



HIL/LHD/ENV/MoEF/988

Date: 20.11.2024

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 Shrengdag (155.81 ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Gumla, for the period April'24 to September'24.

Ref: Environmental Clearance letter no J-11015/125/2006-IA II(M) dated 13th April 2007

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Shrengdag (155.81 ha) Bauxite Mining project of M/s Hindalco Industries Limited** located in Gumla, Jharkhand for the period April'24 to September'24.

The lease detail is as below.

Lease area (ha)	Production Capacity (MT)	Lease Period
155.81	260000	16.10.1974 to 31.03.2030

Hope you will find the same in order.

Thanking You

Yours Sincerely
FOR HINDALCO INDUSTRIES LIMITED

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

Enclosure: - As Above

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Corporate ID No.: L27020MH1958PLC011238

Name of the Project : **Sherangdag Bauxite Mine (155.81 ha)**
M/s Hindalco Industries Limited

Environment Clearance No. & date : **J-11015/125/2006-IA.II (M), dated 13.04.2007**

Period of compliance Report : **From 1st April' 2024 to 30th September'2024**

Specific Conditions: -

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

Reply: - Implementations of the stipulated conditions in NOC are fulfilled after which Consent to Operate (CTO) has been obtained from time to time. The current CTO is valid up to 31/12/2026. Production of bauxites is within limits specified in Consent to Operate.

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

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

Condition iii: - The exploration shall be completed within 2.5 years and thereafter the proponent shall come up with a firm proposal for mining, based on the estimated reserves. The reclamation plan, post mine land use and progressive greenbelt development plan shall also be prepared and submitted with the revised proposal.

Reply: - Required exploration is already done. Mining plan/ Mining Scheme based on current reserves/resource estimate is duly approved by IBM. The reclamation plan, post mine land use and progressive greenbelt development plan have been covered in Mining Plan/Mining scheme which is approved by IBM.

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

Reply: - Mining is being done at shallow depth. Thus, there is no chance to intersect ground water table during mining operation. Working zone restricted to above ground water table. We undertake that no mining is/was carried out below ground water table and the same status will be maintained in future also.

Condition v: - The Project proponent shall ensure that no natural watercourse shall be obstructed due to any mining operations.

Reply: - Since shallow depth mining is being carried out, hence there is no intersection with the groundwater table. In future also, working zones will be restricted to above ground water table. We undertake that no mining is/was carried out below ground water table and the same status will be maintain in future also.

Moreover, we are regularly monitoring the groundwater table through the installation of a piezometer.

A copy of the water level report is attached herewith as **Annexure-1**.

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

Reply: - Topsoil is being stacked properly with proper slope as and when required for its use for reclamation and rehabilitation. Sequential backfilling and reclamation of the mined-out area are being exercised during mining operation. The mining is being carried out as per the approved mining plan. Monitoring and management of rehabilitated areas is being done through effective supervision. Data pertaining to backfilling is enclosed as **Annexure 4**.



Reclaimed land

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

Reply: - Overburden and waste rock from the mining pit are being used for back filling. Backfilling and plantation detail provided in **Annexure – 4**. No external OB dump is in the project area. Monitoring and management of rehabilitated areas is continuous through supervision.

Condition viii: - 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 collect & manage rainwater during monsoon, part of mined out area is used as a settling tank for the runoff. Rainwater stored is being used for watering the mine area, roads, green belt development and sprinkling as necessary. Catch drains, Garland drains of appropriate size are being constructed in both around the mine pit to prevent runoff of water and flow of sediments directly into the agricultural field and water bodies, if applicable. Sump of adequate capacity is being provided and maintained as required. Photographs of the same is attached below.



Garland Drain



Siltation Pond

Condition ix: - Plantation shall be raised in an area of 70.68 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: - Progressive plantation of native species is being carried in and out around mining lease, reclaimed area etc. in consultation with local forest department. Total 5500 nos. saplings have been planted in the period from April'24 to September'24 within the lease. Total 28.50 ha areas have been planted till date.

In addition to this agricultural activity is going on reclaimed land as per the consent from landowners. Green belt development program is in progress with progress of mining activities in a phased manner.



Plantation at Mines

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

Reply: - A detailed plan to augment groundwater has been prepared, and suitable measures like the creation of water harvesting ponds, etc., are being taken for the augmentation of groundwater in the area, in consultation with the Central Ground Water Board.



Rainwater Harvesting Pond

Condition xi: - 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: - We are not using ground water for any mining purpose. Since, Shallow depth mining is being carried out, hence there is no intersection of ground water table during the mining operation at present and in future also. A Piezometer has been installed for monitoring of ground water level. Water level and water quality reports are being sent regular to regional office of Ministry, CGWA and JSPCB. The same is attached herewith as **Annexure 1 & 2.**



Piezometer

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

Reply: - We are not using any water from natural streams/ ground water for mining operation. Rainwater harvesting ponds with proper fencing have been already constructed in the mine premises. Rainwater harvested during rainy season is being used for sprinkling on haul roads and raising plantation.

However, we have obtained NOC for extraction of ground water from CGWA/ CGWB for drinking purpose only. The copy of same NOC and photographs of Rainwater harvesting ponds are attached below.

1. NOC No.:		2. Date of Issuance	
CGWA/NOC/MIN/REN/2023/8367		11/10/2023	
3. Application No.:		4. Category:	
21-4146-CJHMN/2019		Safe	
5. Project Status:		6. NOC Type:	
Existing Ground Water		Renewal	
7. Valid from:		8. Valid up to:	
12/12/2023		11/12/2025	
9. Ground Water Abstraction Permitted:			
Fresh Water		Saline Water	
m ³ /day		m ³ /day	
m ³ /year		m ³ /year	
9.50	3467.50		
10. Details of ground water abstraction /Dewatering structures			
Total Existing No.:			
DW	DCB	BW	TW
MP	MPu	DW	DCB
BW	TW	MP	MPu
0	0	1	0
0	0	0	0
0	0	0	0
0	0	0	0
Total Proposed No.:			
DW	DCB	BW	TW
MP	MPu	DW	DCB
BW	TW	MP	MPu
0	0	1	0
0	0	0	0
0	0	0	0
0	0	0	0
11. Ground Water Abstraction/Restoration Charges paid (Rs.):			
			6936.00
12. Environment Compensation (if applicable) paid (Rs.):			
			0.00

NOC for Ground Water

Condition xiii: - Water monitoring both for quality and quantity shall be carried out at four locations namely one spring and three streams. Six monthly report should be submitted to the Ministry of Environment and Forest and its Regional Office located at Bhubneshwar.

Reply: - Water quality of the Spring and streams is being monitored. Analysis report is attached as **Annexure 2**. Six monthly report is being submitted regularly. Now, the Regional office of MoEF&CC is located in Ranchi.

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

Reply: - To keep vehicular emissions under control, vehicles are periodically checked & repaired. All measures are being taken to control vehicular emission. All vehicles are covered with tarpaulins, and non-overloading guidelines are being followed during transportation of mineral.



Tarpaulin covered Truck

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

Reply: - Wet drilling is in practice.



Wet drilling

Condition xvi: - 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: - Blasting time is fixed during Lunch Time i.e. 1.00 PM-2.00 PM. We have control blasting permission. Controlled blasting method is in practice. Ground vibration study has been conducted periodically. Efforts and mitigative measures are being taken to reduce the impact of the blast.

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

Reply: - We have already obtained the Consent to Operate for Bauxite Ore as per production capacity mentioned in EC.

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

Reply: - The sewage water from domestic uses is being collected through individual Septic Tank and followed by Soak Pit.

No wastewater is generated from our mining operation. However, only negligible amount of effluent is being generated from workshop and Oil & grease trap system is already installed to treat this effluent. The treated water is in close circuit and being reused for washing of vehicle in the workshop.

Furthermore, the quality of this treated water is being monitored regularly and the monitoring report is attached herewith as **Annexure 2**.



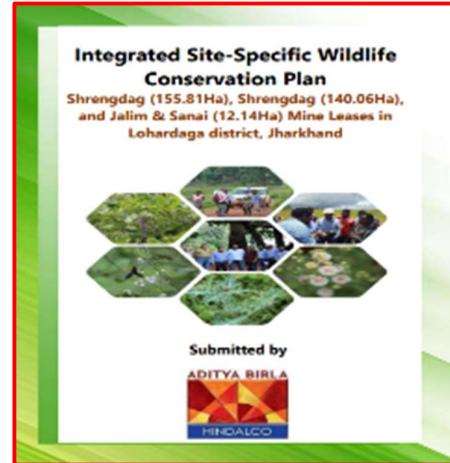
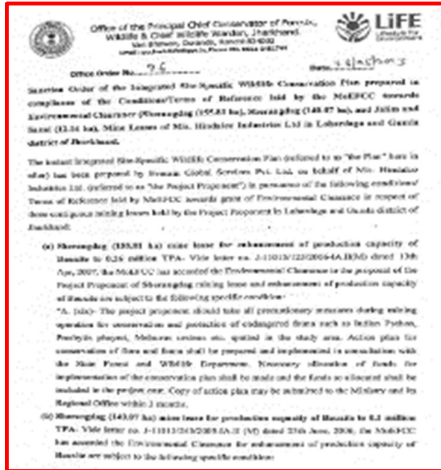
Washing Ramp and Oil and Grease Trap

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

Reply: - Safeguard Measures already implemented and being implemented as suggested by forest department are as follows:

1. Minimum level of Noise during Mining.
2. Permanent pillars are established within in the mine lease area at 7.5m from the forest boundary.
3. Daily water sprinkling on haul road.
4. Transportation is carried out during daytime only.
5. Maintenance of mineral transportation road is being done regularly.
6. Social activities are being undertaken in nearby areas etc.

We have also prepared Integrated Site-specific Wildlife Conservation in consultation with State Forest Department and obtained approval letter from Principal Chief Conservator of Forest, Wildlife & Chief Wildlife Warden, Jharkhand via Office Order No.26 dated 26.05.2023 for conservation and protection of flora and fauna in the core and buffer zone for Sherengdag Group of Mines.



Integrated Site-specific Wildlife Conservation Plan for Sherengdag Group of Mines

Condition xx: - 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: - Mining Plan along with progressive mine closure plan has been approved by Indian Bureau of Mines. Final Mine Closure Plan will be submitted in due time as per applicable guideline and timelines mentioned in MCDR/IBM guideline who are competent authority to approve the same. Based on present resource estimate and peak rated production capacity mentioned in EC, Mining operation is being carried out.

General Conditions: -

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

Reply: - Noted.

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

Reply: - Calendar plan including excavation, quantum of mineral bauxite and waste is being done as per IBM approved mining scheme and in scientific manner. Data pertaining to excavation, quantum of mineral bauxite etc. are mentioned in report attached as **Annexure 4**.

Condition iii: - Four ambient air quality-monitoring station should be established in the core zone as well as in the buffer zone for RPM, SPM, SO₂, NO_x 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: - 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. Monitoring Report is attached as **Annexure 2**.

Condition iv: - Data on ambient air quality (RPM, SPM, SO₂, NO_x) should be regularly submitted to the Ministry including its Regional office located at Bhubneshwar and the State Pollution Control Board / Central pollution Control Board once in six months.

Reply: - Being adhered to. Monitoring Reports for the reporting period are attached as **Annexure-2**. Now, the Regional office of MoEF&CC is in Ranchi.

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

Reply: - Water tankers have been provided for sprinkling of water on haul roads, at loading and unloading areas, and at transfer points to control fugitive dust emissions. Water spraying at loading, unloading, and transfer points is being done.



Water sprinkling through tanker.

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

Reply: - Measures are being taken for control of noise levels below 85 dB(A) in the work environment. Workers engaged in operation of HEMM, etc. has been provided with ear plug /

muffs. The noise level monitoring is being conducted at a regular interval. The noise level is within the prescribed norms. Report has been attached as **Annexure 2**.

Condition vii: - 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 19th May, 1993 and 31st December,1993 or as amended from time to time. Oil and grease traps should be installed before discharge of workshop effluents.

Reply: - No wastewater is generated from our mining operation. However, only negligible amount of effluent is being generated from workshop and Oil & grease trap system is already installed to treat this effluent. The treated water is in close circuit and being reused for washing of vehicle in the workshop. We are not discharging any wastewater outside mine lease area. Furthermore, the quality of this treated water is being monitored regularly and the monitoring report is attached herewith as **Annexure 2**.



Washing Ramp and Oil and Grease Trap

Condition viii: - Personnel working in dusty areas should wear protective respiratory devices and they should also provided with adequate training and information on safety and health aspects.

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

Reply: - All the workers have been provided with PPEs including dust mask and dust respirators. Apart from PPEs distribution to all workers, we are also providing adequate safety training and conducting awareness session on Safety and health aspects on regular basis. Periodical Occupational health surveillance program of the workers is being carried out and records maintained as per statute.

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

Reply: - A separate environmental management cell with suitable qualified personnel has been set up under the control of a Senior Executive, who is reporting directly to the Head of the Organization. The same is being attached herewith as **Annexure 3**.

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

Reply: - This is an operating mine and hence the provision related to financial closure is not applicable. Now, the Regional office of MoEF&CC is in Ranchi.

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

Reply: - Every year, the funds earmarked for environmental protection measures is being budgeted separately and its expenditure is being reported to the Ministry. The copy of the same is attached as **Annexure 5**. Now, the Regional Office of MoEF&CC is in Ranchi.

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

Reply: - Noted and Agreed. Now, the Regional Office of MoEF&CC is in at Ranchi.

Condition xiii: - The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Officer, Bhubaneshwar, Central Pollution Control Board and State Pollution Control Board.

Reply: - Six monthly reports on status of implementation of the stipulated environmental safeguards as per EC conditions, including monitoring report are being submitted to the MoEF&CC, Zonal office of CPCB & JSPCB, Ranchi and also uploaded on the website of the company. Now, the Regional Office of MoEF&CC is in Ranchi.

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

Reply: - Complied. A copy of clearance letter has already been submitted.

Condition xv: - 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: - Noted. The EC Letter has been submitted to JSPCB for display of same at its Regional office and other government offices.

Condition xvi: - The project authorities should advertise at least in two local newspapers widely circulated, one of which locality concerned, within 7days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <http://envfor.nic.in> and a

copy of the same should be forwarded to the Regional Office of this Ministry located Bhubneshwar.

Reply: - Noted and complied. The information on grant of the EC has been published in two local newspapers. The copy of the advertisement has already been submitted to the Regional Office of the MoEF&CC. Now, the Regional office of MoEF&CC is in Ranchi.

Shrendag A Mines		
Piezometer Reading		
S No	Month	Depth (meter)
1	Apr-24	32.15
2	May-24	33.00
3	Jun-24	33.10
4	Jul-24	34.93
5	Aug-24	34.95
6	Sep-24	35.92

ENVIROCHECK

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

Shrengdag A Bauxite Mine-Environmental Monitoring Report

April 2024

TEST REPORT

Test Report No. : ENVJK/1184/APR/TR(W)24-25	Report Release Date : 28.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1709
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge, Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 15.04.2024 to 16.04.2024
Mines Status	: Operational	Sample Received Date	: 22.04.2024
Period of Analysis	: 22.04.2024 to 28.04.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part 23): 2006	76	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	USEPA 1997a, 40 CFR Part 50, Appendix L: 2006	41	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part 2): 2001	17.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part 6): 2006	35.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.017	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	USEPA Method – IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	USEPA Method – TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	USEPA Method – TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

**** End of Report ****



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

Page 1 of 1

TEST REPORT

Test Report No. : ENVJK/1185/APR/TR(W)24-25	Report Release Date : 28.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1710
Address	: Lohardaga, Jharkhand-835302	Location	: BKB Quarry/Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 15.04.2024 to 16.04.2024
Mines Status	: Operational	Sample Received Date	: 22.04.2024
Period of Analysis	: 22.04.2024 to 28.04.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
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3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part 23): 2006	68	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	USEPA 1997a, 40 CFR Part 50, Appendix L: 2006	35	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part 2): 2001	8.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part 6): 2006	24.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	USEPA Method – IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	USEPA Method – TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	USEPA Method – TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

TEST REPORT

Test Report No. : ENVJK/1186/APR/TR(W)24-25	Report Release Date : 28.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1711
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No.2A, Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 15.04.2024 to 16.04.2024
Mines Status	: Operational	Sample Received Date	: 22.04.2024
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		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

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Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part 23): 2006	68	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	USEPA 1997a,40 CFR Part 50, Appendix L: 2006	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part 2): 2001	8.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part 6): 2006	25.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	USEPA Method – IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	USEPA Method – TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	USEPA Method – TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

****End****



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

TEST REPORT

Test Report No. : ENVJK/1187/APR/TR(W)24-25	Report Release Date : 28.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1712
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No.2B, Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 15.04.2024 to 16.04.2024
Mines Status	: Operational	Sample Received Date	: 22.04.2024
Period of Analysis	: 22.04.2024 to 28.04.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part 23): 2006	63	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	USEPA 1997a.40 CFR Part 50, Appendix L: 2006	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part 2): 2001	7.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part 6): 2006	21.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.11	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	USEPA Method – IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	USEPA Method – TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	USEPA Method – TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

****End of Report****



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

Page 1 of 1

TEST REPORT

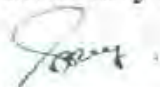
Test Report No. : ENVJK/1180/APR/TR(W)24-25	Report Release Date : 28.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1705
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 16.04.2024 to 17.04.2024
Mines Status	: Operational	Sample Received Date	: 22.04.2024
Period of Analysis	: 22.04.2024 to 28.04.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part 23): 2006	52	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	USEPA 1997a, 40 CFR Part 50, Appendix L: 2006	30	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part 2): 2001	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part 6): 2006	25.4	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	USEPA Method – IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	USEPA Method – TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	USEPA Method – TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

****End****



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

Page 1 of 1

TEST REPORT

Test Report No. : ENVJK/1181/APR/TR(W)24-25	Report Release Date : 28.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1706
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 16.04.2024 to 17.04.2024
Mines Status	: Operational	Sample Received Date	: 22.04.2024
Period of Analysis	: 22.04.2024 to 28.04.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part 23): 2006	52	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	USEPA 1997a, 40 CFR Part 50, Appendix L: 2006	33	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part 2): 2001	8.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part 6): 2006	20.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	USEPA Method – IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	USEPA Method – TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	USEPA Method – TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

****End of Report****



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

TEST REPORT

Test Report No. : ENVJK/1182/APR/TR(W)24-25	Report Release Date : 28.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1707
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 16.04.2024 to 17.04.2024
Mines Status	: Operational	Sample Received Date	: 22.04.2024
Period of Analysis	: 22.04.2024 to 28.04.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part 23): 2006	58	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	USEPA 1997a,40 CFR Part 50, Appendix L: 2006	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part 2): 2001	7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part 6): 2006	25.4	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	USEPA Method – IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	USEPA Method – TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	USEPA Method – TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

TEST REPORT

Test Report No. : ENVJK/1183/APR/TR(W)24-25	Report Release Date : 28.04.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ENVJK/2024/AA/1708
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 16.04.2024 to 17.04.2024
Mines Status	: Operational	Sample Received Date	: 22.04.2024
Period of Analysis	: 22.04.2024 to 28.04.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical Group: Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part 23): 2006	58	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	USEPA 1997a, 40 CFR Part 50, Appendix L: 2006	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part 2): 2001	8.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part 6): 2006	23.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	USEPA Method – IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	USEPA Method – TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	USEPA Method – TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

****End of Report****



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

Page 1 of 1

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

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

Shrengdag A Bauxite Mine-Environmental Monitoring Report

May 2024





ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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Phone no.: 0651-2290103
Website : www.elespl.co.in



TC-1387

CIN: U74995JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/2781	Report Release Date : 23.05.2024
Work Order No. : I3612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000747F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3050
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge, Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Date	: 14.05.2024 to 15.05.2024
Period of Analysis	: 18.05.2024 to 23.05.2024	Sample Received Date	: 18.05.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 33	2	Barometric Pressure (mmHg) : 742
3	Relative Humidity (%) : 59	4	Weather Condition : Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	82	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	47	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	16.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	36.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.019	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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Website : www.elespl.co.in



CIN: U74993JH2018PTC031125

TEST REPORT

Test Report No. : ELES/RNC/2024/2781	Report Release Date : 23.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000747F	

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

Reviewed by

AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

Authorised Signatory

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



ENVIRONMENTAL LABORATORIES &

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



TEST REPORT

Test Report No. : ELES/RNC/2024/2782	Report Release Date : 23.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000748F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3051
Address	: Lohardaga, Jharkhand-835302	Location	: BKB Quarry, Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Date	: 14.05.2024 to 15.05.2024
Period of Analysis	: 18.05.2024 to 23.05.2024	Sample Received Date	: 18.05.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	60	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	9.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	28.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.017	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

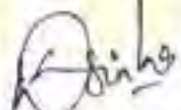
TEST REPORT

Test Report No. : ELES/RNC/2024/2782	Report Release Date : 23.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000748F	

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


 Reviewed by
AKASH KUMAR
 Quality Manager
 ELES PVT. LTD.

****End of Report****


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

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CIN: U74909JH2016PTC011125

ENVIRONMENTAL LABORATORIES &

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TC-1087

TEST REPORT

Test Report No. : ELES/RNC/2024/2783	Report Release Date : 23.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000749F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3052
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No.2A, Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Date	: 14.05.2024 to 15.05.2024
Period of Analysis	: 18.05.2024 to 23.05.2024	Sample Received Date	: 18.05.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	65	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	37	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	9.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	26.7	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.014	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

Page 1 of 2

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"Save Environment, Save Future"



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CIN: U70900JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/2783	Report Release Date : 23.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000749F	

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

Reviewed by

AKASH KUMAR
Quality Manager
ELES PVT LTD.

****End of Report****

Authorised Signatory

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



CIN: U74999JH2020PTC031125

ENVIRONMENTAL LABORATORIES &

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TC-1987

TEST REPORT

Test Report No. : ELES/RNC/2024/2784	Report Release Date : 23.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000750F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3053
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No.2B, Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Date	: 14.05.2024 to 15.05.2024
Period of Analysis	: 18.05.2024 to 23.05.2024	Sample Received Date	: 18.05.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	68	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	38	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	7.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	26.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.15	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/2784	Report Release Date : 23.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000750F	

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

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

Authorised Signatory

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

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CIN: U74999JH2018PTC011225

TEST REPORT

Test Report No. : ELES/RNC/2024/2785	Report Release Date : 23.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000751F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3054
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Date	: 14.05.2024 to 15.05.2024
Period of Analysis	: 18.05.2024 to 23.05.2024	Sample Received Date	: 18.05.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	59	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 11/Sec- 1): 2023	7.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	27.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.01	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/2785	Report Release Date : 23.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000751F	

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

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

Authorised Signatory

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

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CIN: U78999/JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/2786	Report Release Date : 23.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000752F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3055
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 14.05.2024 to 15.05.2024
Mines Status	: Operational	Sample Received Date	: 18.05.2024
Period of Analysis	: 18.05.2024 to 23.05.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	57	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	9.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	23.4	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/2786	Report Release Date : 23.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000752F	

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

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

Authorised Signatory
Dr. Daependra Kumar Sinha
Ph. D Environmental Engg.
ELES Pvt. Ltd. Technical Mantr

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ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDAMA
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GST NO:- 20AAECE9713D128

ENGINEERING SERVICES PVT. LTD.

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/2787	Report Release Date : 23.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000753F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3056
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 14.05.2024 to 15.05.2024
Mines Status	: Operational	Sample Received Date	: 18.05.2024
Period of Analysis	: 18.05.2024 to 23.05.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23); 2022	58	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24); 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1); 2023	6.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6); 2022	23.9	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9); 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10); 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22); 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26); 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01; 2021	<2.0	06 (Annual)

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CIN: U74899JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/2787	Report Release Date : 23.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000753F	

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

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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

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CIN: U74999JH3018PTC011123

TEST REPORT

Test Report No. : ELES/RNC/2024/2788	Report Release Date : 23.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000754F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3057
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Date	: 14.05.2024 to 15.05.2024
Period of Analysis	: 18.05.2024 to 23.05.2024	Sample Received Date	: 18.05.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	65	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	10.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	26.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PPTC011125

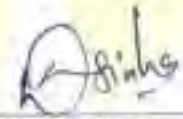
TEST REPORT

Test Report No. : ELES/RNC/2024/2788	Report Release Date : 23.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000754F	

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


Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****


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



CIN: L74999JH2018PTC011125

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TC-13587

TEST REPORT

Test Report No.	: ELES/RNC/2024/2896	Report Release Date	: 28.05.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400000856F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/DW/3070
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 15.05.2024
		Sample Received Date	: 18.05.2024
Mines Status	: Operational	Type of Sample	: Drinking Water
		Source/Location of Sample	: Near Office, Serengdag-A Bauxite Mines (155.81ha)
Period of Analysis	: 18.05.2024 to 28.05.2024	Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 25.6 °C)	-	APHA 24 th Ed.2023, 4500-H	6.55	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 24 th Ed.2023, 2130 B	0.73	1.0	5.0
Taste	-	APHA 24 th Ed.2023, 2160 C	Agreeable	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 24 th Ed.2023, 2120B&D	1.0	5	15
Total Dissolved Solids (TDS)	mg/L	APHA 24 th Ed.2023, 2540B,C&D	47	500	2000
Chloride (as Cl)	mg/L	APHA 24 th Ed.2023, 4500 Cl B	6.7	250	1000
Fluoride (as F)	mg/L	APHA 24 th Ed.2023, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO ₃)	mg/L	APHA 24 th Ed.2023, 2320 B	8.2	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 24 th Ed.2023, 2340 C	8.1	200	600
Sulphate (as SO ₄)	mg/L	APHA 24 th Ed.2023, 4500 SO ₄ ²⁻ -E	BDL (DL: 1.0)	200	400

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TEST REPORT

Test Report No. : ELES/RNC/2024/2896	Report Release Date : 28.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000856F	

Discipline : Chemical		Group : Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed.2023, 4500 NO ₃ -B	0.69	45	No Relaxation
Phenolic Compound (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part 43/Sec1): 2022	BDL (DL: 0.001)	0.001	0.002
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26): 2021	BDL (DL: 0.1)	0.2	1.0
Calcium (as Ca)	mg/L	APHA 24 th Ed.2023, 3500 Ca B	2.1	75	200
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	0.2	1.0
Discipline : Chemical		Group : Residues in Water			
Aluminum (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	0.03	0.2
Arsenic (as As)	mg/L	IS 3025 (Part-37): 2022	BDL (DL: 0.005)	0.01	No Relaxation
Boron (as B)	mg/L	IS 3025 (Part-57) : 2021	BDL (DL: 0.2)	0.5	2.4
Cadmium (as Cd)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium(as Cr)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05	1.5
Cyanide (as CN)	mg/L	APHA 24 th Ed.2023, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation
Iron (as Fe)	mg/L	APHA 24 th Ed.2023; 3111B	0.079	1.0	1.0
Lead (as Pb)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	BDL (DL: 0.001)	0.001	No Relaxation



CIN: U74999JH2018PTC011125

TC-1287

TEST REPORT

Test Report No. : ELES/RNC/2024/2896	Report Release Date : 28.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000856F	

Discipline : Chemical		Group : Residues in Water		Regulatory Limit	
				as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2019	BDL (DL: 0.01)	0.01	No Relaxation
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.1)	5	15
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04: 2023	BDL (DL: 0.05)	0.1	No Relaxation
Polychlorinated biphenyls (PCB)	µg/L	ELES/GC/SOP/03: 2023	BDL (DL: 0.1)	0.5	No Relaxation
Pesticides				Limit	
Alachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	20	
Atrazine	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2.0	
Butachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	125	
Chlorpyrifos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	30	
Ethion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	3.0	
Malathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	190	
Methyl parathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.1)	0.30	
Monocrotophos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	1.0	
Phorate	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2.0	
Phorate Sulphone	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--	
Dieldrin	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.01)	0.03	



TEST REPORT

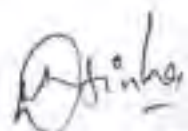
Test Report No. : ELES/RNC/2024/2896	Report Release Date : 28.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000856F	

Pesticides				
Parameter	Unit	Test Protocol	Result	Limit
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	0.01
Delta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	0.04
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	2.0
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	0.40
DDT(α,β and p,p-isomers of DDT,DDEand DDD)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	1.0
Discipline : Biological		Group : Water		
Total Coliform (Qualitative)	Per 100 mL	IS 15185: 2021	Not Detected	Shall not be detected
Escherichia coli (Qualitative)	Per 100 mL	IS 15185: 2021	Not Detected	

Remarks: 1. pH and RFC done at Lab.


 AK Saha
 Quality Manager
 ELES PVT. LTD.

****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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DN: U74999JH2018PTC011225

TEST REPORT

Test Report No. : ELES/RNC/2024/2896	Report Release Date : 28.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/DW/3070
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 15.05.2024
		Sample Received Date	: 18.05.2024
Mines Status	: Operational	Type of Sample	: Drinking Water
Period of Analysis	: 18.05.2024 to 28.05.2024	Source/Location of Sample	: Near Office, Serengdag-A Bauxite Mines (155.81ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Mineral Oil*	mg/L	CL-6, IS: 3025 (P-39)	BDL (DL: 0.1)	1.0	No Relaxation

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

Reviewed by

AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

Authorised Signatory

Dr. Deependra Kumar Singh
Ph. D Environmental Engg
ELES Pvt. Ltd. Technical Man



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/2908	Report Release Date : 28.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000868F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/EF/3074
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 15.05.2024
		Sample Received Date	: 18.05.2024
Mines Status	: Operational	Type of Sample	: Effluent Water
Period of Analysis	: 18.05.2024 to 25.05.2024	Source of Sample	: Serengdag-A Bauxite Mines (155.81 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Pollution & Environment		Discharge Limits – CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
pH (at 25.6°C)	-	APHA 24 th Ed.2023,4500-H ⁺	5.60	5.5-9.0	5.5-9.0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	239	--	--
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	8.2	100	200
Dissolved Oxygen (DO)	mg/L	IS 3025 (Part-38): 2019	6.5	--	--
Biochemical Oxygen Demand (BOD) (at 27 °C for 3 days)	mg/L	IS 3025 (Part-44): 2023	4.0	30	100
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2023	35	250	--
Dissolved Phosphate (as P)	mg/L	IS 3025 (Part-31/Sec-1): 2022	BDL (DL: 0.04)	5.0	--
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	0.347	2.0	1.5
Sulphide (as S)	mg/L	IS 3025 (Part-29) : 2019	BDL (DL: 0.04)	2.0	--
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	BDL (DL: 1.0)	10	10

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TC-1587

CIN: U72999JH2018PTC011129

TEST REPORT

Test Report No. : ELES/RNC/2024/2908	Report Release Date : 28.05.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400000868F	

Discipline : Chemical		Group : Residues in Water		Discharge Limits – CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
Lead (as Pb)	mg/L	APHA 24 th Ed.2023, 3111 B	BDL (DL: 0.01)	0.1	--
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023, 3111 B	BDL (DL: 0.05)	2.0	--
Mercury (as Hg)	mg/L	IS 3025(Part-48): 1994; RA2019	BDL (DL: 0.001)	0.01	--
Nickel (as Ni)	mg/L	APHA 24 th Ed.2023, 3111 B	BDL (DL: 0.01)	3.0	--
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023, 3111 B	BDL (DL: 0.1)	5.0	--

Remarks: pH done at Lab.

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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

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3	Near Harup Village
4	Near Paintoli Village





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CIN: U74999JH2018PTC031125

TEST REPORT

Test Report No. : ELES/RNC/2024/3381	Report Release Date : 24.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001332F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3832
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge, Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 17.06.2024 to 18.06.2024
Mines Status	: Operational	Sample Received Date	: 20.06.2024
Period of Analysis	: 20.06.2024 to 24.06.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 38	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	73	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	44	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	13.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	27.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.021	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3381	Report Release Date : 24.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001332F	

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


Resigned by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****


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



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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3382	Report Release Date : 24.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001333F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3833
Address	: Lohardaga, Jharkhand-835302	Location	: BKB Quarry, Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 17.06.2024 to 18.06.2024
Mines Status	: Operational	Sample Received Date	: 20.06.2024
Period of Analysis	: 20.06.2024 to 24.06.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 38	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	55	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	11.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	22.5	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74599JH2018PTC011135

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16-1082

TEST REPORT

Test Report No. : ELES/RNC/2024/3382	Report Release Date : 24.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001333F	

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

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

Authorised Signatory

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



CIN: U74999JH2018PTC011225

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TC-1080

TEST REPORT

Test Report No. : ELES/RNC/2024/3383	Report Release Date : 24.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001334F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3834
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No.2A, Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 17.06.2024 to 18.06.2024
Mines Status	: Operational	Sample Received Date	: 20.06.2024
Period of Analysis	: 20.06.2024 to 24.06.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 38	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	62	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	8.6	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	20.5	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

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TEST REPORT

Test Report No. : ELES/RNC/2024/3383	Report Release Date : 24.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001334F	

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


Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3384	Report Release Date : 24.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001335F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3835
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No.2B, Serengdag-A Bauxite Mines (155.8Iha)
		Sampling Date	: 17.06.2024 to 18.06.2024
Mines Status	: Operational	Sample Received Date	: 20.06.2024
Period of Analysis	: 20.06.2024 to 24.06.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 38	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	62	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	8.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	23.6	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.18	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3384	Report Release Date : 24.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001335F	

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

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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

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CIN: U74999JH2016PTC011125

ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSARDVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
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Website: www.elespl.co.in

TEST REPORT

Test Report No. : ELES/RNC/2024/3385	Report Release Date : 24.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001336F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3836
Address	: Lohardaga, Jharkhand-835302	Location	: Near Barjari Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 17.06.2024 to 18.06.2024
Mines Status	: Operational	Sample Received Date	: 20.06.2024
Period of Analysis	: 20.06.2024 to 24.06.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 38	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	56	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	23	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11/Sec- 1): 2023	6.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	11.2	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TC-15887

TEST REPORT

Test Report No. : ELES/RNC/2024/3385	Report Release Date : 24.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001336F	

Discipline: Chemical

Group: Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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

Page 2 of 2

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3386	Report Release Date : 24.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001337F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3837
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 17.06.2024 to 18.06.2024
Mines Status	: Operational	Sample Received Date	: 20.06.2024
Period of Analysis	: 20.06.2024 to 24.06.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 38	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	65	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	11.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	26.8	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PVT011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3386	Report Release Date : 24.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001337F	

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

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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



CIN: U74999JH2018PTC011125

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PLOT NO-30, MANSARDVAR ENCLAVE, TUPUDANA
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TEST REPORT

Test Report No. : ELES/RNC/2024/3387	Report Release Date : 24.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001338F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3838
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Date	: 17.06.2024 to 18.06.2024
Period of Analysis	: 20.06.2024 to 24.06.2024	Sample Received Date	: 20.06.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 38	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	55	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	29	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	24.2	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH018PT011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3387	Report Release Date : 24.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001338F	

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

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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



CIN: U74999JH2018PTC01125

ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TC-1587

TEST REPORT

Test Report No. : ELES/RNC/2024/3388	Report Release Date : 24.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001339F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3839
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Date	: 17.06.2024 to 18.06.2024
Period of Analysis	: 20.06.2024 to 24.06.2024	Sample Received Date	: 20.06.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 38	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	69	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	38	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	11.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	23.8	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

Page 1 of 2

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"Save Environment, Save Future"



ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/3388	Report Release Date : 24.06.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400001339F	

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

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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

CONTENT

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Shrengdag A Bauxite Mine	
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2	Near Pajari Village
3	Near Harup Village
4	Near Paintoli Village





ENVIRONMENTAL LABORATORIES &

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CIN: U74999JK2018PTC011125

PC-1887

TEST REPORT

Test Report No. : ELES/RNC/2024/4137	Report Release Date : 24.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002072F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4736
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge, Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 16.07.2024 to 17.07.2024
Mines Status	: Operational	Sample Received Date	: 19.07.2024
Period of Analysis	: 19.07.2024 to 24.07.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 66	4	Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	72	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	39	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	12.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	27.3	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.021	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

Page 1 of 2

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TC-13887

CIN: U72909JH2018PTC011125


TEST REPORT

Test Report No. : ELES/RNC/2024/4137	Report Release Date : 24.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002072F	

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


Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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TC-13887

TEST REPORT

Test Report No. : ELES/RNC/2024/4138	Report Release Date : 24.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002073F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4737
Address	: Lohardaga, Jharkhand-835302	Location	: BKB Quarry, Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 16.07.2024 to 17.07.2024
Mines Status	: Operational	Sample Received Date	: 19.07.2024
Period of Analysis	: 19.07.2024 to 24.07.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 66	4	Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	50	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	8.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	20.2	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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TC-13887

CIN: U74999JH2018PVT011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4138	Report Release Date : 24.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002073F	

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

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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



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TC-13887

TEST REPORT

Test Report No. : ELES/RNC/2024/4139	Report Release Date : 24.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002074F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4738
Address	: Lohardaga, Jharkhand-835502	Location	: Mine Pit Quarry No.2A, Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 16.07.2024 to 17.07.2024
Mines Status	: Operational	Sample Received Date	: 19.07.2024
Period of Analysis	: 19.07.2024 to 24.07.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 66	4	Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	62	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	9.6	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	22.4	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.013	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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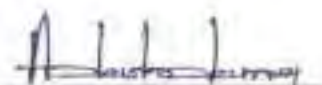


CIN: U70909JH2018PTC011124


TEST REPORT

Test Report No. : ELES/RNC/2024/4139	Report Release Date : 24.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002074F	

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


 Reviewed by
AKASH KUMAR
 Quality Manager
 ELES PVT. LTD.

****End of Report****


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

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TEST REPORT

Test Report No. : ELES/RNC/2024/4140	Report Release Date : 24.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002075F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4739
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No.2B, Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 16.07.2024 to 17.07.2024
Mines Status	: Operational	Sample Received Date	: 19.07.2024
Period of Analysis	: 19.07.2024 to 24.07.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 66	4	Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	59	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11/Sec- 1): 2023	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	22.2	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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TC-12887

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4140	Report Release Date : 24.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002075F	

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

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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



ENVIRONMENTAL LABORATORIES &

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CIN: U74900JH2018PTC011125

TC-13587

TEST REPORT

Test Report No. : ELES/RNC/2024/4141	Report Release Date : 24.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002076F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4740
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Date	: 16.07.2024 to 17.07.2024
Period of Analysis	: 19.07.2024 to 24.07.2024	Sample Received Date	: 19.07.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 66	4	Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	55	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	29	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	8.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	22.7	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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TC-12887

CIN: U74900JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4141	Report Release Date : 24.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002076F	

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

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TC-1387

CIN: U74999JH2012BPY011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4142	Report Release Date : 24.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002077F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4741
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Date	: 16.07.2024 to 17.07.2024
Period of Analysis	: 19.07.2024 to 24.07.2024	Sample Received Date	: 19.07.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 66	4	Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	59	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	9.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	22.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

Page 1 of 2

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CIN: U74909JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2024/4142	Report Release Date	: 24.07.2024
Work Order No.	: 13612312113	Work Order Date	: 28.03.2024
ULR No.	: TC135872400002077F		

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

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD

****End of Report****

Authorised Signatory

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



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TEST REPORT

Test Report No. : ELES/RNC/2024/4143	Report Release Date : 24.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002078F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4742
Address	: Lohirdaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 16.07.2024 to 17.07.2024
Mines Status	: Operational	Sample Received Date	: 19.07.2024
Period of Analysis	: 19.07.2024 to 24.07.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 66	4	Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	51	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	25	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	18.1	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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TEST REPORT

Test Report No. : ELES/RNC/2024/4143	Report Release Date : 24.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002078F	

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


Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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CIN: U74900HR30180PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4144	Report Release Date : 24.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002079F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4743
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Date	: 16.07.2024 to 17.07.2024
Period of Analysis	: 19.07.2024 to 24.07.2024	Sample Received Date	: 19.07.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 66	4	Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	61	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	8.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	22.1	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.008	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

Page 1 of 2

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TC-13887

TEST REPORT

Test Report No. : ELES/RNC/2024/4144	Report Release Date : 24.07.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002079F	

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

Reviewed by
AKASH KUMAR
Quality Manag.-r
ELES PVT LTD

****End of Report****

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

CONTENT

Hindalco Industries : Shrengdag A Bauxite Mine Environmental Monitoring Report August 2024	
Shrengdag A Bauxite Mine	
	AMBIENT AIR QUALITY- CORE ZONE
1	Near Weigh Bridge
2	BKB Quarry
3	Mine Pit Quarry No.2A
4	Mine Pit Quarry No.2B
	AMBIENT AIR QUALITY- BUFFER ZONE
1	Near Banjari Village
2	Near Pauri Village
3	Near Harup Village
4	Near Paintoli Village
	Drinking Water
	Effluent Water





ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4761	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002680F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5444
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge, Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 12.08.2024 to 13.08.2024
Mines Status	: Operational	Sample Received Date	: 14.08.2024
Period of Analysis	: 14.08.2024 to 22.08.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

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

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	65	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	10.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	25.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.014	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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TEST REPORT

Test Report No. : ELES/RNC/2024/4761	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002680F	

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

Reviewed by

AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

Authorised Signatory

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



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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4762	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002681F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5445
Address	: Lohardaga, Jharkhand-835302	Location	: BKB Quarry, Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 12.08.2024 to 13.08.2024
Mines Status	: Operational	Sample Received Date	: 14.08.2024
Period of Analysis	: 14.08.2024 to 22.08.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

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

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	43	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	22	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	17.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

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TC-13587

TEST REPORT

Test Report No. : ELES/RNC/2024/4762	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002681F	

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

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4763	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002682F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5446
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No.2A, Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 12.08.2024 to 13.08.2024
Mines Status	: Operational	Sample Received Date	: 14.08.2024
Period of Analysis	: 14.08.2024 to 22.08.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

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

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	58	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	29	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	7.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	19.5	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

Page 1 of 2

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TC-13587

TEST REPORT

Test Report No. : ELES/RNC/2024/4763	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002682F	

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

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4764	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002683F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5447
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No.2B, Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 12.08.2024 to 13.08.2024
Mines Status	: Operational	Sample Received Date	: 14.08.2024
Period of Analysis	: 14.08.2024 to 22.08.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

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

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	55	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	24	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	19.4	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

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TC-13847

TEST REPORT

Test Report No. : ELES/RNC/2024/4764	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002683F	

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

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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

Page 2 of 2

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CIN: U74999JH2018PTC011125

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TC-13887

TEST REPORT

Test Report No. : ELES/RNC/2024/4765	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002684F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5448
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 12.08.2024 to 13.08.2024
Mines Status	: Operational	Sample Received Date	: 14.08.2024
Period of Analysis	: 14.08.2024 to 22.08.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

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

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	47	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	24	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	7.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	19.3	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.006	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4765	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002684F	

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

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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



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TC-13587

CIN: U74999/JH018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4766	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002685F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5449
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines (155.81ha)
		Sampling Date	: 12.08.2024 to 13.08.2024
Mines Status	: Operational	Sample Received Date	: 14.08.2024
Period of Analysis	: 14.08.2024 to 22.08.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

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

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	53	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	7.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	20.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)



CIN: U74999JH2018PTC011125

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TC-13881

TEST REPORT

Test Report No. : ELES/RNC/2024/4766	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002685F	

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


Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4767	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002686F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5450
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Date	: 12.08.2024 to 13.08.2024
Period of Analysis	: 14.08.2024 to 22.08.2024	Sample Received Date	: 14.08.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

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

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	44	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	21	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	5.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	15.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

Page 1 of 2

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ENVIRONMENTAL LABORATORIES &

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

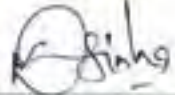
TEST REPORT

Test Report No. : ELES/RNC/2024/4767	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002686F	

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


Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****


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

Page 2 of 2

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CIN: U74909JH2018PTC01125

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TC-13887

TEST REPORT

Test Report No. : ELES/RNC/2024/4768	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002687F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5451
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paimoli Village Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Date	: 12.08.2024 to 13.08.2024
Period of Analysis	: 14.08.2024 to 22.08.2024	Sample Received Date	: 14.08.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

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

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	53	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- II/Sec- 1): 2023	7.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	19.6	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.006	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4768	Report Release Date : 22.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002687F	

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

Reviewed by

AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

Authorised Signatory

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



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CIN: U74999JH2018PTC011123

TC-13587

TEST REPORT

Test Report No. : ELES/RNC/2024/4811	Report Release Date : 24.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002730F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/DW/5453
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 13.08.2024
		Sample Received Date	: 14.08.2024
Mines Status	: Operational	Type of Sample	: Drinking Water
		Source of Sample	: R.O Water
Period of Analysis	: 14.08.2024 to 24.08.2024	Location of Sample	: Near Entrance Gate (Serengdag-A Bauxite Mines)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 24.6°C)	-	APHA 24 th Ed.2023, 4500-H ⁺	6.68	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 24 th Ed.2023, 2130 B	0.84	1.0	5.0
Taste	-	APHA 24 th Ed.2023, 2160 C	Agreeable	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 24 th Ed.2023, 2120B&D	1.0	5.0	15
Total Dissolved Solids (TDS)	mg/L	APHA 24 th Ed.2023, 2540B,C&D	55	500	2000
Chloride (as Cl)	mg/L	APHA 24 th Ed.2023, 4500 Cl B	9.5	250	1000
Fluoride (as F)	mg/L	APHA 24 th Ed.2023, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO ₃)	mg/L	APHA 24 th Ed.2023, 2320 B	11.0	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 24 th Ed.2023, 2340 C	19.3	200	600
Sulphate (as SO ₄)	mg/L	APHA 24 th Ed.2023, 4500 SO ₄ ²⁻ -E	2.0	200	400
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed.2023, 4500 NO ₃ -B	1.10	45	No Relaxation

Page 1 of 4

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CIN: U74999JH2018PTC011225

TEST REPORT

Test Report No. : ELES/RNC/2024/4811	Report Release Date : 24.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002730F	

Discipline : Chemical			Group : Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit	
Phenolic Compound (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part 43/Sec 1): 2022	BDL (DL: 0.001)	0.001	0.002	
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26): 2021	0.27	0.2(Min)	1.0(Min)	
Calcium (as Ca)	mg/L	APHA 24 th Ed.2023, 3500 Ca B	4.6	75	200	
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	0.2	1.0	
Discipline : Chemical			Group : Residues in Water			
Aluminum (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	0.03	0.2	
Arsenic (as As)	mg/L	IS 3025 (Part-37): 2022	BDL (DL: 0.005)	0.01	No Relaxation	
Boron (as B)	mg/L	IS 3025 (Part-57) : 2021	BDL (DL: 0.2)	0.5	1.0	
Cadmium (as Cd)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.003)	0.003	No Relaxation	
Total Chromium (as Cr)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05	No Relaxation	
Copper (as Cu)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05	1.5	
Cyanide (as CN)	mg/L	APHA 24 th Ed.2023, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation	
Iron (as Fe)	mg/L	APHA 24 th Ed.2023; 3111B	0.073	1.0	No Relaxation	
Lead (as Pb)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.01)	0.01	No Relaxation	
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.05)	0.1	0.3	
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	BDL (DL: 0.001)	0.001	No Relaxation	
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2019	BDL (DL: 0.01)	0.01	No Relaxation	

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TEST REPORT

Test Report No. : ELES/RNC/2024/4811	Report Release Date : 24.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002730F	

Discipline : Chemical		Group : Residues in Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023: 3111B	BDL (DL: 0.1)	5.0	15
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04: 2023	BDL (DL: 0.05)	0.1	No Relaxation
Polychlorinated biphenyls (PCB)	µg/L	ELES/GC/SOP/03: 2023	BDL (DL: 0.1)	0.5	No Relaxation
Pesticides				Limit	
Alachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	20	
Atrazine	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2.0	
Butachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	125	
Chlorpyrifos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	30	
Ethion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	3.0	
Malathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	190	
Methyl parathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.1)	0.30	
Monocrotophos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	1.0	
Phorate	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2.0	
Phorate Sulphone	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	-	
Dieldrin	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.01)	0.03	
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	0.01	
Beta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	0.04	



CIN: U74999/JH2018PTC011125

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TC-13587

TEST REPORT

Test Report No. : ELES/RNC/2024/4811	Report Release Date : 24.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002730F	

Pesticides				
Parameter	Unit	Test Protocol	Result	Limit
Delta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	0.04
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	2.0
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	0.40
DDT(o,p and p,p-isomers of DDT) (o,p DDE and p,p DDD)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	1.0
Discipline : Biological		Group : Water		
Total Coliform (Qualitative)	Per 100 mL	IS 15185: 2021	Not Detected	Shall not be detected
Escherichia coli (Qualitative)	Per 100 mL	IS 15185: 2021	Not Detected	

Remarks: 1. pH and RFC done at Lab.

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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



ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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CIN: U74999JH2018PTC011625

TEST REPORT

Test Report No. : ELES/RNC/2024/4811	Report Release Date : 24.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/DW/5453
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 13.08.2024
		Sample Received Date	: 14.08.2024
Mines Status	: Operational	Type of Sample	: Drinking Water
		Source of Sample	: R.O Water
Period of Analysis	: 14.08.2024 to 24.08.2024	Location of Sample	: Near Entrance Gate (Serengdag-A Bauxite Mines)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Mineral Oil*	mg/L	IS 3025 (Part-39): 2021, Clause 6 Infrared Spectroscopic method.	BDL (DL: 0.01)	0.5	No Relaxation

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

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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



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ENGINEERING SERVICES PVT. LTD.

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CIN: U78999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4813	Report Release Date : 24.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002732F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/EF/5455
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 12.08.2024
		Sample Received Date	: 14.08.2024
Mines Status	: Operational	Type of Sample	: Effluent Water
Period of Analysis	: 14.08.2024 to 24.08.2024	Source of Sample	: Serengdag-A Bauxite Mines (155.81 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Pollution & Environment		Discharge Limits – CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
pH (at 24.6°C)	-	APHA 24 th Ed.2023,4500-H ¹	6.46	5.5-9.0	5.5-9.0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	328	--	--
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	10.8	100	200
Dissolved Oxygen (DO)	mg/L	IS 3025 (Part-38): 2019	6.8	--	--
Biochemical Oxygen Demand (BOD) (at 27 °C for 3 days)	mg/L	IS 3025 (Part-44): 2023	5.4	30	100
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2023	38.4	250	--
Dissolved Phosphate (as P)	mg/L	IS 3025 (Part-31/Sec-1): 2022	BDL (DL: 0.5)	5.0	--
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	0.585	2.0	1.5
Sulphide (as S)	mg/L	IS 3025 (Part-29): 2019	BDL (DL: 0.04)	2.0	--
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	BDL (DL: 1.0)	10	10

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"Save Environment, Save Future"



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CIN: U74999/JH2018PTC011325

TEST REPORT

Test Report No. : ELES/RNC/2024/4813	Report Release Date : 24.08.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400002732F	

Discipline : Chemical		Group : Residues in Water		Discharge Limits – CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
Lead (as Pb)	mg/L	APHA 24 th Ed.2023, 3111 B	BDL (DL: 0.01)	0.1	--
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023, 3111 B	0.070	2.0	--
Mercury (as Hg)	mg/L	IS 3025(Part-48): 1994; RA2019	BDL (DL: 0.001)	0.01	--
Nickel (as Ni)	mg/L	APHA 24 th Ed.2023, 3111 B	BDL (DL: 0.01)	3.0	--
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023, 3111 B	BDL (DL: 0.1)	5.0	--

Remarks: pH done at Lab.

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report****

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

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Hindalco Industries : Shrengdag A Bauxite Mine Environmental Monitoring Report September 2024	
Shrengdag A Bauxite Mine	
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2	BKB Quarry
3	Mine Pit Quarry No.2A
4	Mine Pit Quarry No.2B
	AMBIENT AIR QUALITY- BUFFER ZONE
1	Near Banjari Village
2	Near Pauri Village
3	Near Harup Village
4	Near Paintoli Village
	AMBIENT NOISE
	WORKZONE NOISE
	Spring Water
1	Tongra Garha
	Stream Water
1	Up Stream (Kachaki Nadi)
2	Down Stream (Kachaki Nadi)
3	Up Stream (Serengdag Nadi)
4	Down Stream (Serengdag Nadi)





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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5505	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003410F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6351
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge, Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Date	: 16.09.2024 to 17.09.2024
Period of Analysis	: 20.09.2024 to 28.09.2024	Sample Received Date	: 20.09.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	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
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	74	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	39	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	11.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	26.4	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.18	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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

Page 1 of 1

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TC-13887

CIN: U74999JH2018PTC021125

TEST REPORT

Test Report No. : ELES/RNC/2024/5506	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003411F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lohardaga, Jharkhand-835302	Sample Ref. No. : ELES/RNC/2024/AA/6352	Location : BKB Quarry, Serengdag-A Bauxite Mines (155.81ha)
Mines Status : Operational	Period of Analysis : 20.09.2024 to 28.09.2024	Sampling Date : 16.09.2024 to 17.09.2024	Sample Received Date : 20.09.2024
		Type of Sample : Ambient Air	Sampling Procedure : ELES/DOC/SMPL/02
		Sampling Done By : ELES Pvt. Ltd.	Sample Condition : Sealed & Preserved

METEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 29	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
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	51	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	25	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	5.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	16.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.003	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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

Technical Manager

Page 1 of 1

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5507	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003412F	

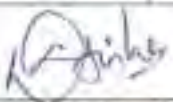
CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6353
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No.2A, Serengdag-A Bauxite Mines(155.81ha)
		Sampling Date	: 16.09.2024 to 17.09.2024
Mines Status	: Operational	Sample Received Date	: 20.09.2024
Period of Analysis	: 20.09.2024 to 28.09.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	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
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	51	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	24	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	6.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	17.4	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)


Reviewed by
Akash Kumar
Quality Manager

****End of Report****


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

Page 1 of 1

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CIN: U74999HR2018PTC031125

TEST REPORT

Test Report No. : ELES/RNC/2024/5508	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003413F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6354
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Pit Quarry No.2B, Serengdag-A Bauxite Mines(155.81ha)
		Sampling Date	: 16.09.2024 to 17.09.2024
Mines Status	: Operational	Sample Received Date	: 20.09.2024
Period of Analysis	: 20.09.2024 to 28.09.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	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
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	59	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	5.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	23.1	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.004	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

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

Page 1 of 1

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CIN: U74999JH2012PTC013125

TC-15887

TEST REPORT

Test Report No. : ELES/RNC/2024/5509	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003414F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6355
Address	: Lohardaga, Jharkhand-835302	Location	: Near Banjari Village Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Date	: 16.09.2024 to 17.09.2024
Period of Analysis	: 20.09.2024 to 28.09.2024	Sample Received Date	: 20.09.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	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
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	51	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	21	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	5.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	16.7	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.006	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by
Quality Manager

****End of Report****

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

Technical Manager

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CIN: U74999JK2018PTC0311275

TEST REPORT

Test Report No. : ELES/RNC/2024/5510	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003415F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6356
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pauri Village Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Date	: 16.09.2024 to 17.09.2024
Period of Analysis	: 20.09.2024 to 28.09.2024	Sample Received Date	: 20.09.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	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
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	58	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	24	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	6.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	18.4	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.004	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha
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Technical Manager

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5511	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003416F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6357
Address	: Lohardaga, Jharkhand-835302	Location	: Near Harup Village Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Date	: 16.09.2024 to 17.09.2024
Period of Analysis	: 20.09.2024 to 28.09.2024	Sample Received Date	: 20.09.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	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
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part- 23): 2022	50	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	25	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part- 2/Sec1): 2023	5.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part- 6): 2022	17.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ³	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

Authorized Signatory
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Technical Manager

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5512	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003417F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6358
Address	: Lohardaga, Jharkhand-835302	Location	: Near Paintoli Village Serengdag-A Bauxite Mines (155.81ha)
Mines Status	: Operational	Sampling Date	: 16.09.2024 to 17.09.2024
Period of Analysis	: 20.09.2024 to 28.09.2024	Sample Received Date	: 20.09.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	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
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	57	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	6.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	17.3	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m^3	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m^3	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by
Akash Kumar
Quality Manager

****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha
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Technical Manager

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CIN: U74999JH2018FTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5525	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003430F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 16.09.2024 to 17.09.2024
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 20.09.2024
		Type of Sample	: Ambient Noise
Mines Status	: Operational	Sampling procedure	: ELES/DOC/SMPL/03
		Sampling Done By	: ELES Pvt. Ltd.
		Period of Analysis	: 20.09.2024 to 28.09.2024

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 61	4	Weather Condition	: Clear

Discipline : Chemical			Group : Atmospheric Pollution		
Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
Near Mine Office Serengdag- A Bauxite Mines (155.81ha)	dB(A)	IS 9989: 2020	Time	L _{eq}	75 dB(A) Day Time & 70 dB(A) Night Time
			Day Time	67	
Sample ID: ELES/RNC/2024/AN/6371			Night Time	51	



****End of Report****

Authorized Signatory
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Technical Manager

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CIN: U74999RJ2016PTC021125

TEST REPORT

Test Report No. : ELES/RNC/2024/5529	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003434F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 16.09.2024
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 20.09.2024
		Type of Sample	: Workzone Noise
Mines Status	: Operational	Sampling procedure	: ELES/DOC/SMPL/03
		Sample Drawn By	: ELES Pvt. Ltd.
		Period of Analysis	: 20.09.2024 to 28.09.2024


METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 27	2	Barometric Pressure (mmHg) : 742
3	Relative Humidity (%) : 69	4	Weather Condition : Rainy

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L _{eq}	
Near Poclairn – Serengdag-A Bauxite Mines (155.81ha)	dB(A)	IS 4758: 2017	Day Time	76	90 dB (A)
Sample ID: ELES/RNC/2024/WN/6375					



****End of Report****


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CIN: U74999JH3018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5537	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003442F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SW/6383
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 16.09.2024
		Sample Received Date	: 20.09.2024
Mines Status	: Operational	Type of Sample	: Surface Water
		Source of Sample	: Spring Water
		Location of Sample	: Tengra Garba, Serengdag-A Bauxite Mine (155.81ha)
Period of Analysis	: 20.09.2024 to 28.09.2024	Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.6 °C)	-	IS 3025 (Part-11) : 2022	6.56	6.5-8.5
Colour	Hazen	IS 3025 (Part -4) : 2021	3.0	300
Odour	-	IS 3025 (Part-5) : 2018	Unobjectionable	--
Turbidity	NTU	IS 3025 (Part-10): 2023	1.08	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	70	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23) : 2023	19.5	--
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2019	23.3	--
Sulphate (as SO ₄)	mg/L	IS 3025 (Part-24/Sec1) : 2022	BDL (DL: 1.0)	400
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 2019	11.6	600
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	BDL (DL: 0.1)	1.5
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed.2023, 4500 NO ₃ -B	9.31	50

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CIN: U74999JH2018PT011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5537	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003442F	

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) : 2021	BDL (DL: 0.1)	--
Phenols Compounds (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43/Sec1): 2022	BDL (DL: 0.001)	0.005
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	3.11	--
Discipline : Chemical		Group : Residues in Water		
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003;RA2019	BDL (DL: 0.02)	--
Arsenic (as As)	mg/L	IS 3025 (Part 37):2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57): 2021	BDL (DL: 0.2)	--
Cadmium (as Cd)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05
Copper (as Cu)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 24 th Ed.2023; 3111B	0.234	50
Lead (as Pb)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.05)	--
Mercury (as Hg)	mg/L	IS 3025(Part-48): 1994; RA2019	BDL (DL: 0.001)	--
Selenium (as Se)	mg/L	IS 3025(Part-56): 2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.1)	15

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TEST REPORT

Test Report No. : ELES/RNC/2024/5537	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003442F	

Discipline : Chemical		Group : Residues in Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Cyanide (as CN)	mg/L	APHA 24 th Ed.2023, 4500 CN-E	BDL (DL: 0.012)	0.05
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04: 2023	BDL (DL: 0.05)	--
Pesticides				
Alachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Atrazine	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Butachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Chlorpyrifos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Ethion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Malathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Methyl parathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.1)	--
Monocrotophos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Phorate	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Phorate Sulphone	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Dieldrin	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.01)	--



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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5537	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003442F	

Pesticides				Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	--
Beta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Delta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
DDT(o,p and p,p-isomers of DDT) (DDE and DDD)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
Discipline: Biological		Group: Water		
Total Coliform	CFU/100 mL	IS 15185: 2021	1.86×10 ²	--
Escherichia coli	CFU/100 mL	IS 15185: 2021	BDL (DL: 1.0)	--

Remarks: pH & REC done at Lab.



****End of Report****

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

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ENGINEERING SERVICES PVT. LTD.

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CIN: U74998JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5537	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

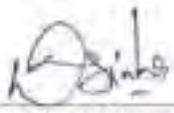
CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SW/6383
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 16.09.2024
		Sample Received Date	: 20.09.2024
		Type of Sample	: Surface Water
		Source of Sample	: Spring Water
Mines Status	: Operational	Location of Sample	: Tengra Garha, Serengdag-A Bauxite Mine (155.81ha)
Period of Analysis	: 20.09.2024 to 28.09.2024	Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Taste	-	APHA 24 th Ed.2023, 2160C	N/A	-
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Mineral Oil*	mg/L	IS 3025 (Part-39):2021 (Clause 6 Infrared Spectroscopic Method)	BDL (DL: 0.01)	-

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



****End of Report****


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

Page 1 of 1

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DIR: LP49555H2018FTCUI1125

TEST REPORT

Test Report No. : ELES/RNC/2024/5535	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003440F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SW/6381
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 16.09.2024
		Sample Received Date	: 20.09.2024
Mines Status	: Operational	Type of Sample	: Surface Water
		Source of Sample	: Up Stream
Period of Analysis	: 20.09.2024 to 28.09.2024	Location of Sample	: Serengdag Nadi, Serengdag-A Bauxite Mines (155.81 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.6 °C)	-	IS 3025 (Part-11) : 2022	6.57	6.5-8.5
Colour	Hazen	IS 3025 (Part-4) : 2021	32.0	300
Odour	-	IS 3025 (Part-5) : 2018	Unobjectionable	--
Turbidity	NTU	IS 3025 (Part-10): 2023	82.2	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	156	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23) : 2023	43.4	--
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2019	54.4	--
Sulphate (as SO ₄)	mg/L	IS 3025 (Part-24/Sec1): 2022	5.27	400
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 2019	14.5	600
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	0.120	1.5
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed.2023, 4500 NO ₃ -B	1.29	50

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TC-13887

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5535	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003440F	

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) : 2021	BDL (DL: 0.1)	--
Phenols Compounds (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43/Sec1): 2022	BDL (DL: 0.001)	0.005
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	14.8	--
Discipline : Chemical		Group : Residues in Water		
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003;RA2019	BDL (DL: 0.02)	--
Arsenic (as As)	mg/L	IS 3025 (Part 37):2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57): 2021	BDL (DL: 0.2)	--
Cadmium (as Cd)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05
Copper (as Cu)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 24 th Ed.2023; 3111B	0.177	50
Lead (as Pb)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.05)	--
Mercury (as Hg)	mg/L	IS 3025(Part-48): 1994; RA2019	BDL (DL: 0.001)	--
Selenium (as Se)	mg/L	IS 3025(Part-56): 2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.1)	15

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ENVIRONMENTAL LABORATORIES &

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TC-13047

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5535	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003440F	

Discipline : Chemical		Group : Residues in Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Cyanide (as CN)	mg/L	APHA 24 th Ed.2023, 4500 CN-E	BDL (DL: 0.012)	0.05
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04: 2023	BDL (DL: 0.05)	---
Pesticides				
Alachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	---
Atrazine	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	---
Butachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	---
Chlorpyrifos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	---
Ethion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	---
Malathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	---
Methyl parathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.1)	---
Monocrotophos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	---
Phorate	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	---
Phorate Sulphone	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	---
Dieldrin	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.01)	---

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ENGINEERING SERVICES PVT. LTD.

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CIN: U74905JH2018PTC011125

TEST REPORT

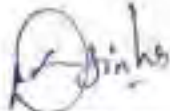
Test Report No. : ELES/RNC/2024/5535	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003440F	

Pesticides				Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	---
Beta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	---
Delta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	---
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	---
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	---
DDT(o,p and p,p-isomers of DDT) (DDE and DDD)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	---
Discipline: Biological		Group : Water		
Total Coliform	CFU/100 mL	IS 15185: 2021	4.18×10 ²	---
Escherichia coli	CFU/100 mL	IS 15185: 2021	2.09×10 ²	---

Remarks: pH & RFC done at Lab.



****End of Report****


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

Page 4 of 4

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TEST REPORT

Test Report No. : ELES/RNC/2024/5535	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

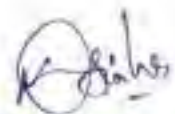
CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SW/6381
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 16.09.2024
		Sample Received Date	: 20.09.2024
Mines Status	: Operational	Type of Sample	: Surface Water
		Source of Sample	: Up Stream
Period of Analysis	: 20.09.2024 to 28.09.2024	Location of Sample	: Serengdag Nadi, Serengdag-A Bauxite Mines (155.81 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Taste	-	APHA 24 th Ed.2023, 2160C	N/A	-
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Mineral Oil*	mg/L	IS 3025 (Part-39):2021 (Clause 6 Infrared Spectroscopic Method)	BDL (DL: 0.01)	-

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



****End of Report****


Dr. Deepshikha Kumari Sinha
Ph. D. Environmental Engg.
Technical Manager



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CON: LP74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5536	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003441F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SW/6382
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 16.09.2024
		Sample Received Date	: 20.09.2024
Mines Status	: Operational	Type of Sample	: Surface Water
Period of Analysis	: 20.09.2024 to 28.09.2024	Source of Sample	: Down Stream
		Location of Sample	: Serengdag Nadi, Serengdag-A Bauxite Mines (155.81 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical			Group : Water	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.6 °C)	-	IS 3025 (Part-11) : 2022	6.64	6.5-8.5
Colour	Hazen	IS 3025 (Part -4) : 2021	30.0	300
Odour	-	IS 3025 (Part-5) : 2018	Unobjectionable	-
Turbidity	NTU	IS 3025 (Part-10): 2023	78.1	-
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	182	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23) : 2023	69.4	--
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2019	77.8	--
Sulphate (as SO ₄)	mg/L	IS 3025 (Part-24/Sec I): 2022	5.52	400
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 2019	18.4	600
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	0.146	1.5
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed.2023, 4500 NO ₃ -B	1.85	50

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CIN: U74999JH2018PTC011325

TEST REPORT

Test Report No. : ELES/RNC/2024/5536	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003441F	

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) : 2021	BDL (DL: 0.1)	--
Phenols Compounds (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43/Sec1): 2022	BDL (DL: 0.001)	0.005
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	19.4	--
Discipline : Chemical		Group : Residues in Water		
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003;RA2019	BDL (DL: 0.02)	--
Arsenic (as As)	mg/L	IS 3025 (Part 37):2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57): 2021	BDL (DL: 0.2)	--
Cadmium (as Cd)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05
Copper (as Cu)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 24 th Ed.2023; 3111B	0.174	50
Lead (as Pb)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.05)	--
Mercury (as Hg)	mg/L	IS 3025(Part-48): 1994; RA2019	BDL (DL: 0.001)	--
Selenium (as Se)	mg/L	IS 3025(Part-56): 2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.1)	15

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CIN: U74999JH2018PTC011225

TEST REPORT

Test Report No. : ELES/RNC/2024/5536	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003441F	

Discipline : Chemical		Group : Residues in Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Cyanide (as CN)	mg/L	APHA 24 th Ed.2023, 4500 CN-E	BDL (DL: 0.012)	0.05
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04: 2023	BDL (DL: 0.05)	--
Pesticides				
Alachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Atrazine	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Butachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Chlorpyrifos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Ethion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Malathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Methyl parathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.1)	--
Monocrotophos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Phorate	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Phorate Sulphone	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Dieldrin	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.01)	--

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5536	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003441F	

Pesticides				Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	--
Beta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Delta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
DDT(o,p and p,p-isomers of DDT) (DDE and DDD)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
Discipline: Biological		Group : Water		
Total Coliform	CFU/100 mL	IS 15185: 2021	1.02×10 ³	--
Escherichia coli	CFU/100 mL	IS 15185: 2021	85.0	--

Remarks: pH & RFC done at Lab.



****End of Report****


Authorised Signatory
Dr. Deependra Kumar Sinha
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Technical Manager

Page 4 of 4

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TEST REPORT

Test Report No. : ELES/RNC/2024/5536	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SW/6382
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 16.09.2024
		Sample Received Date	: 20.09.2024
		Type of Sample	: Surface Water
		Source of Sample	: Down Stream
Mines Status	: Operational	Location of Sample	: Serengdag Nadi, Serengdag-A Bauxite Mines (155.81 ha)
Period of Analysis	: 20.09.2024 to 28.09.2024	Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Taste	-	APHA 24 th Ed.2023, 2160C	N/A	-
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Mineral Oil*	mg/L	IS 3025 (Part-39):2021 (Clause 6 Infrared Spectroscopic Method)	BDL (DL: 0.01)	-

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



****End of Report****


Authorized Signatory
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Ph. D. Environmental Engg.
Technical Manager

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5533	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003438F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SW/6379
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 16.09.2024
		Sample Received Date	: 20.09.2024
Mines Status	: Operational	Type of Sample	: Surface Water
		Source of Sample	: Up Stream
Period of Analysis	: 20.09.2024 to 28.09.2024	Location of Sample	: Kanchki Nadi, Serengdag-A Bauxite Mines (155.81 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.6 °C)	-	IS 3025 (Part-11) : 2022	6.59	6.5-8.5
Colour	Hazen	IS 3025 (Part-4) : 2021	16.0	300
Odour	-	IS 3025 (Part-5) : 2018	Unobjectionable	--
Turbidity	NTU	IS 3025 (Part-10): 2023	46.5	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	140	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23) : 2023	39.0	--
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2019	48.6	--
Sulphate (as SO ₄)	mg/L	IS 3025 (Part-24/Sec1): 2022	6.92	400
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 2019	17.4	600
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	0.118	1.5
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed,2023, 4500 NO ₃ -B	1.08	50

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CIN: U74999/JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5533	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003438F	

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) : 2021	BDL (DL: 0.1)	--
Phenols Compounds (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43/Sec1): 2022	BDL (DL: 0.001)	0.005
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	12.4	--
Discipline : Chemical		Group : Residues in Water		
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003;RA2019	BDL (DL: 0.02)	--
Arsenic (as As)	mg/L	IS 3025 (Part 37):2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57): 2021	BDL (DL: 0.2)	--
Cadmium (as Cd)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	0.05
Copper (as Cu)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 24 th Ed.2023; 3111B	0.182	50
Lead (as Pb)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.05)	--
Mercury (as Hg)	mg/L	IS 3025(Part-48): 1994; RA2019	BDL (DL: 0.001)	--
Selenium (as Se)	mg/L	IS 3025(Part-56): 2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023; 3111B	BDL (DL: 0.1)	15

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Website : www.elespl.co.in



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5533	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003438F	

Discipline : Chemical		Group : Residues in Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Cyanide (as CN)	mg/L	APHA 24 th Ed.2023, 4500 CN-E	BDL (DL: 0.012)	0.05
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04: 2023	BDL (DL: 0.05)	--
Pesticides				
Alachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Atrazine	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Butachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Chlorpyrifos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Ethion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Malathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Methyl parathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.1)	--
Monocrotophos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Phorate	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Phorate Sulphone	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Dieldrin	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.01)	--

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5533	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003438F	

Pesticides				Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	--
Beta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Delta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
DDT(o,p and p,p-isomers of DDT) (DDE and DDD)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
Discipline: Biological		Group : Water		
Total Coliform	CFU/100 mL	IS 15185: 2021	9.68×10 ²	--
Escherichia coli	CFU/100 mL	IS 15185: 2021	46.0	--

Remarks: pH & RFC done at Lab.



****End of Report****


Dr. Deependra Singh
Ph. D. Environmental Engg.
Technical Manager

Page 4 of 4

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CIN: U74999JH0018P1C031125

TEST REPORT

Test Report No. : ELES/RNC/2024/5533	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SW/6379
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 16.09.2024
		Sample Received Date	: 20.09.2024
Mines Status	: Operational	Type of Sample	: Surface Water
		Source of Sample	: Up Stream
		Location of Sample	: Kanchki Nadi, Serengdag-A Bauxite Mines (155.81 ha)
Period of Analysis	: 20.09.2024 to 28.09.2024	Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Taste	-	APHA 24 th Ed.2023, 2160C	N/A	-
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Mineral Oil*	mg/L	IS 3025 (Part-39):2021 (Clause 6 Infrared Spectroscopic Method)	BDL (DL: 0.01)	-

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



****End of Report****

Ph. D. Environmental Engg.
Technical Manager

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5534	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003439F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SW/6380
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 16.09.2024
		Sample Received Date	: 20.09.2024
Mines Status	: Operational	Type of Sample	: Surface Water
		Source of Sample	: Down Stream
Period of Analysis	: 20.09.2024 to 28.09.2024	Location of Sample	: Kanchki Nadi, Serengdag-A Bauxite Mines (155.81 ha)
		Sampling Procedure	: ELES/DOC/SMPL/0)
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.6 °C)	-	IS 3025 (Part-11) : 2022	6.72	6.5-8.5
Colour	Hazen	IS 3025 (Part -4) : 2021	18.0	300
Odour	-	IS 3025 (Part-5) : 2018	Unobjectionable	-
Turbidity	NTU	IS 3025 (Part-10): 2023	34.1	-
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	165	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23) : 2023	75.9	-
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2019	83.6	-
Sulphate (as SO ₄)	mg/L	IS 3025 (Part-24/Sec1): 2022	7.46	400
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 2019	33.9	600
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	0.126	1.5
Nitrate (as NO ₃)	mg/L	APHA 24 th Ed.2023, 4500 NO ₃ -B	1.19	50

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TEST REPORT

Test Report No. : ELES/RNC/2024/5534	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003439F	

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) : 2021	BDL (DL: 0.1)	--
Phenols Compounds (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43/Sec1): 2022	BDL (DL: 0.001)	0.005
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	22.6	--
Discipline : Chemical		Group : Residues in Water		
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003;RA2019	BDL (DL: 0.02)	--
Arsenic (as As)	mg/L	IS 3025 (Part 37):2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57): 2021	BDL (DL: 0.2)	--
Cadmium (as Cd)	mg/L	APHA 24 th Ed.2023: 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 24 th Ed.2023: 3111B	BDL (DL: 0.03)	0.05
Copper (as Cu)	mg/L	APHA 24 th Ed.2023: 3111B	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 24 th Ed.2023: 3111B	0.156	50
Lead (as Pb)	mg/L	APHA 24 th Ed.2023: 3111B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 24 th Ed.2023: 3111B	BDL (DL: 0.05)	--
Mercury (as Hg)	mg/L	IS 3025(Part-48): 1994; RA2019	BDL (DL: 0.001)	--
Selenium (as Se)	mg/L	IS 3025(Part-56): 2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 24 th Ed.2023: 3111B	BDL (DL: 0.1)	15



TEST REPORT

Test Report No. : ELES/RNC/2024/5534	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003439F	

Discipline : Chemical		Group : Residues in Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Cyanide (as CN)	mg/L	APHA 24 th Ed.2023, 4500 CN-E	BDL (DL: 0.012)	0.05
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04: 2023	BDL (DL: 0.05)	--
Pesticides				
Alachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Atrazine	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Butachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Chlorpyrifos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Ethion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Malathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Methyl parathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.1)	--
Monocrotophos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Phorate	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Phorate Sulphone	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Dieldrin	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.01)	--



TEST REPORT

Test Report No. : ELES/RNC/2024/5534	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024
ULR No. : TC135872400003439F	

Pesticides				Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	--
Beta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Delta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
DDT(o,p and p,p-isomers of DDT) (DDE and DDD)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
Discipline: Biological		Group: Water		
Total Coliform	CFU/100 mL	IS 15185: 2021	7.77×10 ²	--
Escherichia coli	CFU/100 mL	IS 15185: 2021	54.0	--

Remarks: pH & RFC done at Lab.



****End of Report****

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



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Website : www.elespl.co.in

CIN: U74999JH2019PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/5534	Report Release Date : 28.09.2024
Work Order No. : 13612312113	Work Order Date : 28.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SW/6380
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 16.09.2024
		Sample Received Date	: 20.09.2024
		Type of Sample	: Surface Water
Mines Status	: Operational	Source of Sample	: Down Stream
Period of Analysis	: 20.09.2024 to 28.09.2024	Location of Sample	: Kanchki Nadi, Serengdag-A Bauxite Mines (155.81 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Taste	-	APHA 24 th Ed.2023, 2160C	N/A	-
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Mineral Oil*	mg/L	IS 3025 (Part-39):2021 (Clause 6 Infrared Spectroscopic Method)	BDL (DL: 0.01)	-

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



****End of Report****

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



Annexure 3

Date – 22.11.2024

Office Order

Environmental Cell has been re-constituted at Sherengdag Bauxite Mine (Area 155.81 ha) comprising below mentioned team members. The team will ensure compliance of Environment Act, Regulation & Rule in respect of the said mines of Hindalco Industries Limited.

1. Mr. Ashish Kumar Mohanta (Coordinator)
2. Mr. Sanjay Sharma (Geologist)
3. Ms. Abhilasha Singh– Environment Engineer
4. Mr. Anand Prakash Tiwari – Environment Engineer

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

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

Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)

Annexure 4

Production, Mined Out, Back Filled and Over Burden removal from April'24 to September'24								
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	NIL	NIL	NIL	NIL
2	Bhusar Bauxite Mine	65.31	280000	11.07.1981 to 31.03.2030	82481	0.25	0.57	191521.65
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	63197	0.45	0.35	26905.95
4	Pakhar (8.09) Bauxite Mine	8.09	80000	16.05.1973 to 31.03.2030	NIL	NIL	NIL	NIL
5	Pakhar (35.12) Bauxite Mine	35.12	200000	17.04.1975 to 31.03.2030	NIL	NIL	NIL	NIL
6	Pakhar (115.13) Bauxite Mine	115.13	300000	19.07.1996 to 31.03.2030	96744	4.29	8.89	365249.34
7	Sherangdag-A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	6200	0.23	0.2	10200.00
8	Serangdag-B Bauxite Mine	77.89	100000	04.10.1978 to 31.03.2030	49850	0.96	0.85	104303.82
9	Jalim & Sanai Bauxite Mine	12.14	50000	16.10.1974 to 31.03.2030	12450	0.14	0.12	13050.63
10	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	96115	4.69	2.46	185023.98
11	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	7175	0.97	0.43	21377.24
12	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	49120	5.28	3.56	137098.55
13	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	87109	2.153	0.987	225462.85

Annexure 4

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

*Static information about the mines included in the above table



Basudev Gangopadhyay
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Annexure-5

BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2024-25

The composite cost during the year 2023-24 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Bagru (75.41 ha), Hisri New (14.55 ha), Bhusar (65.31 ha), Pakhar (115.13 ha), Pakhars (109.507 ha), Pakhar (15.58 ha), Pakhar (8.09 ha), Pakhar (35.12 ha), Sherangdag (155.81 ha), Serangdag (77.89 ha), Jalim & Sanai (12.14 ha), Bimarla Bauxite Mines (134.526 ha), Gurdari (584.19 ha), Amtipani (190.95 ha), Kujam I (80.87 ha) Kujam II (157.38 ha), and Amtipani Chirodih (130.01 ha) Bauxite Mines.

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

**Part of OB removed cost.



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