



HIL/LHD/ENV/MoEF/429

Date: 25.11.2023

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

**Sub:** Compliance Report of EC conditions for Orsa (196.36ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Latehar, Jharkhand for the period April'23 to September'23.

**Ref:** Environmental Clearance letter no J-11015/241/2006-IA II (M) dated 17<sup>th</sup> May 2007

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Orsa (196.36 ha)** Bauxite mining project of M/s Hindalco Industries Limited located in Latehar, Jharkhand for the period April'23 to September'23.

The lease details are below.

Lease area (ha)	Production Capacity (MT)	Lease Period
196.36	200000	17.07.1986 to 16.07.2036

Hope you will find the same in order.

Thanking You

Yours Sincerely  
FOR HINDALCO INDUSTRIES LIMITED

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

Enclosure: - As Above

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

Mines Division, Court Road, Lohardaga 835302, Jharkhand, India  
T: +91 6526 224112/224015/223113 | E: [hindalco@adityabirla.com](mailto:hindalco@adityabirla.com) | W: [www.hindalco.com](http://www.hindalco.com)  
Registered Office: Ahura Centre, 1st Floor, B Wing, Mahakali Caves Road, Andheri (East), Mumbai 400 093, India  
T: +91 22 6691 7000 | F: +91 22 6691 7001  
Corporate ID No.: L27020MH1958PLC011238

**Name of the Project** : Orsa Bauxite Mine (196.38 ha)  
M/s Hindalco Industries Ltd

**Environment Clearance No & date** : J-11015/241/2006-IA. II (M), dated 17.05.2007

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

**A. Specific Conditions**

**Condition 1- Environmental Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa foundation Vs Union of India in write petition (civil) no 460 of 2004, as may be applicable to this project.**

**Reply to Condition 1 -** Noted.

**Condition 2- Environmental Clearance is subject to obtaining clearance from Wildlife (Protection) Act '1972 from the competent authority.**

**Reply to Condition 2-** The Mine is not in operation since 20 April 2018 and this matter is subjudice.

**Condition 3- All the conditions stipulated by SPCB in their NOC shall be effectively implemented.**

**Reply to Condition 3-** Noted and agreed. The Mine is not in operation since 20 April 2018. Mine was operational for a very limited period of 4-5 months. As on date mine is not operational. Post resumption of mining operation compliance to the said conditions will be implemented.

**Condition 4- The environmental clearance is subject to approval of the state land use Department, Government of Jharkhand for diversion of agricultural land for non-agricultural use.**

**Reply to Condition 4-** The Mine is not in operation since 20 April 2018. Prior to this, Mine was operational for very limited period of 4-5 month.

**Condition 5- Mining shall not intersect groundwater. The mine working shall be restricted to above 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 to Condition 5-** Noted. Mine has not been in operation since 20 April 2018. Prior to this, Mine was operational for a very limited period of 4-5 months during which time it was also above

ground water level. Post resumption of mining operation compliance to the said conditions will be implemented. In future also, working zones will be restricted to above ground water tables.

We undertake that no mining was carried out below ground water table and the same status will be maintained in future also if any.

**Condition 6- The project proponent shall ensure that the mining shall be carried out in small blocks and at a given point of time active mining shall not be more than 2.0 ha.**

**Reply to Condition 6-** Noted. The Mine has not been in operation since 20 April 2018. Prior to this, Mine was operational for very limited period of 4-5 month.

As on date mine is not operational. Post resumption of mining operation compliance to the said conditions will be implemented.

**Condition 7- The project proponent shall ensure that no natural water course shall be obstructed due to any mining operations.**

**Reply to Condition 7-** Noted. The Mine has not been in operation since 20 April 2018. Prior to this, Mine was operational for a very limited period of 4-5 months and this condition was complied with. As on date mine is not operational. Post resumption of mining operation compliance to the said conditions will be implemented.

**Condition 8- Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas.**

**Reply to Condition 8-** Noted. The Mine has not been in operation since 20 April 2018. Prior to this, Mine was operational for very limited period of 4-5 month. As on date, mine is not operational and this condition was complied with. Post resumption of mining operation compliance to the said conditions will be implemented.

**Condition 9- The overburden generated during the initial year shall be kept as a temporary dump. Concurrent backfilling starts from the 2<sup>nd</sup> year onwards and there shall be no external dump at the end of the mine life.**

**Reply to Condition 9-** The Mine has not been in operation since 20 April 2018. Prior to this, Mine was operational for a very limited period of 4-5 months and this condition was complied with. As on date mine is not operational. Post resumption of mining operation compliance to the said conditions will be implemented.

**Condition 10- The entire excavated area of 155 ha shall be reclaimed, out of which 131 ha land shall be returned to raiyats for agricultural purposes and in 24 ha plantation shall be raised. 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 a six-month basis.**

**Reply to Condition 10-** The Mine has not been in operation since 20 April 2018. Prior to this, Mine was operational for very limited period of 4-5 month. Post resumption of mining operation compliance to the said conditions will be implemented.

**Condition 11- 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 to Condition 11-** The Mine is not in operation since 20 April 2018. Prior to this, Mine was operational for very limited period of 4-5 months.

As on date mine is not operational. Post resumption of mining operation compliance to the said conditions will be implemented.

**Condition 12- Dimension of the retaining wall at the OB benches within the mine to check run-off and siltation should be based on rainfall data.**

**Reply to Condition 12-** The Mine has not in operation since 20 April 2018. Prior to this, Mine was operational for very limited period of 4-5 months. As on date mine is not operational. Post resumption of mining operation compliance to the said conditions will be implemented.

**Condition 13- Plantation shall be raised in an area of 24.0 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 to Condition 13-** The Mine has not been in operation since 20 April 2018. A total of 0.13 ha has been planted till date. Prior to this, Mine was operational for very limited period of 4-5 month.

As of date mine is not operational. Post resumption of mining operation compliance to the said conditions will be implemented.

**Condition 14- The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board**

**Reply to Condition 14-** The Mine has not been in operation since 20 April 2018. Prior to this, Mine was operational for very limited period of 4-5 month. As on date mine is not operational. Post resumption of mining operation compliance to the said conditions will be implemented.

It may be noted that there is no chance to intersect ground water table during mining operation.

**Condition 15- Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year – pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF, Central Ground water Authority and Regional Director Central Ground Water Board.**



**Reply to Condition 15-** Mine has not been in operation since 24 April 2018. This condition was complied with and also will be complied with in future post resumption of mining work.

**Condition 16- Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.**

**Reply to Condition 16-** Noted. As on date, mine is not operational.

**Condition 17- 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 minerals. The vehicles should be covered with a tarpaulin and should not be overloaded.**

**Reply to Condition 17-** The Mine is not in operation since 20 April 2018. Mine was operational for a very limited period of 4-5 months and this condition was complied with. Post resumption of mining operation compliance to the said conditions will be implemented.

**Condition 18- Drills should either be operated with dust extractors or should be equipped with a water injection system.**

**Reply to Condition 18-** The Mine has not been in operation since 20 April 2018. Prior to this, Mine was operational for a very limited period of 4-5 months and this condition was complied with as on date mine is not operational. Post resumption of mining operation compliance to the said conditions will be implemented.

**Condition 19- 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 to Condition 19-** The Mine has not been in operation since 20 April 2018. Prior to this, Mine was operational for a very limited period of 4-5 months and this condition was complied with as on date mine is not operational. Post resumption of mining operation compliance to the said conditions will be implemented.

**Condition 20- Consent to operate should be obtained from SPCB prior to start of enhanced production from the mine.**

**Reply to Condition 20-** There is no proposal for enhancement of production. As on date, mine is not operational.

**Condition 21- Sewage treatment plant should be installed for the colony. ETP should also be provided for workshops and wastewater generated from mining operations.**

**Reply to Condition 21-** Noted. As on date, mine is not operational.

**Condition 22- The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna such as Leopard, Indian Wolf, Indian elephant, Indian small civet, 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. The 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. A copy of the action plan may be submitted to the Ministry and its Regional Office within 3 months.**

**Reply to Condition 22-** The Mine is not in operation since 20 April 2018. Prior to this, Mine was operational for very limited period of 4-5 month. Wildlife conservation plan has already been approved by PCCF, Ranchi. However, a fresh wildlife conservation plan has already been submitted to PCCF, Ranchi for its approval.

**Condition 23- 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 to Condition 23-** The Mine is not in operation since 20 April 2018. Prior to this, Mine was operational for a very limited period of 4-5 months and this condition was complied with as on date mine is not operational.

FMCP for entire lease will be prepared & submitted in due time as per applicable guidelines and timelines mentioned in MCDR/IBM guidelines who are competent authority to approve the same.

Based on the present resource estimate, and peak rated production capacity, mining operation will be done.

## **B. General Conditions**

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

**Reply to Condition 1- Noted**

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

**Reply to Condition 2-** The Mine is not in operation since 20 April 2018. Prior to this, Mine was operational for a very limited period of 4-5 months and this condition was complied with. As on date mine is not operational. Post resumption of mining operation compliance to the said conditions will be implemented.

**Condition 3- Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO<sub>2</sub>, NO<sub>X</sub> monitoring. Location of the stations should be decided based on the 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 to Condition 3-** We have already established four ambient air quality monitoring stations in the core zone as well as buffer zone. Monitoring is being carried out and reported to the concerned authorities. Report is attached as **Annexure 2**.

**Condition 4- 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 Bhubaneswar and the State Pollution Control Board / Central pollution Control Board once in six months.**

**Reply to Condition 4-** Monitoring Reports is attached as **Annexure-2**.

**Condition 5-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 to Condition 5-** The Mine is not in operation since 20 April 2018. Prior to this, Mine was operational for very limited period of 4-5 month and this condition was complied with. As on date mine is not operational. Post resumption of mining operation compliance to the said conditions will be implemented.

**Condition 6- 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 to Condition 6-** The Mine has not been in operation since 20 April 2018. Prior to this, Mine was operational for a very limited period of 4-5 months and this condition was complied with.

As of date mine is not operational. Post resumption of mining operation compliance to the said conditions will be implemented.

**Condition 7- Industrial wastewater (workshops and wastewater 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 to Condition 7-** There was no generation of wastewater from the mine as of now. Compliance with this condition will be adhered to as applicable. As of date, mine is not operational.

**Condition 8- Personnel working in dusty areas should wear protective respiratory devices and they should also provide with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.**

**Reply to Condition 8-** Mine has is not in operation since 20 April 2018. Prior to this, Mine was operational for a very limited period of 4-5 months and this condition was complied with. As on date mine is not operational. Post resumption of mining operation compliance to the said conditions will be implemented.

**Condition 9- A separate environmental management cell with suitable qualified personnel should be set up under the control of a Senior Executive, who will report directly to the Head of the Organization.**

**Reply to Condition 9-** A suitable environmental management cell has been developed with qualified personnel. Copy is enclosed as **Annexure- 3**.

**Condition 10-** The project authorities should inform the Regional Office located at Bhubneshwar regarding the date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.

**Reply to Condition 10-** Provisions related to financial closure not applicable. Now the Regional office is at Ranchi.

**Condition 11-** The funds earmarked for environmental protection measures should be kept in separate accounts and should not be diverted for other purposes. Year-wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.

**Reply to Condition 11-** Cost of Environmental protection measures are attached as Annexure-5. Now the Regional office is at Ranchi.

**Condition 12-** 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 to Condition 12-** Agreed. Now the Regional office is at Ranchi.

**Condition 13-** The project proponent shall submit six monthly report on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests its Regional Office, Bhubaneshwar CPCB and State Pollution Control Board.

**Reply to Condition 13-** Duly submitted. Now the Regional office is at Ranchi.

**Condition 14-** 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 to Condition 14-** Complied.

**Condition 15-** 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 to Condition 15-** Displayed.

**Condition 16-** 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 Bhubaneshwar.

**Reply to Condition 16-** Already done and copies submitted.

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

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

**Orsapat Bauxite Mine-Environmental Monitoring Report**

**April 2023**



## CONTENT

Hindalco Industries : Orsapat Bauxite Mine		Environmental Monitoring Report		April 2023	
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3	Orsa Village/Near New Mine office/Near Wagh Bridge				
4	Orsa Village/Northern Part of Orsa Lease				
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1	Kudag Village/ Near Hindalco Campus				
2	Jaljali Village/Near Shiv Temple Sabag Road				
3	Amtahi Village/Near Tailoring Centre				
4	Ambakona Village				







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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAECS7130124

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)



TC-8839

## TEST REPORT

Test Report No.	: ELES/RNC/2023/1980	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000941F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1407
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Near Mine Area Orsapat Bauxite Mine (196.36ha)
Plant Status	: Non Operational	Sampling Date	: 27.04.2023 to 28.04.2023
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 (%)	: 62	4	Weather Condition	: Clear

## NABL Accredited

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	63	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	19.3	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

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

Page 1 of 1

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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: U74999JH2018PTC021125

## TEST REPORT

Test Report No.	: ELES/RNC/2023/1980	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/1407
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Near Mine Area Orsapat Bauxite Mine (196.36ha)
		Sampling Date	: 27.04.2023 to 28.04.2023
Plant Status	: Non 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 (%)	: 62	4	Weather Condition	: Clear

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

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



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

  
 Authorized Signatory  
 Dr. Deepenora  
 Ph. D. Environmental Engg.  
 ELES Pvt. Ltd. Technical Manager

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPODANA  
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ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, eles\_ranchi@gmail.com  
Phone no.: 0651-2290103  
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ULR No.	: TC883923000000942F		

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Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	65	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	16.7	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

Authorized Signatory  
Dr. Deependra Kumar Sinha

Page 1 of 1

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

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# ENVIRONMENTAL LABORATORIES &

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

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: U74999JH2018PTC011123

## TEST REPORT

Test Report No. : ELES/RNC/2023/1981	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/1408
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Southern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
Plant Status	: Non Operational	Sampling Date	: 27.04.2023 to 28.04.2023
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 (%)	: 62	4	Weather Condition	: Clear

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

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



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

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

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSARVAR 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: U74999JH2018PTC011125

TC-4899

## TEST REPORT

Test Report No. : ELES/RNC/2023/1982	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000000943F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1409
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village -Near New Mine Office/Near Weigh Bridge; Orsapat Bauxite Mine (196.36ha)
Plant Status	: Non Operational	Sampling Date	: 27.04.2023 to 28.04.2023
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 (%)	: 62	4	Weather Condition	: Clear

## NABL Accredited

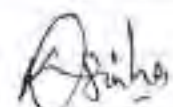
Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	73	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	44	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	8.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	21.7	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.014	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

  
Authorized Signatory  
Dr. Deependra Kumar Singh..

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

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# ENVIRONMENTAL LABORATORIES &

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

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: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/1982	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/1409
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village -Near New Mine Office/Near Weigh Bridge; Orsapat Bauxite Mine (196.36ha)
Plant Status	: Non Operational	Sampling Date	: 27.04.2023 to 28.04.2023
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

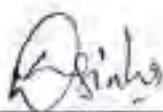
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

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

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



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

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

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:-20AAEECE97130124

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: U74999JK2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2023/1983	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000944F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1410
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Northern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
		Sampling Date	: 27.04.2023 to 28.04.2023
Plant Status	: Non 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 (%)	: 62	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	63	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	6.8	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)



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

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# ENVIRONMENTAL LABORATORIES &

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

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)

## TEST REPORT

Test Report No. : ELES/RNC/2023/1983	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/1410
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Northern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
		Sampling Date	: 27.04.2023 to 28.04.2023
Plant Status	: Non 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

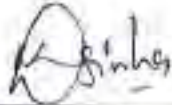
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

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

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



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

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# ENVIRONMENTAL LABORATORIES &

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

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: U74899JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/1984	Report Release Date : 12.06.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000000945F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1411
Address	: Lohardaga, Jharkhand-835302	Location	: Kudag Village / Near Hindalco Campus
		Sampling Date	: 28.04.2023 to 29.04.2023
Plant Status	: Non 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) : 35	2	Barometric Pressure (mmHg) : 743
3	Relative Humidity (%) : 62	4	Weather Condition : Clear

## NABL Accredited

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	66	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.6	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	22.5	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\*\*\*\*

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 &

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

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)

## TEST REPORT

Test Report No.	: ELES/RNC/2023/1984	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/1411
Address	: Lohardaga, Jharkhand-835302	Location	: Kudag Village / Near Hindalco Campus
		Sampling Date	: 28.04.2023 to 29.04.2023
Plant Status	: Non 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

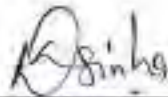
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

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

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



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

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





# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAECC97136124

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/2023/1985	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000946F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1412
Address	: Lohardaga, Jharkhand-835302	Location	: Jaljali Village/Near Shiv Temple Sabag Road.
Plant Status	: Non Operational	Sampling Date	: 28.04.2023 to 29.04.2023
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)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	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	32	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	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	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 Singh*  
Authorized Signatory  
Dr. Deependra Kumar Singh  
Ph. D. Environmental Engineer

Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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

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)

## TEST REPORT

Test Report No.	: ELES/RNC/2023/1985	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/1412
Address	: Lohardaga, Jharkhand-835302	Location	: Jaljali Village/Near Shiv Temple Sabag Road.
		Sampling Date	: 28.04.2023 to 29.04.2023
Plant Status	: Non 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

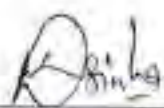
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

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

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



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

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





# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPLUDANA  
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.: 0653-2290103  
Website : [www.elespl.co.in](http://www.elespl.co.in)



TE-8839

## TEST REPORT

Test Report No.	: ELES/RNC/2023/1986	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000947F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1413
Address	: Lohardaga, Jharkhand-835302	Location	: Amtahi Village/Near Tailoring Centre
Plant Status	: Non Operational	Sampling Date	: 28.04.2023 to 29.04.2023
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)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

## NABL Accredited

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	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	7.5	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	<0.002	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  
Ph.D. Environmental Engg.

Page 1 of 1

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

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)

## TEST REPORT

Test Report No. : ELES/RNC/2023/1986	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/1413
Address	: Lohardaga, Jharkhand-835302	Location	: Amtahi Village/Near Tailoring Centre
Plant Status	: Non Operational	Sampling Date	: 28.04.2023 to 29.04.2023
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)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

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

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



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

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





# ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

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



TC-1839

## TEST REPORT

Test Report No.	: ELES/RNC/2023/1987	Report Release Date	: 12.06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000948F		


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1414
Address	: Lohardaga, Jharkhand-835302	Location	: Ambakona Village
Plant Status	: Non Operational	Sampling Date	: 28.04.2023 to 29.04.2023
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)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	68	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	35	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	20.3	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

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

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# ENVIRONMENTAL LABORATORIES &

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

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: U74999JH2018PTC011325

## TEST REPORT

Test Report No. : ELES/RNC/2023/1987	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/1414
Address	: Lohardaga, Jharkhand-835302	Location	: Ambakona Village
Plant Status	: Non Operational	Sampling Date	: 28.04.2023 to 29.04.2023
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)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

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

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



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

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

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

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

**Orsapat Bauxite Mine-Environmental Monitoring Report**

**May 2023**



## CONTENT

Hindalco Industries : Orsapat Bauxite Mine		Environmental Monitoring Report - May 2023
Orsapat Bauxite Mine		
<b>AMBIENT AIR QUALITY- CORE ZONE</b>		
1	Orsa Village/Near Mine Area	
2	Orsa Village/Southern Part of Orsa Lease	
3	Orsa Village/Near New Mine office/Near Wegh Bridge	
4	Orsa Village/Northern Part of Orsa Lease	
<b>AMBIENT AIR QUALITY- BUFFER ZONE</b>		
1	Kudag Village/ Near Hindalco Campus	
2	Jaljali Village/Near Shiv Temple Sabag Road	
3	Amtahi Village/Near Tailoring Centre	
4	Ambakona Village	







# ENVIRONMENTAL LABORATORIES &

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

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)



## TEST REPORT

Test Report No.	: ELES/RNC/2023/2311	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001233F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1784
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Near Mine Area Orsapat Bauxite Mine (196.36ha)
		Sampling Date	: 26.05.2023 to 27.05.2023
Plant Status	: Non Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 740
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	57	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	21.7	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	<0.002	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 Kuma Sinha*  
Authorized Signatory  
Dr. Deependra Kuma 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  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAECE9713D124

**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)

## TEST REPORT

Test Report No.	: ELES/RNC/2023/2311	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/1784
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Near Mine Area Orsapat Bauxite Mine (196.36ha)
		Sampling Date	: 26.05.2023 to 27.05.2023
Plant Status	: Non Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

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

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



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

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

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
MATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 30AAECE9733D324

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)



TC 8889

## TEST REPORT

Test Report No.	: ELES/RNC/2023/2312	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001234F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1785
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Southern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
		Sampling Date	: 26.05.2023 to 27.05.2023
Plant Status	: Non Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 740
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	61	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	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	<0.002	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  
ELES PVT. LTD. Technical Manager

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

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)

## TEST REPORT

Test Report No.	: ELES/RNC/2023/2312	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/1785
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Southern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
		Sampling Date	: 26.05.2023 to 27.05.2023
Plant Status	: Non Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

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

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



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

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





# ENVIRONMENTAL LABORATORIES &

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

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: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2023/2313	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/1786
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Southern Part of Orsa Lease, Orsapat Bauxite Mine (196.36ha)
		Sampling Date	: 26.05.2023 to 27.05.2023
Plant Status	: Non Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

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

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



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

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

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAECE57130120

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)



## TEST REPORT

Test Report No.	: ELES/RNC/2023/2313	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001235F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1786
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village -Near New Mine Office/Near Weigh Bridge; Orsapat Bauxite Mine (196.36ha)
		Sampling Date	: 26.05.2023 to 27.05.2023
Plant Status	: Non Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 740
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	67	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	39	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	7.6	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	23	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.014	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

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

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# ENVIRONMENTAL LABORATORIES &

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

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)



TC-8839

## TEST REPORT

Test Report No. : ELES/RNC/2023/2314	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001236F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1787
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Northern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
		Sampling Date	: 26.05.2023 to 27.05.2023
Plant Status	: Non Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 740
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	60	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	5.5	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\*\*\*\*

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

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 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: U74999JH2018PT01125

## TEST REPORT

Test Report No.	: ELES/RNC/2023/2314	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/1787
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Northern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
		Sampling Date	: 26.05.2023 to 27.05.2023
Plant Status	: Non Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

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\*\*\*\*

Authorized Signatory

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

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# ENVIRONMENTAL LABORATORIES &

PLLOT NO-36, MAINROADS/ENCLAVE, TUPUDANA  
KATLA, RANCHI-834003 (JHARKHAND)  
ESTD-2014REGD/150174

ENGINEERING SERVICES PVT. LTD.

Email: info@elapl.co.in, elapl.ranchi@gmail.com  
Phone no.: 0653-2250103  
Website: www.elapl.co.in



## TEST REPORT

Test Report No.	: ELES/RNC/2023/2315	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001237F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1788
Address	: Lohardaga, Jharkhand-835302	Location	: Kodag Village / Near Hindalco Campus
		Sampling Date	: 28.05.2023 to 29.05.2023
Plant Status	: Non Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 36	2	Barometric Pressure (mmHg)	: 741
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	62	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	8.1	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	<0.002	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*  
D. Deepshikha Khatiwala Singh  
D. Deepshikha Khatiwala Singh  
D. Deepshikha Khatiwala Singh

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

PLDT NO-38, MANSAROVAR ENCLAVE, TUMDANA  
HATIA, RANCHI-831003 (JHARKHAND)  
GST NO.- 36AASCE97130123

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

## TEST REPORT

Test Report No.	: ELES/RNC/2023/2315	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/1788
Address	: Lohardaga, Jharkhand-835302	Location	: Kudag Village / Near Hindalco Campus.
		Sampling Date	: 28.05.2023 to 29.05.2023
Plant Status	: Non Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 36	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

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

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



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

Authorized Signatory  
 J1, Westside, Central Sillima  
 25/2/23, Ranchi-831003  
 ELES For Test No. 2315/2023

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# ENVIRONMENTAL LABORATORIES &

Plot No-30, GANESHWAR ENCLAVE, TRIPURARA  
HATIA, KANCHHESARAI (BARKHARUKA)  
BAP NO:- 23MAE25713C33

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.com, elesemail@ymail.com  
Phone No:- 9952-2290303  
Website: www.elespl.com



## TEST REPORT

Test Report No.	: ELES/RNC/2023/2316	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001238F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1789
Address	: Lohardaga, Jharkhand-835302	Location	: Jaljali Village/Near Shiv Temple Sabag Road.
		Sampling Date	: 28.05.2023 to 29.05.2023
Plant Status	: Non Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 36	2	Barometric Pressure (mmHg)	: 741
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	54	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	5.4	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	0.008	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*  
  
 Smita  
 Director, Quality Engg  
 ELES - Environmental Monitoring

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

PLT NO-30, MANGAROVAR ENCLAVE, TUMKINDRA  
KATIA, RANCHI-834009 (JHARKHAND)  
GST NO.- 20AAEC57135124

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)

ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

## TEST REPORT

Test Report No.	: ELES/RNC/2023/2316	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/1789
Address	: Lohardaga, Jharkhand-835302	Location	: Jajali Village/Near Shiv Temple Sabag Road.
		Sampling Date	: 28.05.2023 to 29.05.2023
Plant Status	: Non Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 36	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 61	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  
 Environmental Laboratories & Engineering Services Pvt. Ltd.  
 Katia, Ranchi, Jharkhand, India

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-33, MANSAROVAR ENCLAVE, TUPEKDAJA  
MATA, RANCHI-834003 (JHARKHAND)  
EST NO- Z04AEC97001274

ENGINEERING SERVICES PVT. LTD.

Email: info@eles.com | ej@eles.com  
Phone No.: 0661-2250203  
Website: www.eles.com.in



ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

## TEST REPORT

Test Report No.	: ELES/RNC/2023/2317	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001239F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1790
Address	: Lohardaga, Jharkhand-835302	Location	: Amtahi Village/Near Tailoring Centre
Plant Status	: Non Operational	Sampling Date	: 28.05.2023 to 29.05.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Sample Received Date	: 06.06.2023
		Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

### METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 36	2	Barometric Pressure (mmHg)	: 741
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	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	11.8	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

Authorized Signatory  
Dr. Geetendra Kumar Sinha

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# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

PO BOX-30, MANSAROVAR ENCLAVE, TOPPEDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAEC97130124

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: U01102WB2014PT001127

## TEST REPORT

Test Report No.	: ELES/RNC/2023/2317	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/1790
Address	: Lohardaga, Jharkhand-835302	Location	: Amtahi Village/Near Tailoring Centre
		Sampling Date	: 28.05.2023 to 29.05.2023
Plant Status	: Non Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 36	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

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

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



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

Authorized Signatory  
 Technical Manager

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# ENVIRONMENTAL LABORATORIES &

Plot No-35, Mangadvar Enclave, Tulipuda II  
KATIA, RAJNCHI-834003 (JHARKHAND)  
GST No: 20AAK59713012F

ENGINEERING SERVICES PVT. LTD.

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



## TEST REPORT

Test Report No. : ELES/RNC/2023/2318	Report Release Date : 01.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001240F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaico Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1791
Address	: Lohardaga, Jharkhand-835302	Location	: Ambakona Village
		Sampling Date	: 28.05.2023 to 29.05.2023
Plant Status	: Non Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 36	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	56	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	30	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	19.8	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<10.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 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*  
S. K. Sinha  
Senior Environmental Engg.  
Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

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Plot No- 80, MINSAROYAN ENCLAVE, TULSIDHAMA  
HATA, RANCHI-834005 (JHARKHAND)  
GST NO:- 20AAECE97120124

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/2023/2318	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/1791
Address	: Lohardaga, Jharkhand-835302	Location	: Ambakona Village
		Sampling Date	: 28.05.2023 to 29.05.2023
Plant Status	: Non Operational	Sample Received Date	: 06.06.2023
Period of Analysis	: 06.06.2023 to 09.06.2023	Type of Sample	: Ambient Air
		Sample Drawn By	: ELES/DOC/SMPL/02
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 36	2	Barometric Pressure (mmHg)	: 741
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	<L0	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

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



**Orsapat Bauxite Mine-Environmental Monitoring Report**

**June 2023**



## CONTENT

<b>Hindalco Industries : Orsapat Bauxite Mine</b>		<b>Environmental Monitoring Report</b>	<b>June 2023</b>
<b>Orsapat Bauxite Mine</b>			
<b>AMBIENT AIR QUALITY- CORE ZONE</b>			
1	Orsa Village/Near Mine Area		
2	Orsa Village/Southern Part of Orsa Lease		
3	Orsa Village/Near New Mine office/Near Wegh Bridge		
4	Orsa Village/Nortern Part of Orsa Lease		
<b>AMBIENT AIR QUALITY- BUFFER ZONE</b>			
1	Kudag Village/ Near Hindalco Campus		
2	Jaljali Village/Near Shiv Temple Sabag Road		
3	Amtahi Village/Near Tailoring Centre		
4	Ambakona Village		







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

**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)



TC-8839

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2815	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001680F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2147
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Near Mine Area Orsapat Bauxite Mine (196.36ha)
		Sampling Date	: 17.06.2023 to 18.06.2023
Mines Status	: Non 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)	: 31	2	Barometric Pressure (mmHg)	: 738
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	63	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	7.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	23.8	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

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

Page 1 of 1

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

**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)

## TEST REPORT

Test Report No. : ELES/RNC/2023/2815	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/2147
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Near Mine Area Orsapat Bauxite Mine (196.36ha)
Mines Status	: Non Operational	Sampling Date	: 17.06.2023 to 18.06.2023
Period of Analysis	: 26.06.2023 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)	: 31	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

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

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



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

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

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

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)



TC-8839

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2816	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001681F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2148
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Southern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
Mines Status	: Non Operational	Sampling Date	: 17.06.2023 to 18.06.2023
Period of Analysis	: 26.06.2023 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)	: 31	2	Barometric Pressure (mmHg)	: 738
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	63	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	22.7	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)



\*\*\*\*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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**ENGINEERING SERVICES PVT. LTD.**

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

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/2023/2816	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/2148
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Southern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
Mines Status	: Non Operational	Sampling Date	: 17.06.2023 to 18.06.2023
Period of Analysis	: 26.06.2023 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

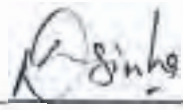
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

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  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAECE9713D1Z4

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)



TC-8839

## TEST REPORT

Test Report No. : ELES/RNC/2023/2817	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001682F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2149
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village -Near New Mine Office/Near Weigh Bridge; Orsapat Bauxite Mine (196.36ha)
Mines Status	: Non Operational	Sampling Date	: 17.06.2023 to 18.06.2023
Period of Analysis	: 26.06.2023 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)	: 31	2	Barometric Pressure (mmHg)	: 738
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	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	7.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	20	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\*\*\*\*

  
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 &

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

**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)

## TEST REPORT

Test Report No. : ELES/RNC/2023/2817	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/2149
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village -Near New Mine Office/Near Weigh Bridge; Orsapat Bauxite Mine (196.36ha)
Mines Status	: Non Operational	Sampling Date	: 17.06.2023 to 18.06.2023
Period of Analysis	: 26.06.2023 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)	: 31	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

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

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



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

Authorised Signatory

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

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

ENGINEERING SERVICES PVT. LTD.

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

Phone no.: 0651-2290103

Website : www.elespl.co.in



TC-8839

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2818	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001683F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2150
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Northern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
Mines Status	: Non Operational	Sampling Date	: 17.06.2023 to 18.06.2023
Period of Analysis	: 26.06.2023 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)	: 31	2	Barometric Pressure (mmHg)	: 738
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	56	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	24	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	6.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	16.7	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\*\*\*\*

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

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CIN: U74999JH2018PTC011125

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

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/2023/2818	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/2150
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Northern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
Mines Status	: Non Operational	Sampling Date	: 17.06.2023 to 18.06.2023
Period of Analysis	: 26.06.2023 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) : 31	2	Barometric Pressure (mmHg) : 738
3	Relative Humidity (%) : 59	4	Weather Condition : Clear

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

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



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

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

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

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)



TC-8839

## TEST REPORT

Test Report No. : ELES/RNC/2023/2811	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001676F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1991
Address	: Lohardaga, Jharkhand-835302	Location	: Kudag Village / Near Hindalco Campus
Mines Status	: Non Operational	Sampling Date	: 15.06.2023 to 16.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Sample Received Date	: 17.06.2023
		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) : 34	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	56	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.6	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	15.7	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

Authorised Signatory

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

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

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/2023/2811	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/1991
Address	: Lohardaga, Jharkhand-835302	Location	: Kudag Village / Near Hindalco Campus
Mines Status	: Non Operational	Sampling Date	: 15.06.2023 to 16.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Sample Received Date	: 17.06.2023
		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) : 34	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)
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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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAECE9713D124

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)



TC-8839

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2812	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001677F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1992
Address	: Lohardaga, Jharkhand-835302	Location	: Jaljali Village/Near Shiv Temple Sabag Road.
Mines Status	: Non Operational	Sampling Date	: 15.06.2023 to 16.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Sample Received Date	: 17.06.2023
		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)	: 34	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	49	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	24	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	20.8	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.005	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

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

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CIN: U7-1999JH2018PTC011125

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HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAECE9713D1Z4

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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/2023/2812	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/1992
Address	: Lohardaga, Jharkhand-835302	Location	: Jaljali Village/Near Shiv Temple Sabag Road.
Mines Status	: Non Operational	Sampling Date	: 15.06.2023 to 16.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Sample Received Date	: 17.06.2023
		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) : 34	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*	$\mu\text{g}/\text{m}^3$	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



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

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

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

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)



TC-8839

CIN: U74999JH2018PTC011125

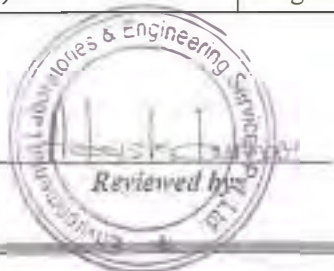
## TEST REPORT

Test Report No.	: ELES/RNC/2023/2813	Report Release Date	: 29.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001678F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1993
Address	: Lohardaga, Jharkhand-835302	Location	: Amtahi Village/Near Tailoring Centre
		Sampling Date	: 16.06.2023 to 17.06.2023
Mines Status	: Non Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	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)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	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	8.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	18.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



*Dr. Deependra Kumar Sinha*

Authorised Signatory

Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

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

Page 1 of 1

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

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)

## TEST REPORT

Test Report No. : ELES/RNC/2023/2813	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/1993
Address	: Lohardaga, Jharkhand-835302	Location	: Amtahi Village/Near Tailoring Centre
Mines Status	: Non Operational	Sampling Date	: 16.06.2023 to 17.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	Sample Received Date	: 17.06.2023
		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) : 34	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)
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 Kumar Sinha*  
Authorized Signatory  
Dr. Deependra Kumar Sinha  
Ph. D. Environmental Engg.  
ELES Pvt. Ltd. Technical Manager

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HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAECE9713D1Z4

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)



TC-8839

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2814	Report Release Date : 29.07.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001679F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1994
Address	: Lohardaga, Jharkhand-835302	Location	: Ambakona Village
		Sampling Date	: 16.06.2023 to 17.06.2023
Mines Status	: Non Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	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) : 743
3	Relative Humidity (%) : 60	4	Weather Condition : Clear

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	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	6.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	23.4	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

*Dr. Deependra Kumar Sinha*  
Authorized Signatory  
Dr. P. Environmental Engg  
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  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAECE9713D1Z4Email: [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/2023/2814	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/1994
Address	: Lohardaga, Jharkhand-835302	Location	: Ambakona Village
		Sampling Date	: 16.06.2023 to 17.06.2023
Mines Status	: Non Operational	Sample Received Date	: 17.06.2023
Period of Analysis	: 17.06.2023 to 27.06.2023	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)	: 743
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear

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

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



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

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

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

**Orsapat Bauxite Mine-Environmental Monitoring Report**

**July 2023**



## CONTENT

Hindalco Industries : Orsapat Bauxite Mine		Environmental Monitoring Report	July 2023
<b>Orsapat Bauxite Mine</b>			
<b>AMBIENT AIR QUALITY- CORE ZONE</b>			
1	Orsa Village/Near Mine Area		
2	Orsa Village/Southern Part of Orsa Lease		
3	Orsa Village/Near New Mine office/Near Weigh Bridge		
4	Orsa Village/Nortern Part of Orsa Lease		
<b>AMBIENT AIR QUALITY- BUFFER ZONE</b>			
1	Kudag Village/ Near Hindalco Campus		
2	Jaljali Village/Near Shiv Temple Sabag Road		
3	Amtahi Village/Near Tailoring Centre		
4	Ambakona Village		







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

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)



## TEST REPORT

Test Report No. : ELES/RNC/2023/2998	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001845F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2784
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Near Mine Area Orsapat Bauxite Mine (196.36ha)
		Sampling Date	: 29.07.2023 to 30.07.2023
Mines Status	: Non Operational	Sample Received Date	: 31.07.2023
Period of Analysis	: 31.07.2023 to 07.08.2023	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)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	55	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-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	20.7	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)



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Authorised Signatory

Dr. Deependra Kumar Sinha

PH. U. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

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

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

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## TEST REPORT

Test Report No. : ELES/RNC/2023/2998	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/2784
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Near Mine Area Orsapat Bauxite Mine (196.36ha)
Mines Status	: Non Operational	Sampling Date	: 29.07.2023 to 30.07.2023
Period of Analysis	: 31.07.2023 to 07.08.2023	Sample Received Date	: 31.07.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 27	2	Barometric Pressure (mmHg) : 739
3	Relative Humidity (%) : 64	4	Weather Condition : Partly Cloudy

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

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



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

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





# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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

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: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2999	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001846F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2785
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Southern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
Mines Status	: Non Operational	Sampling Date	: 29.07.2023 to 30.07.2023
Period of Analysis	: 31.07.2023 to 07.08.2023	Sample Received Date	: 31.07.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 27	2	Barometric Pressure (mmHg) : 739
3	Relative Humidity (%) : 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	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	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	18.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

Authorized Signatory

Dr. Deependra Kumar 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  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAECE9713D1Z4

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)

## TEST REPORT

Test Report No. : ELES/RNC/2023/2999	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/2785
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Southern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
Mines Status	: Non Operational	Sampling Date	: 29.07.2023 to 30.07.2023
Period of Analysis	: 31.07.2023 to 07.08.2023	Sample Received Date	: 31.07.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

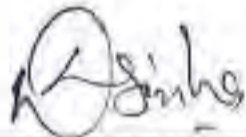
1	Average Temperature (°C) : 27	2	Barometric Pressure (mmHg) : 739
3	Relative Humidity (%) : 64	4	Weather Condition : Partly Cloudy

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;RA 2019	<0.5	01(Annual)

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



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

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





# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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)



TC-8839

## TEST REPORT

Test Report No.	: ELES/RNC/2023/3000	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001847F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2786
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village -Near New Mine Office/Near Weigh Bridge; Orsapat Bauxite Mine (196.36ha)
		Sampling Date	: 29.07.2023 to 30.07.2023
Mines Status	: Non Operational	Sample Received Date	: 31.07.2023
Period of Analysis	: 31.07.2023 to 07.08.2023	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)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	56	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	22	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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# ENVIRONMENTAL LABORATORIES &

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

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)

## TEST REPORT

Test Report No. : ELES/RNC/2023/3000	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/2786
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village -Near New Mine Office/Near Weigh Bridge; Orsapat Bauxite Mine (196.36ha)
Mines Status	: Non Operational	Sampling Date	: 29.07.2023 to 30.07.2023
Period of Analysis	: 31.07.2023 to 07.08.2023	Sample Received Date	: 31.07.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

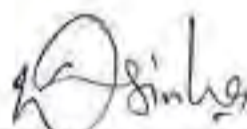
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	$\mu\text{g}/\text{m}^3$	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	$\text{ng}/\text{m}^3$	IS:5182 (Part-12): 2004;RA.2019	<0.5	01(Annual)

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



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

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





# ENVIRONMENTAL LABORATORIES &

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

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)



## TEST REPORT

Test Report No. : ELES/RNC/2023/3001	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001848F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2787
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Northern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
Mines Status	: Non Operational	Sampling Date	: 29.07.2023 to 30.07.2023
Period of Analysis	: 31.07.2023 to 07.08.2023	Sample Received Date	: 31.07.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 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	53	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	5.9	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	<0.002	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

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

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ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL LABORATORIES &

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

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: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/3001	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/2787
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Northern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
Mines Status	: Non Operational	Sampling Date	: 29.07.2023 to 30.07.2023
Period of Analysis	: 31.07.2023 to 07.08.2023	Sample Received Date	: 31.07.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

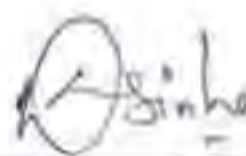
1	Average Temperature (°C) : 27	2	Barometric Pressure (mmHg) : 739
3	Relative Humidity (%) : 64	4	Weather Condition : Partly Cloudy

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

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



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

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





# 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)



TC-8839

## TEST REPORT

Test Report No. : ELES/RNC/2023/2994	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001841F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2780
Address	: Lohardaga, Jharkhand-835302	Location	: Kudag Village / Near Hindalco Campus
		Sampling Date	: 28.07.2023 to 29.07.2023
Mines Status	: Non Operational	Sample Received Date	: 31.07.2023
Period of Analysis	: 31.07.2023 to 07.08.2023	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) : 740
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	50	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	24	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	5.8	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

Authorised Signatory

Dr. Deependra Kumar Sinha

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

Page 1 of 1

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CIN: U74999JH3018PTC011125

# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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

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/2023/2994	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/2780
Address	: Lohardaga, Jharkhand-835302	Location	: Kudag Village / Near Hindalco Campus
		Sampling Date	: 28.07.2023 to 29.07.2023
Mines Status	: Non Operational	Sample Received Date	: 31.07.2023
Period of Analysis	: 31.07.2023 to 07.08.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

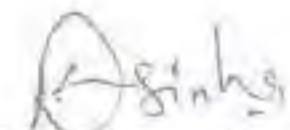
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

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

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



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

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

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PLOT NO-30, MANSAROVAR ENCLAVE, TURUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO- 20AAECE9713D12A

ENGINEERING SERVICES PVT. LTD.

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



CIN: U74959JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/2995	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001842F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2781
Address	: Lohardaga, Jharkhand-835302	Location	: Jaljali Village/Near Shiv Temple Sabag Road.
		Sampling Date	: 28.07.2023 to 29.07.2023
Mines Status	: Non Operational	Sample Received Date	: 31.07.2023
Period of Analysis	: 31.07.2023 to 07.08.2023	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)	: 740
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	45	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	21	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	5.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	16.7	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.01	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 K. Singh  
Ph. D. Environmental Engg  
ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL LABORATORIES &

**ENGINEERING SERVICES PVT. LTD.**

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

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/2023/2995	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/2781
Address	: Lohardaga, Jharkhand-835302	Location	: Jaljali Village/Near Shiv Temple Sabag Road.
Mines Status	: Non Operational	Sampling Date	: 28.07.2023 to 29.07.2023
Period of Analysis	: 31.07.2023 to 07.08.2023	Sample Received Date	: 31.07.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

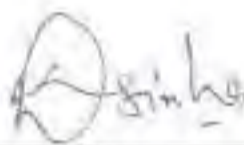
METEOROLOGICAL INFORMATION			
1	Average Temperature (°C)	: 26	2 Barometric Pressure (mmHg) : 740
3	Relative Humidity (%)	: 65	4 Weather Condition : Partly Cloudy

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

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



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

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





# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TURUDANA  
MATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAEC2971391Z4

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)



## TEST REPORT

Test Report No. : ELES/RNC/2023/2996	Report Release Date : 08.08.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000001843F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2782
Address	: Lohardaga, Jharkhand-835302	Location	: Amtahi Village/Near Tailoring Centre
		Sampling Date	: 29.07.2023 to 30.07.2023
Mines Status	: Non Operational	Sample Received Date	: 31.07.2023
Period of Analysis	: 31.07.2023 to 07.08.2023	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)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	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	6.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	13.7	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

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)

## TEST REPORT

Test Report No. : ELES/RNC/2023/2996	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/2782
Address	: Lohardaga, Jharkhand-835302	Location	: Amtahi Village/Near Tailoring Centre
Mines Status	: Non Operational	Sampling Date	: 29.07.2023 to 30.07.2023
Period of Analysis	: 31.07.2023 to 07.08.2023	Sample Received Date	: 31.07.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

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

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



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

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

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ENGINEERING SERVICES PVT. LTD.

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO- 20AA ECE9713D124

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/2023/2997	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001844F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/2783
Address	: Lohardaga, Jharkhand-835302	Location	: Ambakona Village
		Sampling Date	: 29.07.2023 to 30.07.2023
Mines Status	: Non Operational	Sample Received Date	: 31.07.2023
Period of Analysis	: 31.07.2023 to 07.08.2023	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)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	46	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	22	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	5.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	17.9	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<0.0	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  
Ph. D. Environmental Engg.  
ELES Pvt. Ltd. Technical Manager

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CIN: U74599JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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

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/2023/2997	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/2783
Address	: Lohardaga, Jharkhand-835302	Location	: Ambakona Village
		Sampling Date	: 29.07.2023 to 30.07.2023
Mines Status	: Non Operational	Sample Received Date	: 31.07.2023
Period of Analysis	: 31.07.2023 to 07.08.2023	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)	: 739
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

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

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



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

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

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

**Orsapat Bauxite Mine-Environmental Monitoring Report**

**August 2023**





## CONTENT

<b>Hindalco Industries : Orsapat Bauxite Mine</b>		<b>Environmental Monitoring Report</b>		<b>August 2023</b>
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<b>AMBIENT AIR QUALITY- BUFFER ZONE</b>				
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2	Jaljali Village/Near Shiv Temple Sabag Road			
3	Amtahi Village/Near Tailoring Centre			
4	Ambakona Village			







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

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: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2023/3442	Report Release Date	: 09.09.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000002210F		


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3066
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Near Mine Area Orsapat Bauxite Mine (196.36ha)
		Sampling Date	: 23.08.2023 to 24.08.2023
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)	: 23	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	58	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	5.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	18.3	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

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

Page 1 of 1

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**"Save Environment, Save Future"**





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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: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/3442	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/3066
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Near Mine Area Orsapat Bauxite Mine (196.36ha)
		Sampling Date	: 23.08.2023 to 24.08.2023
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)	: 23	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
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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HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAECE9713D124

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: U74999JH2018PTC031125

## TEST REPORT

Test Report No.	: ELES/RNC/2023/3443	Report Release Date	: 09.09.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC88392300002211F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3067
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Southern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
Mines Status	: Non Operational	Sampling Date	: 23.08.2023 to 24.08.2023
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)	: 23	2	Barometric Pressure (mmHg)	: 734
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	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	5.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	20.6	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)



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

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

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: U74999JH2013RP0011225

## TEST REPORT

Test Report No. : ELES/RNC/2023/3443	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/3067
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Southern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
		Sampling Date	: 23.08.2023 to 24.08.2023
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

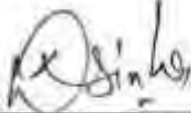
METEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 23	2	Barometric Pressure (mmHg) : 734
3	Relative Humidity (%) : 66	4	Weather Condition : Partly Cloudy

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



## TEST REPORT

Test Report No. : ELES/RNC/2023/3444	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002212F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3068
Address	: Lohardaga, harkhand-835302 :	Location	: Orsa Village -Near New Mine Office/Near Weigh Bridge; Orsapat Bauxite Mine (196.36ha)
Mines Status	: Non Operational	Sampling Date	: 23.08.2023 to 24.08.2023
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)	: 23	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	52	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	5.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	19.2	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.008	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

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

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HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAECE9713D124

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: U74999JH2018PTCO11125

## TEST REPORT

Test Report No.	: ELES/RNC/2023/3444	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/3068
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village -Near New Mine Office/Near Weigh Bridge; Orsapat Bauxite Mine (196.36ha)
		Sampling Date	: 23.08.2023 to 24.08.2023
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)	: 23	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
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**  
 Deependra Kumar Sinha  
 Ph. D. Environmental Engg.  
 ELES Pvt. Ltd. Technical Manager

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# ENVIRONMENTAL LABORATORIES &

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

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: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/3445	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002213F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3069
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Northern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
		Sampling Date	: 23.08.2023 to 24.08.2023
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)	: 23	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	49	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	18	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	5.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	17.3	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	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  
P. D. Environmental Engg.  
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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CIN: U74999JH2018PTC011125

# 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)

## TEST REPORT

Test Report No. : ELES/RNC/2023/3445	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/3069
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Northern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
Mines Status	: Non Operational	Sampling Date	: 23.08.2023 to 24.08.2023
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)	: 23	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
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-33, MANSAROVAR ENCLAVE, TUPUDAMA,  
KATUA, RANCHI-833003 (JHARKHAND)  
GST NO:-30AAEG297130129

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in, elesranchi@gmail.com  
Phone no.: 0651-2296103  
Website : www.elespl.co.in



## TEST REPORT

Test Report No. : ELES/RNC/2023/3438	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002206F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3062
Address	: Lohardaga, Jharkhand-835302	Location	: Kudag Village / Near Hindalco Campus
		Sampling Date	: 22.08.2023 to 23.08.2023
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) : 24	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	44	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part-24): 2019	18	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	5.6	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	5.1	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\*\*\*\*

Authorised Signatory

D. Deependra Kumar Sinha

Environmental Engg.

ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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### TEST REPORT

Test Report No. : ELES/RNC/2023/3438	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/3062
Address	: Lohardaga, Jharkhand-835302	Location	: Kudag Village / Near Hindalco Campus
		Sampling Date	: 22.08.2023 to 23.08.2023
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)	: 24	2	Barometric Pressure (mmHg)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

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

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

  
Reviewed by

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

  
Authorized Signatory  
Technical Manager  
ELES Pvt. Ltd.





# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVA ENCLAVE, TUMKUR  
HATA, RANCHI-834062 (JHARKHAND)  
GST NO:- 20AAEC297430124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in | eles.ranchi@gmail.com  
Phone no.: 0652-2390102  
Website: www.elespl.co.in



## TEST REPORT

Test Report No. : ELES/RNC/2023/3439	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC88392300002207F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3063
Address	: Lohardaga, Jharkhand-835302	Location	: Jajali Village/Near Shiv Temple Sabag Road.
		Sampling Date	: 22.08.2023 to 23.08.2023
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)	: 24	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)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	41	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	17	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	5.6	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	13.2	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	0.01	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 Saha*  
**Authorised Signatory**  
 Dr. Deependra Kumar Saha  
 ELES Pvt. Ltd. Technical Manager

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### TEST REPORT

Test Report No. : ELES/RNC/2023/3439	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/3063
Address	: Lohardaga, Jharkhand-835302	Location	: Jaljali Village/Near Shiv Temple Sabag Road.
		Sampling Date	: 22.08.2023 to 23.08.2023
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)	: 24	2	Barometric Pressure (mmHg)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

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

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



Reviewed by

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

Authorized Signatory  
 P. D. [Name]  
 ELES Pvt. Ltd. Technical Manager





## TEST REPORT

Test Report No. : ELES/RNC/2023/3440	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC:883923000002208F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3064
Address	: Lohardaga, Jharkhand-835302	Location	: Amtahi Village/Near Tailoring Centre
		Sampling Date	: 23.08.2023 to 24.08.2023
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)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	53	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	16.1	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)



*Handwritten signature*

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

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

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# ENVIRONMENTAL LABORATORIES &

INDUSTRIAL ANALYSIS & TESTING LABORATORY  
INDUSTRIAL ANALYSIS & TESTING LABORATORY  
JIT/PO: 2014/25710218

ENGINEERING SERVICES PVT. LTD.

Email: [info@elespl.co.in](mailto:info@elespl.co.in) | [accounts@elespl.co.in](mailto:accounts@elespl.co.in)  
Phone no.: 0651-2290103  
Website: [www.elespl.co.in](http://www.elespl.co.in)

## TEST REPORT

Test Report No. : ELES/RNC/2023/3440	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/3064
Address	: Lohardaga, Jharkhand-835302	Location	: Amtahi Village/Near Tailoring Centre
Mines Status	: Non Operational	Sampling Date	: 23.08.2023 to 24.08.2023
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)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

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

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



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

  
**Authorized Signatory**  
E. Saha, Technical Manager





# ENVIRONMENTAL LABORATORIES &

PLLOT NO-30, MANSAROVAR ENCLAVE, TILPUDAMA  
NATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAEC29713D121

ENGINEERING SERVICES PVT. LTD.

Email: [info@elesol.co.in](mailto:info@elesol.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)



TC-2224

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/3441	Report Release Date : 09.09.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883923000002209F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3065
Address	: Lohardaga, Jharkhand-835302	Location	: Ambakona Village
		Sampling Date	: 23.08.2023 to 24.08.2023
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)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

NABL Accredited				
Discipline : Chemical			Group : Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	42	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	18	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	20.2	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

Authorized Signatory

D. Deependra Kumar Sinha

En. B. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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INDUSTRIAL ANALYSIS AND TESTING  
WATER ANALYSIS AND SAMPLING  
OF WASTEWATER

ENGINEERING SERVICES PVT. LTD.

Email: [info@el-espi.co.in](mailto:info@el-espi.co.in) [el-espi@el-espi.co.in](mailto:el-espi@el-espi.co.in)  
Phone no: 0651-2290173  
Website: [www.el-espi.co.in](http://www.el-espi.co.in)

## TEST REPORT

Test Report No. : ELES/RNC/2023/3441	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/3065
Address	: Lohardaga, Jharkhand-835302	Location	: Ambakona Village
		Sampling Date	: 23.08.2023 to 24.08.2023
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)	: 23	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

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

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



Reviewed by

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



Authorised Signatory



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

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

**Orsapat Bauxite Mine-Environmental Monitoring Report**

**September- 2023**





## CONTENT

<b>Hindalco Industries : Orsapat Bauxite Mine</b>	
<b>Environmental Monitoring Report    September- 2023</b>	
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	<b>AMBIENT AIR QUALITY- CORE ZONE</b>
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2	Orsa Village/Southern Part of Orsa Lease
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2	Jaljali Village/Near Shiv Temple Sabag Road
3	Amtahi Village/Near Tailoring Centre
4	Ambakona Village
	<b>AMBIENT NOISE</b>
	<b>WORKZONE NOISE</b>







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

**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: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4050	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/3467
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Near Mine Area Orsapat Bauxite Mine (196.36ha)
Mines Status	: Non Operational	Sampling Date	: 24.09.2023 to 25.09.2023
Period of Analysis	: 29.09.2023 to 12.10.2023	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) : 25	2	Barometric Pressure (mmHg) : 738
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	51	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	5.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	16.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)

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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)

## TEST REPORT

Test Report No. : ELES/RNC/2023/4050	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





CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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

**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)

## TEST REPORT

Test Report No. : ELES/RNC/2023/4051	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/3468
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Southern Part of Orsa Lease; Orsapat Bauxite Mine
Mines Status	: Non Operational	Sampling Date	: 24.09.2023 to 25.09.2023
Period of Analysis	: 29.09.2023 to 12.10.2023	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)	: 25	2	Barometric Pressure (mmHg)	: 738
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	44	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	22	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	17.3	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	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: U74599JH2018PTC01122

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

**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)

## TEST REPORT

Test Report No. : ELES/RNC/2023/4051	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. Daependra Kumar Sinha  
Ph. D. Environmental Engg.  
ELES Pvt. Ltd. Technical Manager





# ENVIRONMENTAL LABORATORIES &

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

**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: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4052	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/3469
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village -Near New Mine Office/Near Weigh Bridge; Orsapat Bauxite Mine (196.36ha)
Mines Status	: Non Operational	Sampling Date	: 24.09.2023 to 25.09.2023
Period of Analysis	: 29.09.2023 to 12.10.2023	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)	: 25	2	Barometric Pressure (mmHg)	: 738
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	40	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	<5.0	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	0.005	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)

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

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: U74999JH2018PT011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4052	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> )*	ug/m <sup>3</sup>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)

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



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

Authorised Signatory

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





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

**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: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4053	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/3470
Address	: Lohardaga, Jharkhand-835302	Location	: Orsa Village/Northern Part of Orsa Lease; Orsapat Bauxite Mine (196.36ha)
Mines Status	: Non Operational	Sampling Date	: 24.09.2023 to 25.09.2023
Period of Analysis	: 29.09.2023 to 12.10.2023	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)	: 25	2	Barometric Pressure (mmHg)	: 738
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	43	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	16	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	12.9	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)

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# ENVIRONMENTAL LABORATORIES &

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

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: U74999JH2016PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4053	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





CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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

## TEST REPORT

Test Report No. : ELES/RNC/2023/4046	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/3463
Address	: Lohardaga, Jharkhand-835302	Location	: Kudag Village / Near Hindalco Campus
Mines Status	: Non Operational	Sampling Date	: 23.09.2023 to 24.09.2023
Period of Analysis	: 29.09.2023 to 12.10.2023	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) : 25	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)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	32	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	15	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	5.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	16.8	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)

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# ENVIRONMENTAL LABORATORIES &

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPRODAMA  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAIECE87130Z2H

Email: [info@elespl.co.in](mailto:info@elespl.co.in), [eles.ranchi@gmail.com](mailto:eles.ranchi@gmail.com)  
Phone no.: 0661-2290103  
Website : [www.elespl.co.in](http://www.elespl.co.in)

CIN: U74999JH1997PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4046	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. Dipendra Kumar Sinha  
 Ph. D. Environmental Engg.  
 ELES Pvt. Ltd. Technical Manager

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HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAECE9713D1Z4

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)

## TEST REPORT

Test Report No. : ELES/RNC/2023/4047	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/3464
Address	: Lohardaga, Jharkhand-835302	Location	: Jaljali Village/Near Shiv Temple Sabag Road.
Mines Status	: Non Operational	Sampling Date	: 23.09.2023 to 24.09.2023
Period of Analysis	: 29.09.2023 to 12.10.2023	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)	: 25	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)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	32	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	15	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	15.9	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	0.01	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATA, RANCHI-834003 (JHARKHAND)  
GST NO- 20AAACE9713D134

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.: 0651-2250103  
Website: [www.elespl.co.in](http://www.elespl.co.in)

CIN: U74999JH2018PT001128

## TEST REPORT


Test Report No. : ELES/RNC/2023/4047	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;RA.2017	<3.0	05(Annual)
Benzo-(a)-Pyrene <sup>b</sup>	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\*\*\*\*

  
**Authorised Signatory**  
 J. Deependra Kumar Sirohi  
 Ph. D. Environmental Engg.  
 ELES PVT. Ltd. Technical Manager

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CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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

**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)

## TEST REPORT

Test Report No. : ELES/RNC/2023/4048	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/3465
Address	: Lohardaga, Jharkhand-835302	Location	: Amtahi Village/Near Tailoring Centre
Mines Status	: Non Operational	Sampling Date	: 24.09.2023 to 25.09.2023
Period of Analysis	: 29.09.2023 to 12.10.2023	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	43	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	20	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	5.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	15.7	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)

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CIN: U74999JH2018PT011125

# ENVIRONMENTAL LABORATORIES &

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

**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)

## TEST REPORT

Test Report No. : ELES/RNC/2023/4048	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: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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

## TEST REPORT

Test Report No.	: ELES/RNC/2023/4049	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/3466
Address	: Lohardaga, Jharkhand-835302	Location	: Ambakona Village
		Sampling Date	: 24.09.2023 to 25.09.2023
Mines Status	: Non Operational	Sample Received Date	: 29.09.2023
Period of Analysis	: 29.09.2023 to 12.10.2023	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)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	34	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	16	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	16.3	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01	<2.0	06 (Annual)

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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: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2023/4049	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**  
Lt. Daependra Kumar Sinha  
Ph. D. Environmental Engg.  
ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PTC011125

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

**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)

## TEST REPORT

Test Report No. : ELES/RNC/2023/4139	Report Release Date : 31.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 24.09.2023 to 25.09.2023
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 30.09.2023
		Type of Sample	: Ambient Noise
Mines Status	: Non Operational	Sampling procedure	: ELES/DOC/SMPL/03
		Sample Drawn By	: ELES Pvt. Ltd.
		Period of Analysis	: 30.09.2023 to 10.10.2023

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

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	Leq	
Orsa Village/Near Mine Area Orsapat Bauxite Mine (196.36ha)	dB(A)	IS 9989:1981, RA 2020	Day Time	62	75 dB(A) Day Time & 70 dB(A) Night Time
			Night Time	44	
Sample ID: ELES/RNC/2023/AN/3531					

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

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

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CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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

**ENGINEERING SERVICES PVT. LTD.**

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/2023/4161	Report Release Date : 31.10.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 24.09.2023
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)	: 26	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L <sub>eq</sub>	
Near Weigh Bridge – Orsapat Bauxite Mine (196.36ha)	dB(A)	IS 4758:1968; RA 2017	Time	L <sub>eq</sub>	90 dB (A)
Sample ID: ELES/RNC/2023/WN/3553			Day Time	69	



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

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

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Annexure 3

Date – 01.11.2023

### Office Order

Environmental Cell has been re-constituted at Orsa Bauxite Mine (Area 196.36 ha) comprising below mentioned team members. The team will ensure compliance with the Environment Act, Regulation & Rule in respect of the said mines of Hindalco Industries Limited.

1. Mr. Vijay Chauhan (Coordinator)
2. Mr. Praveen Pradhan -Geologist
3. Mr. Anand Prakash Tiwari – Environment Engineer

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

A handwritten signature in blue ink, appearing to read 'Basudev Gangopadhyay', with a stylized flourish at the end.

**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)