOH/BX/FMCP-03/2014-15

318-B, Road No.- 3,  
Ashok Nagar,  
Ranchi – 834 002,  
Date: 15/05/2015

To:  **Shri A. K. Agarwal,**  
Director cum Nominated Owner  
M/s HINDALCO Industries Ltd.,  
Court Road, Lohardaga - 835 302 (Jharkhand).

**Sub: Approval of Final Mine Closure Plan in respect of PAKHAR Bauxite Mines of M/s HINDALCO Industries Ltd. over an area of 8.09 hectares in village-Pakhar, Lohardaga district of Jharkhand State submitted under Rule 23C of MCDR, 1988.**

Ref : Your A.G.M. (Geology) letters no.(1)HIL/LHD/BX/IBM/926(I) Dated 25/09/2014  
(2)HIL/LHD/BX/IBM/ Dated 06/04/2015

This office letter no. रांची/लोहरदगा/बाक्साइट/एफ.एम.सी पी.-03/2014-15,दिनांक:13/03/2015

Sir,

In exercise of the powers conferred by the sub-rule 2 of Rule 23C of Mineral Conservation & Development Rules, 1988; I hereby **approve** the above said Final Mine Closure Plan in respect of PAKHAR Bauxite mines of M/s HINDALCO Industries Ltd. over an area of 8.09 hectares in village-Pakhar, Lohardaga district of Jharkhand State, submitted under Rule 23C of MCDR, 1988. This approval is subject to the following conditions: -

- (i) that the Final Mine Closure Plan is approved without prejudice to any other laws applicable to the mine/lease area from time to time whether made by the Central Government, State Government or any other Authority.
- (ii) that this approval of the Final Mine Closure Plan does not, in any way, imply the approval of the Government in terms of any other provisions of the Mines & Minerals (Development & Regulation) Act, 1957 or the Mineral Concession Rules, 1960 and any other laws including Forest (Conservation) Act, 1980, Environment (Protection) Act, 1986 and the rules made there under.
- (iii) that the Final Mine Closure Plan is approved without prejudice to any order or direction from any court of competent jurisdiction.
- (iv) that the Regional Office, Indian Bureau of Mines, Ranchi shall be informed after completion of activities of final mine closure as per proposal of the Final Mine Closure Plan.
- (v) that the Yearly report as required under Rule 23E(2) of MCDR, 1988 setting forth the extent of protection and rehabilitation works carried out as envisaged in the approved final mine closure plan and if there is any deviations, reasons thereof shall be submitted before 1<sup>st</sup> July of every year to the Regional office, Indian Bureau of Mines, Ranchi.

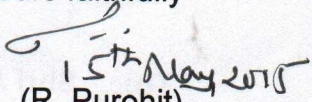
Contd...2

**No.: RAN/LOH/BX/FMCP-03/2014-15.**

- (iv) The financial assurance submitted for Rs.2,00,000/- (Two lacs only) is valid up to 31/03/2017. A new bank guarantee is to be submitted on or before its expiry i.e. 31/03/2017, if the rehabilitation proposal not completed by the time.

Encl.: One copy of approved  
Final Mine Closure Plan.

Yours faithfully

  
(R. Purohit)

Regional Controller of Mines

Copy forwarded for information to: -

1. **The Director (Mines),**  
Directorate of Mines and Geology,  
Government of Jharkhand,  
Nepal House Area, Doranda,  
Ranchi - 834 002. (Jharkhand), along with a copy of approved Final Mine Closure Plan. **It is requested to ensure that the determination of aforesaid lease is not accepted unless and until a certificate issued by the Indian Bureau of Mines under Rule 29A (2) of Mineral Concession Rules, 1960 to the effect that protective, reclamation and rehabilitative works as envisaged in the approved Final Mine Closure Plan are carried out.**
2. **The Director of Mines Safety**  
Ranchi Region  
CMPDIL-Campus  
3<sup>rd</sup> Floor, Old Building  
Kanke Road, Ranchi-834008  
along with a copy of approved Final Mine Closure Plan.
3. **Shri B.K.Mahapatra, RQP,**  
HINDALCO Industries Ltd.  
Court Road  
LOHARDAGA - 835 302.

  
(R. Purohit)

Regional Controller of Mines