

HIL/LHD/ENV/MoEF/ 716

Date: 23.05.2024

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 Amtipani Bauxite Mining project of M/s Hindalco Industries Limited located in Dist- Gumla, Jharkhand for the period October'23 to March'24.

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

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Amtipani** Bauxite mining project of **M/s Hindalco Industries Limited** located in Gumla, Jharkhand for the period October'23 to March'24.

The lease details are as below.

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

Hope you will find the same in order.

Thanking You

Yours Sincerely
FOR HINDALCO INDUSTRIES LIMITED

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

Enclosure: - As Above

CC: ro.ranchi-mef@gov.in, mef@ori.nic.in, mef@nic.in, mef.or@nic.in, mccb.cpcb@nic.in, zokolkatta.cpcb@nic.in, ranchiipcpcb@gmail.com, roranchi47@gmail.com

Hindalco Industries Limited

Mines Division, Court Road, Lohardaga 835302, Jharkhand, India

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Registered Office: Ahura Centre, 1st Floor, B Wing, Mahakali Caves Road, Andheri (East), Mumbai 400 093, India

T: +91 22 6691 7000 | F: +91 22 6691 7001

Corporate ID No.: L27020MH1958PLC011238

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

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

Period of compliance Report : **From 1st October 2023 to 31st March 2024**

Specific Conditions

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

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

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

Reply to Condition 2- 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 3- The environmental clearance is subject to approval of the state land use Department, Government of Jharkhand for diversion of agricultural land for non-agricultural use.

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

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

Reply to Condition 4- Topsoil is being stacked temporally properly with proper slope as and when required for reclamation and rehabilitation. Sequential backfilling and reclamation of mined out area are being exercised for which topsoil is being spread on backfilled area for reclamation. 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 area

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

Reply to Condition 5- Overburden and waste rock are being used for concurrent backfilling, and topsoil is being spread on the backfilled area for reclamation. Currently, there is no OB dump present in the mine lease area. Monitoring and management of rehabilitated areas is continuing until vegetation becomes self-sustaining through supervision. Data pertaining to backfilling is enclosed as **Annexure 4**. Compliance status is being submitted to MoEF&CC on six monthly basis.

Condition 6- Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil and mineral dump. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly. Garland drains (size, gradient and length) shall be constructed for mine pit and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall

(based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.

Reply to Condition 6- 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.



Retaining wall and siltation pit to prevent solid wash-



Garland drains around mine pit.

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

Reply to Condition 7- Progressive plantation of native species is being carried out in and around mining lease, reclaimed area etc. in consultation with local forest department on regular basis. During FY 2023-24 a total of 3000 nos. of saplings have been planted in 1.20 ha. Total 18.13 ha areas have been planted till date. In addition to this agricultural activity is going on in reclaimed land with the consent of landowners. The Green belt development programme is in progress with the progress of mining activities.



Plantation and Agricultural activity on reclaimed land and Safety zone

Condition 8- The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.

Reply to Condition 8- 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 at Mines

Condition 9- Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year - pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF, Central Ground Water Authority and Regional Director Central Ground Water Board.

Reply to Condition 9- We are not using ground water for mining purposes. 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. A piezometer has been installed for monitoring of ground water level. The ground 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 Installed at Mine

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

Reply to Condition 10- 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 already obtained NOC for extraction of ground water from CGWA/ CGWB for drinking purpose only. The copy of same NOC is attached below.



 भारत सरकार
 नर सचिवालय
 नर सचिवालय, नदी विकास
 और नदी संवर्धन विभाग
 नदी नदी नदी नदी नदी
 Government of India
 Ministry of Jal Shakti
 Department of Water Resources,
 River Development & Ganga Rejuvenation
 Central Ground Water Authority

(भूखल निकासी हेतु अनापत्ति प्रमाण पत्र)
NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	Amtipani Bauxite Mining Project(190.95 Ha)		
Project Address:	Amtipani Bauxite Mining Project, VIII - Kujam, Chirodih, Tehsil - Bishunpur		
Village:	Kujam	Block:	Bishunpur
District:	Gumla	State:	Jharkhand
Pin Code:			
Communication Address:	Hindalco Industries Limited, Court Road, Lohardaga, Lohardaga, Jharkhand - 835302		
Address of CGWB Regional Office:	Central Ground Water Board Mid Eastern Region, 6th & 7th Floor, Lok Nayak Jai Prakash Bhawan, Frazer Road Dak Banglow, Patna, Bihar - 800011		

1. NOC No.:	CGWA/NOC/MIN/REN/2023/8044	2. Date of Issuance	27/07/2023
3. Application No.:	21-4/482/JH/MIN/2019	4. Category:	Safe
5. Project Status:	Existing Ground Water	6. NOC Type:	Renewal
7. Valid from:	06/09/2023	8. Valid up to:	05/09/2025

9. Ground Water Abstraction Permitted:							
Fresh Water		Saline Water		Dewatering		Total	
m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year
9.50	3467.50						

10. Details of ground water abstraction /Dewatering structures												
Total Existing No.:1						Total Proposed No.:0						
	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu
Abstraction Structure*	0	0	1	0	0	0	0	0	0	0	0	0

*DW- Dug Well, DCB-Dug-cum-Bore Well, BW-Bore Well, TW-Tube Well, MP-Mine PMPu-Mine Pumps

11. Ground Water Abstraction/Restoration Charges paid (Rs.):	6936.00
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(Compliance Conditions given overleaf)

This is an auto generated document & need not to be signed.

NOC for Ground water Extraction

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

Reply to Condition 11- Water Monitoring of Spring is being conducted and Analysis report is attached as **Annexure 2**. Six monthly report is being submitted regularly. Now, the Regional office of MoEF&CC is in Ranchi.

Condition 12- Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of minerals. The vehicles should be covered with a tarpaulin and shall not be overloaded.

Reply to Condition 12- 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. Photograph of Tarpaulin Covered Vehicle and PUC Certificate are attached below.



Ore Transportation with tarpaulin covered truck.

Form 59
[See rules 115 (2)]

Pollution Under Control Certificate

Authorized By:
Government of Jharkhand

Date : 20/04/2024
Time : 12:54:49 PM
Validity upto : 19/10/2024

QR Code

Certificate No. : JH0103430003362
Registration No. : JH01DC1925
Date of Registration : 25/05/2018
Month & Year of Manufacturing : June 2018
Vehi Model Number : 1111-840
Emission Norms : Bharat Stage III (BSIII)
Fuel : DIESEL
PUC Code : JH010343
GSTIN :
Price : Rs.300.00
MI reservation : No

Vehicle Photo with Registration plate
60 mm x 30 mm

JH01DC-1925

Sr. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (upto 2 decimal places)
1	Carbon Monoxide (CO)	percentage (%)		
	Hydrocarbon, (THC)/HC	ppm		
	CO	percentage (%)		
High idling emissions	RPM	RPM	2500 ± 200	
	Lambda	-	1 ± 0.03	
Smoke Density	Light absorption coefficient	1/metre	2.45	0.67

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

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

Authorized Signature with stamp of PUC operator
60mm x 30 mm

PUC Certificate.

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

Reply to Condition 13- Wet drilling is in practice.



Wet drilling is in practice.

Condition 14- Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.

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

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

Reply to Condition 15- We have obtained Consent to operate prior to start of production. The existing consent to operate is valid up to 31.12.2025

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

Reply to Condition 16- 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 for treatment of 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 the mine lease area.

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

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



Oil and Grease Trap at Mines

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

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

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

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

Condition 19- A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.

Reply to Condition 19- Mining Plan along with progressive mine closure plan has been approved by Indian Bureau of Mines. Final Mine Closure Plan will be submitted in due time as per applicable guideline and timelines mentioned in MCDR/IBM guideline who are competent authority to approve the same. Based on present resource estimate and peak rated production capacity mentioned in EC, Mining operation is being carried out.

General Conditions

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

Reply to Condition 1- Noted

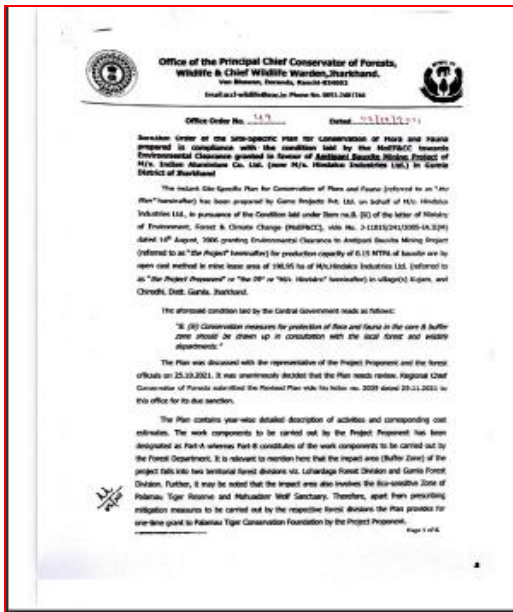
Condition 2- No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.

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

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

Reply to Condition 3- We have prepared Site-Specific Wildlife Conservation Plan (WLCP) 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. 49 dated 02.12.2021 for conservation and protection of flora and fauna in the core and buffer zone for Amtipani Bauxite Mine.

A copy of same Approval letter has been submitted to your good office on 21.02.2022.



Site Specific Wildlife Conservation Plan

Condition 4- Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO₂, NO_x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.

Reply to Condition 4- We have already established four ambient air quality monitoring stations in the core zone as well as buffer zone. Monitoring is being carried out and reported to the concerned authorities. Monitoring Report is attached as **Annexure 2**.

Condition 5- Data on ambient air quality (RPM, SPM, SO₂ and NO_x) should be regularly submitted to the Ministry including its Regional office located at Bhopal and the State Pollution Control Board / Central Pollution Control Board once in six months.

Reply to Condition 5- Being adhered to. Monitoring Reports for the reporting period are attached as **Annexure-2**. Now, the Regional office of MoEF&CC is in Ranchi.

Condition 6- Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading, and unloading and at transfer points should be provided and properly maintained.

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



Mobile water tanker for dust suppression

Condition 7- Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.

Reply to Condition 7- Noise monitoring is being done regularly. Workers engaged in the operation of HEMMs, etc., have also been provided with PPEs such as ear plugs and earmuffs. Monitoring of noise level is being conducted at various locations of the work zone area.

Report is attached as **Annexure 2**.

Condition 8- Industrial wastewater (workshop and wastewater from the mine) should be properly collected and treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.

Reply to Condition 8- There is no industrial wastewater generation from mining operation. We are not discharging any wastewater outside the mine lease area. However, negligible amount of wastewater is generated in workshop from washing of vehicles and Oil & grease trap system is

already installed for treatment of this effluent. The treated water is in close circuit and being reused for washing of vehicles in the workshop.

Furthermore, the quality of this treated water is being monitored regularly and all water parameters are within permissible limits. The monitoring report is attached herewith as **Annexure- 2**.

Photograph of Oil and grease traps is already attached below.



Oil and Grease Trap at Mines

Condition 9- Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

Reply to Condition 9- 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 10- A separate environmental management cell with suitable qualified personnel should be set up under the control of a Senior Executive, who will report directly to the Head of the Organization.

Reply to Condition 10- A separate environmental management cell with suitable qualified personnel has been set up under the control of a Senior Executive, who is reporting directly to the Head of the Organization. The same is attached herewith as **Annexure 3**.

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

Reply to Condition 11- This is an operating mine, hence provision related to financial closure not applicable. Currently, the Regional Office is in Ranchi.

Condition 12- The funds earmarked for environmental protection measures should be kept in a separate account and should not be diverted for other purpose. Year-wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.

Reply to Condition 12- Every year, 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 13- The project authorities should inform the Regional Office located at Bhubaneswar regarding the date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.

Reply to Condition 13- This is an operating mine, hence provision related to financial closure not applicable. Currently, the Regional Office is in Ranchi.

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

Reply to Condition 14- Noted and Agreed. Currently, the Regional Office of MoEF&CC is in Ranchi.

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

Reply to Condition 15- Complied. A copy of clearance letter has already submitted.

Condition 16- State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/ Tehsildar's Office for 30 days.

Reply to Condition 16- Noted. The EC Letter has been submitted to JSPCB for display of same at its Regional office and other government offices.

Condition 17- The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <http://envfor.nic.in> and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubaneswar.

Reply to Condition 17- 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. Now, the Regional office of MoEF&CC is in Ranchi.

Annexure 1

Piezometer Reading - Amtipani Bauxite Mine		
S No	Month	Depth (meter)
1	Oct-23	32.34
2	Nov-23	32.19
3	Dec-23	31.98
4	Jan-24	32.60
5	Feb-24	33.22
6	Mar-24	33.72

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

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

Amtipani Bauxite Mine-Environmental Monitoring Report



October 2023



CONTENT

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





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ENGINEERING SERVICES PVT. LTD.

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

CIN: U74999JH2018PTC011175

TEST REPORT

Test Report No. : ELES/RNC/2023/4373	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3804
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 06.10.2023 to 07.10.2023
Mines Status	: Operational	Sample Received Date	: 17.10.2023
Period of Analysis	: 17.10.2023 to 23.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	48	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-2): 2001; RA2022	6.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	23.4	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)

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



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GST NO:- 20AAECE9713D124

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Website : www.elespl.co.in

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4373	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****

Dr. Deependra Kumar Sinha
Authorised Signatory

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



ENVIRONMENTAL LABORATORIES &

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

ON: U74900JH2016PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4374	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3805
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 06.10.2023 to 07.10.2023
Mines Status	: Operational	Sample Received Date	: 17.10.2023
Period of Analysis	: 17.10.2023 to 23.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 25	2	Barometric Pressure (mmHg) : 742
3	Relative Humidity (%) : 58	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; RA2022	58	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	29	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	20.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)

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TEST REPORT

Test Report No. : ELES/RNC/2023/4374	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha
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Page 2 of 2

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TEST REPORT

Test Report No. : ELES/RNC/2023/4375	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3806
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 1C Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 06.10.2023 to 07.10.2023
Mines Status	: Operational	Sample Received Date	: 17.10.2023
Period of Analysis	: 17.10.2023 to 23.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	48	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-2): 2001; RA2022	5.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	22.2	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)

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TEST REPORT

Test Report No. : ELES/RNC/2023/4375	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****


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

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TEST REPORT

Test Report No. : ELES/RNC/2023/4376	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3807
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry – 7C Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 06.10.2023 to 07.10.2023
Mines Status	: Operational	Sample Received Date	: 17.10.2023
Period of Analysis	: 17.10.2023 to 23.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	48	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-2): 2001; RA2022	5.6	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	19.7	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.01	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

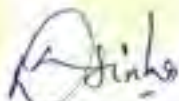
Test Report No. : ELES/RNC/2023/4376	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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CIN:U74999JH2013PTC011215

TEST REPORT

Test Report No. : ELES/RNC/2023/4369	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3800
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 05.10.2023 to 06.10.2023
Mines Status	: Operational	Sample Received Date	: 17.10.2023
Period of Analysis	: 17.10.2023 to 23.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	54	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-2): 2001; RA2022	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	23.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<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	<2.0	06 (Annual)

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TEST REPORT

Test Report No. : ELES/RNC/2023/4369	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****


Authorized Signatory

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ELES Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2023/4370	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3801
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 05.10.2023 to 06.10.2023
Mines Status	: Operational	Sample Received Date	: 17.10.2023
Period of Analysis	: 17.10.2023 to 23.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	49	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-2): 2001; RA2022	6.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	19.1	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)

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CIN: U74999HR2015PT0011325

TEST REPORT

Test Report No. : ELES/RNC/2023/4370	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****


Authorised Signatory
 Deependra Kumar Singh
 Executive Engineer
 AIRIS Pvt. Ltd. Technical Manager

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TEST REPORT

Test Report No. : ELES/RNC/2023/4371	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3802
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 06.10.2023 to 07.10.2023
Mines Status	: Operational	Sample Received Date	: 17.10.2023
Period of Analysis	: 17.10.2023 to 23.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 25	2	Barometric Pressure (mmHg) : 742
3	Relative Humidity (%) : 58	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; RA2022	49	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-2): 2001; RA2022	5.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	22.7	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



TEST REPORT

Test Report No. : ELES/RNC/2023/4371	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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CIN: U74909JH2017PT0011123

TEST REPORT

Test Report No. : ELES/RNC/2023/4372	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3803
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 06.10.2023 to 07.10.2023
Mines Status	: Operational	Sample Received Date	: 17.10.2023
Period of Analysis	: 17.10.2023 to 23.10.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 58	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	48	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): 2001; RA2022	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	17.3	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)

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TEST REPORT

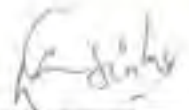
Test Report No. : ELES/RNC/2023/4372	Report Release Date : 22.11.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****


Authorised Signatory
Dr. Deependra Kumar Singh
B.T. Environmental Engineering
BLES PVT. LTD. Technical Manager

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

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

Amtipani Bauxite Mine-Environmental Monitoring Report

November- 2023



CONTENT

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





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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4716	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4119
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Antipani Bauxite Mine (190.95 ha)
		Sampling Date	: 04.11.2023 to 05.11.2023
Mines Status	: Operational	Sample Received Date	: 16.11.2023
Period of Analysis	: 16.11.2023 to 22.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 21	2	Barometric Pressure (mmHg) : 742
3	Relative Humidity (%) : 52	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; RA2022	59	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-2): 2001; RA2022	7.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	25.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



****End of Report****

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

Page 1 of 1

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4716	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4119
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 04.11.2023 to 05.11.2023
Mines Status	: Operational	Sample Received Date	: 16.11.2023
Period of Analysis	: 16.11.2023 to 22.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

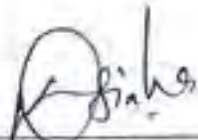
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 52	4	Weather Condition	: Clear

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

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



****End of Report****


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



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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4717	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4120
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 04.11.2023 to 05.11.2023
Mines Status	: Operational	Sample Received Date	: 16.11.2023
Period of Analysis	: 16.11.2023 to 22.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 52	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; RA2022	64	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-2): 2001; RA2022	8.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	23.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha
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Page 1 of 1

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TEST REPORT

Test Report No. : ELES/RNC/2023/4717	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4120
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 04.11.2023 to 05.11.2023
Mines Status	: Operational	Sample Received Date	: 16.11.2023
		Type of Sample	: Ambient Air
Period of Analysis	: 16.11.2023 to 22.11.2023	Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 52	4	Weather Condition	: Clear

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

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



****End of Report****


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

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TC-8839

TEST REPORT

Test Report No. : ELES/RNC/2023/4718	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4121
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 1C Antipani Bauxite Mine (190.95 ha)
		Sampling Date	: 04.11.2023 to 05.11.2023
Mines Status	: Operational	Sample Received Date	: 16.11.2023
Period of Analysis	: 16.11.2023 to 22.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 52	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	54	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	24.5	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.010	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	<2.0	06 (Annual)



****End of Report****

Authorized Signatory
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Page 1 of 1

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TEST REPORT

Test Report No. : ELES/RNC/2023/4718	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4121
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - IC Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 04.11.2023 to 05.11.2023
Mines Status	: Operational	Sample Received Date	: 16.11.2023
Period of Analysis	: 16.11.2023 to 22.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 52	4	Weather Condition	: Clear

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

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



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Authorised Signatory
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 ELES Pvt. Ltd. Technical Manager

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TC-8839

TEST REPORT

Test Report No. : ELES/RNC/2023/4719	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4122
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry – 7C Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 04.11.2023 to 05.11.2023
Mines Status	: Operational	Sample Received Date	: 16.11.2023
Period of Analysis	: 16.11.2023 to 22.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 52	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	22.9	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory
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ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4719	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4122
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry – 7C Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 04.11.2023 to 05.11.2023
Mines Status	: Operational	Sample Received Date	: 16.11.2023
Period of Analysis	: 16.11.2023 to 22.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

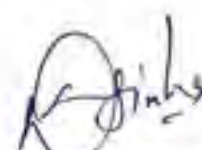
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 52	4	Weather Condition	: Clear

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

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



****End of Report****


 Authorised Signatory
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ENVIRONMENTAL LABORATORIES &

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TC-8839

TEST REPORT

Test Report No. : ELES/RNC/2023/4712	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4115
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 05.11.2023 to 06.11.2023
Mines Status	: Operational	Sample Received Date	: 16.11.2023
Period of Analysis	: 16.11.2023 to 22.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	59	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-2): 2001; RA2022	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	24.3	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<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	<2.0	06 (Annual)



****End of Report****

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Page 1 of 1

Ph. D Environmental Engg

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CIN: U74999JH2015PTC011125

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TEST REPORT

Test Report No. : ELES/RNC/2023/4712	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4115
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 05.11.2023 to 06.11.2023
Mines Status	: Operational	Sample Received Date	: 16.11.2023
Period of Analysis	: 16.11.2023 to 22.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline : Chemical

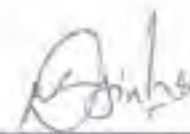
Group : Atmospheric Pollution

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

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



****End of Report****


 Authorised Signatory
 Dr. Deependra Kumar Sinha
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Page 1 of 1

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TC-8335

TEST REPORT

Test Report No. : ELES/RNC/2023/4713	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4116
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 05.11.2023 to 06.11.2023
Mines Status	: Operational	Sample Received Date	: 16.11.2023
Period of Analysis	: 16.11.2023 to 22.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 53	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; RA2022	54	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	22.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<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	<2.0	06 (Annual)



****End of Report****

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

Page 1 of 1

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CN: U74999JH2018PTC011125

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TEST REPORT

Test Report No. : ELES/RNC/2023/4713	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4116
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 05.11.2023 to 06.11.2023
Mines Status	: Operational	Sample Received Date	: 16.11.2023
Period of Analysis	: 16.11.2023 to 22.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION


1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

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

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



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Authorized Signatory
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CIN: U74399HR2018PTC011123

TEST REPORT

Test Report No. : ELES/RNC/2023/4714	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4117
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhuaipani Village
		Sampling Date	: 06.11.2023 to 07.11.2023
Mines Status	: Operational	Sample Received Date	: 16.11.2023
Period of Analysis	: 16.11.2023 to 22.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	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-2): 2001; RA2022	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	24.1	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



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Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PTC011125

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TEST REPORT

Test Report No. : ELES/RNC/2023/4714	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4117
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 06.11.2023 to 07.11.2023
Mines Status	: Operational	Sample Received Date	: 16.11.2023
Period of Analysis	: 16.11.2023 to 22.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 21	2	Barometric Pressure (mmHg) : 742
3	Relative Humidity (%) : 53	4	Weather Condition : Clear

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

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



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Authorized Signatory
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CIN: U74999JH2016PTC031125

TEST REPORT

Test Report No. : ELES/RNC/2023/4715	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4118
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 06.11.2023 to 07.11.2023
Mines Status	: Operational	Sample Received Date	: 16.11.2023
Period of Analysis	: 16.11.2023 to 22.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 53	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; RA2022	54	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	29	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	19.7	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<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/0)	<2.0	06 (Annual)



****End of Report****

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

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CIN: U74999MH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2023/4715	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4118
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 06.11.2023 to 07.11.2023
Mines Status	: Operational	Sample Received Date	: 16.11.2023
Period of Analysis	: 16.11.2023 to 22.11.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sample Drawn By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

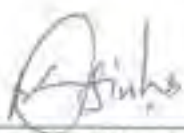
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

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

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



****End of Report****


 Authorised Signatory
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 ELES Pvt. Ltd. Technical Manan

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TEST REPORT

Test Report No. : ELES/RAN/2023/3116	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RAN/2023/DW/3003
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 04.11.2023
		Sample Received Date	: 16.11.2023
Mines Status	: Operational	Type of Sample	: Drinking Water
Period of Analysis	: 16.11.2023 to 05.12.2023	Source/Location of Sample	: Amtipani Bauxite Mines (190.95ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 24.7 °C)	-	APHA 23 rd Ed.2017, 4500-H ⁺	6.82	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 rd Ed.2017, 2130 B	0.18	1.0	5.0
Taste	-	APHA 23 rd Ed.2017, 2160 C	Agreeable	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 23 rd Ed.2017, 2120B&D	1.0	5	15
Total Dissolved Solids (TDS)	mg/L	APHA 23 rd Ed.2017, 2540B,C&D	170	500	2000
Chloride (as Cl)	mg/L	APHA 23 rd Ed.2017, 4500 Cl B	14.8	250	1000
Fluoride (as F)	mg/L	APHA 23 rd Ed.2017, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2320 B	64.8	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2340 C	74.6	200	600
Sulphate (as SO ₄)	mg/L	APHA 23 rd Ed.2017, 4500 SO ₄ ²⁻ -E	2.8	200	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	BDL (DL: 0.5)	45	No Relaxation
Phenolic Compound (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43):1992;RA2019	BDL (DL: 0.0005)	0.001	0.002

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RAN/2023/3116	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Chemical		Group : Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation
Residual Free Chlorine (RFC)	mg/L	IS 3025 (Part-26):2021	BDL (DL: 0.1)	0.02	1.0
Calcium (as Ca)	mg/L	APHA 23 rd Ed.2017, 3500 Ca B	12.8	75	200
Discipline : Chemical		Group : Residues in Water			
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003; RA2019	BDL (DL: 0.02)	0.03	0.2
Arsenic (as As)	mg/L	IS 3025 (Part 37): 2022	BDL (DL: 0.005)	0.01	No Relaxation
Boron (as B)	mg/L	IS 3025(Part-57): 2005; RA2021	BDL (DL: 0.2)	0.5	1.0
Cadmium (as Cd)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	1.5
Iron (as Fe)	mg/L	APHA 23 rd Ed.2017, 3111B	0.375	1.0	1.0
Lead (as Pb)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 1994; RA2019	BDL (DL: 0.001)	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2003; RA2019	BDL (DL: 0.01)	0.01	No Relaxation
Zinc (as Zn)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.1)	5	15

Remarks: 1. pH & RFC done at Lab.



ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

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

CIN: U74909JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RAN/2023/3116	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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



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TEST REPORT

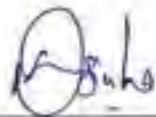
Test Report No. : ELES/RAN/2023/3116	Report Release Date : 21.12.2023
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

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



****End of Report****


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

Page 4 of 4

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

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

Amtipani Bauxite Mine-Environmental Monitoring Report

December 2023



CONTENT

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





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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/0183	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000166F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4506
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amtipani Bauxite Mine (190.95 ha)
Mines Status	: Operational	Sampling Date	: 10.12.2023 to 11.12.2023
Period of Analysis	: 16.12.2023 to 28.12.2023	Sample Received Date	: 16.12.2023
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	63	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	8.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	27.3	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.014	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



Reviewed by

****End of Report****

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

Page 1 of 1

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TEST REPORT

Test Report No. : ELES/RNC/2024/0183	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4506
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 10.12.2023 to 11.12.2023
Mines Status	: Operational	Sample Received Date	: 16.12.2023
Period of Analysis	: 16.12.2023 to 28.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION


1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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Website : www.elespl.co.in



CIN: U74999JH3018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/0184	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000167F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4507
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Arntipani Bauxite Mine (190.95 ha)
		Sampling Date	: 10.12.2023 to 11.12.2023
Mines Status	: Operational	Sample Received Date	: 16.12.2023
Period of Analysis	: 16.12.2023 to 28.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	24.6	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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

Page 1 of 1

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TEST REPORT

Test Report No. : ELES/RNC/2024/0184	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4507
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 10.12.2023 to 11.12.2023
Mines Status	: Operational	Sample Received Date	: 16.12.2023
Period of Analysis	: 16.12.2023 to 28.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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CM: U74999JH2018PTC011125

TC-8839

TEST REPORT

Test Report No. : ELES/RNC/2024/0185	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000168F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4508
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 1C Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 10.12.2023 to 11.12.2023
Mines Status	: Operational	Sample Received Date	: 16.12.2023
Period of Analysis	: 16.12.2023 to 28.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	57	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	26.1	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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

Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2024/0185	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4508
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - IC Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 10.12.2023 to 11.12.2023
Mines Status	: Operational	Sample Received Date	: 16.12.2023
Period of Analysis	: 16.12.2023 to 28.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

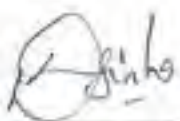
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2024/0186	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000169F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name:	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4509
Address:	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry – 7C Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 10.12.2023 to 11.12.2023
Mines Status	: Operational	Sample Received Date	: 16.12.2023
Period of Analysis	: 16.12.2023 to 28.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	55	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	20.3	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



****End of Report****

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

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TEST REPORT

Test Report No. : ELES/RNC/2024/0186	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4509
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry – 7C Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 10.12.2023 to 11.12.2023
Mines Status	: Operational	Sample Received Date	: 16.12.2023
Period of Analysis	: 16.12.2023 to 28.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

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

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2024/0179	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000162F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4502
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 09.12.2023 to 10.12.2023
Mines Status	: Operational	Sample Received Date	: 16.12.2023
Period of Analysis	: 16.12.2023 to 28.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 18	2	Barometric Pressure (mmHg) : 742
3	Relative Humidity (%) : 48	4	Weather Condition : Clear
5	Longitude : 84°14'52.25"N	6	Latitude : 23°17'41.21"E

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	55	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-2): 2001; RA2022	6.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	22.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<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	<2.0	06 (Annual)



Reviewed by

****End of Report****

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

Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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CIN: U71999JH03159TC01125

TEST REPORT

Test Report No. : ELES/RNC/2024/0179	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4502
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 09.12.2023 to 10.12.2023
Mines Status	: Operational	Sample Received Date	: 16.12.2023
Period of Analysis	: 16.12.2023 to 28.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

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

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



****End of Report****


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

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CIN: U74909JH2015PTC01125

TEST REPORT

Test Report No. : ELES/RNC/2024/0180	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000163F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4503
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 09.12.2023 to 10.12.2023
Mines Status	: Operational	Sample Received Date	: 16.12.2023
Period of Analysis	: 16.12.2023 to 28.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	55	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part- 24): 2019	29	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	24.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<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	<2.0	06 (Annual)



Reviewed by

****End of Report****

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

Page 1 of 1

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/0180	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4503
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 09.12.2023 to 10.12.2023
Mines Status	: Operational	Sample Received Date	: 16.12.2023
Period of Analysis	: 16.12.2023 to 28.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

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

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



****End of Report****



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



ENVIRONMENTAL LABORATORIES &

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

TEST REPORT

Test Report No.	: ELES/RNC/2024/0181	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000164F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4504
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhuaipani Village
		Sampling Date	: 09.12.2023 to 10.12.2023
Mines Status	: Operational	Sample Received Date	: 16.12.2023
Period of Analysis	: 16.12.2023 to 28.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	58	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	26.3	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



Reviewed by

****End of Report****

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

Page 1 of 1

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DIR-17/199/JR2018/PT011225

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0181	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4504
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 09.12.2023 to 10.12.2023
Mines Status	: Operational	Sample Received Date	: 16.12.2023
Period of Analysis	: 16.12.2023 to 28.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

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

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



****End of Report****



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

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

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Phone no.: 0651-2290103
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TEST REPORT

Test Report No. : ELES/RNC/2024/0182	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000165F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4505
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 09.12.2023 to 10.12.2023
Mines Status	: Operational	Sample Received Date	: 16.12.2023
Period of Analysis	: 16.12.2023 to 28.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	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-2): 2001; RA2022	6.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	22.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



****End of Report****

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

Page 1 of 1

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CIN: U74999JH2018PTC011135

ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.PLOT NO-30, MANSAROWAR ENCLAVE, TUPUDANA
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TEST REPORT

Test Report No. : ELES/RNC/2024/0182	Report Release Date : 15.01.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4505
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 09.12.2023 to 10.12.2023
Mines Status	: Operational	Sample Received Date	: 16.12.2023
Period of Analysis	: 16.12.2023 to 28.12.2023	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION			
1	Average Temperature (°C)	: 18	2 Barometric Pressure (mmHg) : 742
3	Relative Humidity (%)	: 48	4 Weather Condition : Clear

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

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



Reviewed by

****End of Report****

Authorised Signatory

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

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

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

Amtipani Bauxite Mine-Environmental Monitoring Report

January 2024



CONTENT

Hindalco Industries : Amtipani Bauxite Mine		Environmental Monitoring Report	January 2024
Amtipani Bauxite Mine			
AMBIENT AIR QUALITY- CORE ZONE			
1	Mine Entrance Gate		
2	Near Mine Office/WB		
3	Mines Near Quarry - 1F		
4	Mines Near Quarry - 7C		
AMBIENT AIR QUALITY- BUFFER ZONE			
1	Near Pakri Gada Village		
2	Near Pol Pol Village		
3	Near Shakhuapani Village		
4	Near Dipa Kujam Village		
Surface Water			
Soil			





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TEST REPORT

Test Report No. : ELES/RNC/2024/0485	Report Release Date : 05.02.2024
Work Order No. : I3612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000456F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0176
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 10.01.2024 to 11.01.2024
Mines Status	: Operational	Sample Received Date	: 15.01.2024
Period of Analysis	: 15.01.2024 to 25.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	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; RA2022	65	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-2): 2001; RA2022	8.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	29.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.018	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	<2.0	06 (Annual)



****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha

Ph. D Environmental Engg.

ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/0485	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0176
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 10.01.2024 to 11.01.2024
Mines Status	: Operational	Sample Received Date	: 15.01.2024
Period of Analysis	: 15.01.2024 to 25.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



****End of Report****

Authorized Signatory

Dr. Deependra Kumar Sinha

Ph. D Environmental Engg.

ELES Pvt. Ltd. Technical Manager



ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011123

TEST REPORT

Test Report No. : ELES/RNC/2024/0486	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000457F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0177
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 10.01.2024 to 11.01.2024
Mines Status	: Operational	Sample Received Date	: 15.01.2024
Period of Analysis	: 15.01.2024 to 25.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	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; RA2022	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-2): 2001; RA2022	8.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	26.3	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.015	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	<2.0	06 (Annual)



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha
Pvt. Environmental Engg.

Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2024/0486	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0177
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 10.01.2024 to 11.01.2024
Mines Status	: Operational	Sample Received Date	: 15.01.2024
Period of Analysis	: 15.01.2024 to 25.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



****End of Report****

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

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ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

PLOT NO-30, MANSARVAR ENCLAVE, TUPUDANA
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CIN: U74999(JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/0487	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000458F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0178
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry – 1F Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 10.01.2024 to 11.01.2024
Mines Status	: Operational	Sample Received Date	: 15.01.2024
Period of Analysis	: 15.01.2024 to 25.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	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; RA2022	61	100 (24hrs)
Particulate Matter (PM2.5)	µg/m ³	IS 5182 (Part-24): 2019	36	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m ³	IS 5182 (Part-2): 2001; RA2022	7.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	23.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



****End of Report****

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

Page 1 of 1

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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2024/0487	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0178
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry – 1F Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 10.01.2024 to 11.01.2024
Mines Status	: Operational	Sample Received Date	: 15.01.2024
Period of Analysis	: 15.01.2024 to 25.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

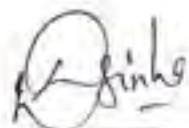
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



****End of Report****


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

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CIN: U74999JH2018PTC011225

TEST REPORT

Test Report No. : ELES/RNC/2024/0488	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000459F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0179
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry – 7C Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 10.01.2024 to 11.01.2024
Mines Status	: Operational	Sample Received Date	: 15.01.2024
Period of Analysis	: 15.01.2024 to 25.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	59	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-2): 2001; RA2022	8.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	23.7	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.016	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	<2.0	06 (Annual)



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha
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Page 1 of 1

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/0488	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0179
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry – 7C Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 10.01.2024 to 11.01.2024
Mines Status	: Operational	Sample Received Date	: 15.01.2024
Period of Analysis	: 15.01.2024 to 25.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



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TEST REPORT

Test Report No.	: ELES/RNC/2024/0481	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000452F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0172
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 09.01.2024 to 10.01.2024
Mines Status	: Operational	Sample Received Date	: 15.01.2024
Period of Analysis	: 15.01.2024 to 25.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	60	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-2): 2001; RA2022	8.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	25.8	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<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	<2.0	06 (Annual)



****End of Report****

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

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CIN: U71999JH3018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/0481	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0172
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 09.01.2024 to 10.01.2024
Mines Status	: Operational	Sample Received Date	: 15.01.2024
Period of Analysis	: 15.01.2024 to 25.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



End of Report

Authorised Signatory

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

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2024/0482	Report Release Date	: 05.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000453F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0173
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 09.01.2024 to 10.01.2024
Mines Status	: Operational	Sample Received Date	: 15.01.2024
Period of Analysis	: 15.01.2024 to 25.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	59	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	8.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	26.7	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory

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CIN: U71999JH2018PTC031125

TEST REPORT

Test Report No. : ELES/RNC/2024/0482	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0173
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 09.01.2024 to 10.01.2024
Mines Status	: Operational	Sample Received Date	: 15.01.2024
Period of Analysis	: 15.01.2024 to 25.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



****End of Report****


 Authorised Signatory
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 ELES Pvt. Ltd. Technical Manager

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CIN: U74903JH2018PTC011125

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TEST REPORT

Test Report No. : ELES/RNC/2024/0483	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000454F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0174
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhuaipani Village
		Sampling Date	: 09.01.2024 to 10.01.2024
Mines Status	: Operational	Sample Received Date	: 15.01.2024
Period of Analysis	: 15.01.2024 to 25.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 18	2	Barometric Pressure (mmHg) : 742
3	Relative Humidity (%) : 45	4	Weather Condition : Clear

Discipline : Chemical

Group : Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	62	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	7.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	28.1	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m^3	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m^3	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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

Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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Website : www.elespl.co.in

CIN: U74999/JK2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/0483	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0174
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 09.01.2024 to 10.01.2024
Mines Status	: Operational	Sample Received Date	: 15.01.2024
Period of Analysis	: 15.01.2024 to 25.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



****End of Report****


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

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/0484	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000455F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0175
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 09.01.2024 to 10.01.2024
Mines Status	: Operational	Sample Received Date	: 15.01.2024
Period of Analysis	: 15.01.2024 to 25.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 18	2	Barometric Pressure (mmHg) : 742
3	Relative Humidity (%) : 45	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; RA2022	61	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-2): 2001; RA2022	7.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	24.7	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.06	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	<2.0	06 (Annual)



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Authorised Signatory

Dr. Deependra Kumar Sinha
Ph. D Environmental Engg.

ELES PVT. LTD. Technical Manager

Page 1 of 1

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CIN: U74999JH3018PTCO11225

TEST REPORT

Test Report No. : ELES/RNC/2024/0484	Report Release Date : 05.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0175
Address	: Lohardaga, Jharkhand-835302	Location	: Near Dipa Kujam Village
		Sampling Date	: 09.01.2024 to 10.01.2024
Mines Status	: Operational	Sample Received Date	: 15.01.2024
Period of Analysis	: 15.01.2024 to 25.01.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

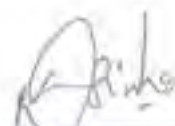
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



****End of Report****


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

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TC-8833

TEST REPORT

Test Report No. : ELES/RNC/2024/0581	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000000552F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SW/0616
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 11.01.2024
		Sample Received Date	: 31.01.2024
Mines Status	: Operational	Type of Sample	: Surface Water
		Source of Sample	: Near RWPH- 1, Amtipani Bauxite Mine(190.95 ha)
Period of Analysis	: 31.01.2024 to 05.02.2024	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 24.5 °C)	-	IS 3025 (Part 11) : 2022	7.11	6.5-8.5
Temperature	°C	IS 3025 (Part 9):1984; RA2017	24.6	-
Chemical Oxygen Demand (COD)	-	IS 3025 (Part-58) :2006; RA2017	4.0	-
Biochemical Oxygen Demand (BOD) (@ 20°C for 5 days)	mg/L	APHA 23 rd Ed.2017; 5210B	1.2	3.0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	140	1500
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17):2022	10.8	---
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	BDL (DL: 0.1)	0.1
Calcium (as Ca)	mg/L	IS 3025 (Part-40) :1991, RA2019	6.2	--
Discipline : Chemical		Group : Residues in Water		
Aluminium (Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	0.03
Iron (as Fe)	mg/L	APHA23 rd Ed 2017; 3111B	0.116	50

Remarks: 1. pH done at Lab.



****End of Report****

Dr. Deependra Kumar Singh
Authorised Signatory
Dr. Deependra Kumar Singh

Page 1 of 1

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TEST REPORT

Test Report No. : ELES/RNC/2024/0596	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC88392400000567F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SL/0631
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 11.01.2024
		Sample Received Date	: 31.01.2024
Mines Status	: Operational	Type of Sample	: Soil
Period of Analysis	: 31.01.2024 to 05.02.2024	Location of Sample	: Near Quarry 1F, Amtipani Bauxite Mines (190.95ha)
		Sampling Procedure	: ELES/DOC/SMPL/05
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

Discipline : Chemical		Group : Pollution & Environment	
Parameter	Unit	Test Protocol	Result
pH (1:2) at 24.6 °C	-	IS 2720 (Part 26):1987; RA2021	4.90
Conductivity (1:2) at 24.6 °C	µS/cm	IS 14767: 2000; RA2021	154
Total Organic Carbon (TOC)	%	Soil Testing in India: 2011 (Walkley & Black Method)	0.53
Available Phosphorus (as P) (1:10)	kg/ha	Soil Testing in India; 2011	1.2
Potassium (as K)	mg/kg	IS 9497:1980; RA 2020	1600
Available Nitrogen	%	Soil Testing in India: 2011	0.78
Chloride (1:2)	%	ELES/SOIL/SOP/01	0.031
Lead (as Pb)	mg/kg	US EPA 3050 A&B : 1996	BDL (DL: 0.1)
Cadmium (as Cd)	mg/kg	US EPA 3050 A&B : 1996	BDL (DL: 0.1)
Mercury (as Hg)	mg/kg	US EPA 7473 : 2007	BDL (DL: 0.01)
Magnesium (as Mg)	mg/kg	Soil Testing in India: 2011	283

Remarks: 1. pH done at Lab.



Authorised Signatory
Dr. Deependra Kumar Sinha
Dt. D-Environmental Engg.

****End of Report****

Page 1 of 1

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Website : www.elespl.co.in

CIN: U72999JH2018PTC011325

TEST REPORT

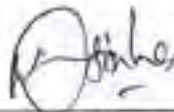
Test Report No. : ELES/RNC/2024/0596	Report Release Date : 06.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SL/0631
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 11.01.2024
		Sample Received Date	: 31.01.2024
Mines Status	: Operational	Type of Sample	: Soil
		Location of Sample	: Near Quarry 1F, Amtipani Bauxite Mines (190.95ha)
Period of Analysis	: 31.01.2024 to 05.02.2024	Sampling Procedure	: ELES/DOC/SMPL/05
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed

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



****End of Report****


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

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

Amtipani Bauxite Mine-Environmental Monitoring Report

February 2024



CONTENT

Hindalco Industries :Amtipani Bauxite Mine Environmental Monitoring Report February2024	
Amtipani Bauxite Mine	
	AMBIENT AIR QUALITY- CORE ZONE
1	Mine Entrance Gate
2	Near Mine Office/WB
3	Mines Near Quarry – 1F
4	Mines Near Quarry – 7C
	AMBIENT AIR QUALITY- BUFFER ZONE
1	Near PakriGada Village
2	Near Pol Pol Village
3	Near Shakhuapani Village
4	Near DipaKujam Village
	Drinking Water
	Ambient Noise
	Workzone Noise





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Website: www.elespl.co.in



CIN: U74999JH2018PTC011125

TC-8899

TEST REPORT

Test Report No. : ELES/RNC/2024/1152	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001088F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0891
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 03.02.2024 to 04.02.2024
Mines Status	: Operational	Sample Received Date	: 07.02.2024
Period of Analysis	: 07.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	69	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	42	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	9.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	26.7	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.018	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	<2.0	06 (Annual)



Authorised Signatory
Dr. Deependra Kumar Sinha

****End of Report****

Page 1 of 1

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CIN: U74999JH2018PTC011125

ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

Test Report No. : ELES/RNC/2024/1152	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0891
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 03.02.2024 to 04.02.2024
Mines Status	: Operational	Sample Received Date	: 07.02.2024
Period of Analysis	: 07.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

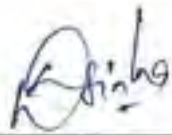
METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



****End of Report****


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

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TC-8839

TEST REPORT

Test Report No. : ELES/RNC/2024/1153	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001089F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0892
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 03.02.2024 to 04.02.2024
Mines Status	: Operational	Sample Received Date	: 07.02.2024
Period of Analysis	: 07.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	69	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-2): 2001; RA2022	7.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	27.5	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.018	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	<2.0	06 (Annual)



Authorized Signatory
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Ph. D Environmental Engg

ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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CIN: U78999JH2018PTC011125

ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2024/1153	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0892
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Antipani Bauxite Mine (190.95 ha)
		Sampling Date	: 03.02.2024 to 04.02.2024
Mines Status	: Operational	Sample Received Date	: 07.02.2024
Period of Analysis	: 07.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



****End of Report****


Authorised Signatory
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 ELES Pvt. Ltd. Technical Manager



ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

TC-8839

TEST REPORT

Test Report No.	: ELES/RNC/2024/1154	Report Release Date	: 13.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000001090F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0893
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 1F Antipani Bauxite Mine (190.95 ha)
		Sampling Date	: 03.02.2024 to 04.02.2024
Mines Status	: Operational	Sample Received Date	: 07.02.2024
Period of Analysis	: 07.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	66	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	39	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	8.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	22.8	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



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Jr Deependra Kumar Sinha

Ph. D Environmental Engg.

****End of Report****

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CIN: U74999JH2018PTC011125

ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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TEST REPORT

Test Report No. : ELES/RNC/2024/1154	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0893
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry – 1F Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 03.02.2024 to 04.02.2024
Mines Status	: Operational	Sample Received Date	: 07.02.2024
Period of Analysis	: 07.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzené (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11); 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12); 2004; RA2019	<0.5	01(Annual)

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



****End of Report****


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

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CIN: U74999HR2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/1155	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001091F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0894
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 7C Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 03.02.2024 to 04.02.2024
Mines Status	: Operational	Sample Received Date	: 07.02.2024
Period of Analysis	: 07.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	63	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-2): 2001; RA2022	7.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	22.9	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha

Page 1 of 1

PHD Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

Test Report No. : ELES/RNC/2024/1155	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0894
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry – 7C Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 03.02.2024 to 04.02.2024
Mines Status	: Operational	Sample Received Date	: 07.02.2024
Period of Analysis	: 07.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



****End of Report****


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



ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2016PTCC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/1148	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001084F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0887
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 02.02.2024 to 03.02.2024
Mines Status	: Operational	Sample Received Date	: 07.02.2024
Period of Analysis	: 07.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	53	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-2): 2001; RA2022	7.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	22.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	<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	<2.0	06 (Annual)



****End of Report****

Authorized Signatory
Dr. Deependra Kumar Singh

Page 1 of 1

Ph D Environmental Engg

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Website : www.elespl.co.in

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No.	: ELES/RNC/2024/1148	Report Release Date	: 13.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0887
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 02.02.2024 to 03.02.2024
Mines Status	: Operational	Sample Received Date	: 07.02.2024
Period of Analysis	: 07.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved


METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



****End of Report****



Authorised Signatory
Dr. Deenendra Kumar Singh
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Tosi, Ranchi

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TC-8839

CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/1149	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001085F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0888
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 02.02.2024 to 03.02.2024
Mines Status	: Operational	Sample Received Date	: 07.02.2024
Period of Analysis	: 07.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 21	2	Barometric Pressure (mmHg) : 742
3	Relative Humidity (%) : 48	4	Weather Condition : Clear

Discipline: Chemical

Group: Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	50	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-2): 2001; RA2022	6.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	21.2	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	<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	<2.0	06 (Annual)



Reviewed by

****End of Report****

Authorized Signatory
Dr. Deependra Kumar Singh

Page 1 of 1

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CIN: U71999JH2016PT011425

TEST REPORT

Test Report No. : ELES/RNC/2024/1149	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0888
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 02.02.2024 to 03.02.2024
Mines Status	: Operational	Sample Received Date	: 07.02.2024
Period of Analysis	: 07.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



****End of Report****


 Authorised Signatory
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 P.O. Environmental Engineering
 ELES Pvt. Ltd. Ranchi/Jharkhand

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CIN: U74999JH2018PTC011133

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TC-8839

TEST REPORT

Test Report No. : ELES/RNC/2024/1150	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001086F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0889
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 02.02.2024 to 03.02.2024
Mines Status	: Operational	Sample Received Date	: 07.02.2024
Period of Analysis	: 07.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline: Chemical

Group: Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	57	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	22.6	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)



****End of Report****

Dr. Deependra Kumar Singh
 Authorised Signatory
 Dr. Deependra Kumar Singh
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 IIS RNC Dr. Technical Institute

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CM: U74993JH3018P7C011125

TEST REPORT

Test Report No. : ELES/RNC/2024/1150	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0889
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 02.02.2024 to 03.02.2024
Mines Status	: Operational	Sample Received Date	: 07.02.2024
Period of Analysis	: 07.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



****End of Report****


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

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TC-8835

TEST REPORT

Test Report No. : ELES/RNC/2024/1151	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001087F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0890
Address	: Lohardaga, Jharkhand-835302	Location	: Near DipaKujam Village
		Sampling Date	: 02.02.2024 to 03.02.2024
Mines Status	: Operational	Sample Received Date	: 07.02.2024
Period of Analysis	: 07.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline: Chemical

Group: Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-23): 2006; RA2022	55	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): 2001; RA2022	6.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-6): 2006; RA2022	17.8	80 (24hrs)
Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part-22): 2004; RA2019	0.06	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	<2.0	06 (Annual)



****End of Report****

Authorized Signatory

Dr. Deependra Kumar Singh

Ph. D Environmental Engg.

ELES Pvt. Ltd. Technical MAN

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Phone no.: 0653-2290105
Website : www.elespl.co.in

QIN: U74309MH2018PT1011125

TEST REPORT

Test Report No. : ELES/RNC/2024/1151	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/0890
Address	: Lohardaga, Jharkhand-835302	Location	: Near DipaKujam Village
		Sampling Date	: 02.02.2024 to 03.02.2024
Mines Status	: Operational	Sample Received Date	: 07.02.2024
Period of Analysis	: 07.02.2024 to 13.02.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆) [*]	µg/m ³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene [*]	ng/m ³	IS 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)

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



****End of Report****


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

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ENVIRONMENTAL LABORATORIES &

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

TEST REPORT

Test Report No. : ELES/RNC/2024/1177	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001113F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/DW/0916
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 04.02.2024
		Sample Received Date	: 07.02.2024
Mines Status	: Operational	Type of Sample	: Drinking Water
Period of Analysis	: 07.02.2024 to 13.02.2024	Source/Location of Sample	: Amtipani Bauxite Mines (190.95ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 24.6 °C)	-	APHA 23 rd Ed.2017, 4500-H ⁺	6.70	6.5-8.5	No Relaxation.
Turbidity	NTU	APHA 23 rd Ed.2017, 2130 B	0.04	1.0	5.0
Taste	-	APHA 23 rd Ed.2017, 2160 C	Agreeable	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 23 rd Ed.2017, 2120B&D	1.0	5	15
Total Dissolved Solids (TDS)	mg/L	APHA 23 rd Ed.2017, 2540B,C&D	132	500	2000
Chloride (as Cl)	mg/L	APHA 23 rd Ed.2017, 4500 Cl B	8.4	250	1000
Fluoride (as F)	mg/L	APHA 23 rd Ed.2017, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2320 B	70	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2340 C	39.7	200	600
Sulphate (as SO ₄)	mg/L	APHA 23 rd Ed.2017, 4500 SO ₄ ²⁻ -E	BDL (DL: 1.0)	200	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	BDL (DL: 0.5)	45	No Relaxation
Phenolic Compound (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43):1992;RA2019	BDL (DL: 0.001)	0.001	0.002
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation

Page 1 of 2

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TC-8839

TEST REPORT

Test Report No. : ELES/RNC/2024/1177	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001113F	

Discipline : Chemical		Group : Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Residual Free Chlorine (RFC)	mg/L	IS 3025 (Part-26):2021	BDL (DL: 0.1)	0.02	1.0
Calcium (as Ca)	mg/L	APHA 23 rd Ed.2017, 3500 Ca B	14.2	75	200
Discipline : Chemical		Group : Residues in Water			
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003; RA2019	BDL (DL: 0.02)	0.03	0.2
Arsenic (as As)	mg/L	IS 3025 (Part 37); 2022	BDL (DL: 0.005)	0.01	No Relaxation
Boron (as B)	mg/L	IS 3025(Part-57); 2005; RA2021	BDL (DL: 0.2)	0.5	1.0
Cadmium (as Cd)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	1.5
Iron (as Fe)	mg/L	APHA 23 rd Ed.2017, 3111B	0.106	1.0	1.0
Lead (as Pb)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 1994; RA2019	BDL (DL: 0.001)	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2003; RA2019	BDL (DL: 0.01)	0.01	No Relaxation
Zinc (as Zn)	mg/L	APHA 23 rd Ed.2017, 3111B	BDL (DL: 0.1)	5	15

Remarks: T, PH & REC done at Lab.



Authorised Signatory

Dr. Deependra Kumar Sinha

****End of Report****

Pr. D Environmental Enngg.

ELES Pvt. Ltd. Technical Manager

Page 2 of 2

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/1177	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/DW/0916
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 04.02.2024
		Sample Received Date	: 07.02.2024
Mines Status	: Operational	Type of Sample	: Drinking Water
Period of Analysis	: 07.02.2024 to 13.02.2024	Source/Location of Sample	: Amtipani Bauxite Mines (190.95ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

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

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/1177	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

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

Remarks: 1. All Pesticides are outsourced to other Lab.



Authorised Signatory

Dr. Deependra Kumar Sinha

****End of Report****

Page 2 of 2

Ph. D Environmental Engg.

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CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/1167	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001103F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Hindalco Industries Limited	Address : Lohardaga, Jharkhand-835302	Sampling Date : 03.02.2024 to 04.02.2024	Sampling Received Date : 07.02.2024
Mines Status : Operational		Type of Sample : Ambient Noise	Sampling procedure : ELES/DOC/SMPL/03
		Sample Drawn By : ELES Pvt. Ltd.	Period of Analysis : 07.02.2024 to 13.02.2024

METEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 22	2	Barometric Pressure (mmHg) : 736
3	Relative Humidity (%) : 49	4	Weather Condition : Clear

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L _{eq}	
Near Mine Office Amtipani Bauxite Mine (190.95 ha)	dB(A)	IS 9989:1981, RA 2020	Day Time	66	75 dB(A) Day Time & 70 dB(A) Night Time
			Night Time	41	
Sample ID: ELES/RNC/2024/AN/0906					



****End of Report****

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

Page 1 of 1

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TEST REPORT

Test Report No. : ELES/RNC/2024/1172	Report Release Date : 13.02.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023
ULR No. : TC883924000001108F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 03.02.2024
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 07.02.2024
		Type of Sample	: Workzone Noise
		Sampling procedure	: ELES/DOC/SMPL/03
Mines Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.
		Period of Analysis	: 07.02.2024 to 13.02.2024

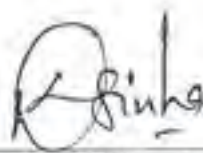
METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 22	2	Barometric Pressure (mmHg) : 736
3	Relative Humidity (%) : 49	4	Weather Condition : Clear

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L _{eq}	
Mines Near Quarry – 7C Antipani Bauxite Mine (190.95 ha)	dB(A)	IS 4758:1968; RA 2017	Day Time	71	90 dB (A)
Sample ID: ELES/RNC/2024/WN/0911					



****End of Report****


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

Page 1 of 1

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"Save Environment, Save Future"

ENVIROCHECK

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

State- Jharkhand.

Amtipani Bauxite Mine-Environmental Monitoring Report

March 2024

CONTENT

Hindalco Industries : Amtipani Bauxite Mine Environmental Monitoring Report March 2024	
Amtipani Bauxite Mine	
AMBIENT AIR QUALITY- CORE ZONE	
1	Mine Entrance Gate
2	Near Mine Office/WB
3	Mines Near Quarry – 1F
4	Mines Near Quarry – 7C
AMBIENT AIR QUALITY- BUFFER ZONE	
1	Near PakriGada Village
2	Near Pol Pol Village
3	Near Shakhuapani Village
4	Near DipaKujam Village
Spring Water	
1	Jhapa Jhuri

TEST REPORT

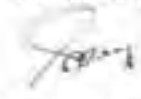
Test Report No. : ELES/RNC/2024/1465	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1301
Address	: Lohardaga, Jharkhand-835302	Location	: Mine Entrance Gate Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 07.03.2024 to 08.03.2024
Mines Status	: Operational	Sample Received Date	: 12.03.2024
Period of Analysis	: 12.03.2024 to 19.03.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Scaled & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	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-2): 2001; RA2022	7.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	25.3	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05	<0.5	01(Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

****End of Report****



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

TEST REPORT

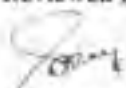
Test Report No. : ELES/RNC/2024/1466	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1302
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Office/WB Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 07.03.2024 to 08.03.2024
Mines Status	: Operational	Sample Received Date	: 12.03.2024
Period of Analysis	: 12.03.2024 to 19.03.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	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-2): 2001; RA2022	10.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	25.9	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05	<0.5	01 (Annual)

Reviewed by :



(Saswata Burnan Roy, Dy. Quality Manager)

****End of Report****



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)



TEST REPORT

Test Report No. : ELES/RNC/2024/1467	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1303
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 1F Amtipani Bauxite Mine (190.95 ha)
		Sampling Date	: 07.03.2024 to 08.03.2024
Mines Status	: Operational	Sample Received Date	: 12.03.2024
Period of Analysis	: 12.03.2024 to 19.03.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	62	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-2): 2001; RA2022	7.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	21.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05	<0.5	01(Annual)

Reviewed by :

(Saswata Burman Roy, Dy. Quality Manager)

****End of Report****



Authorised Signatory :

(Bapan Das, Dy. Technical Manager)

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TEST REPORT

Test Report No. : ELES/RNC/2024/1468	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindaleo Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1304
Address	: Lohardaga, Jharkhand-835302	Location	: Mines Near Quarry - 7C Antipani Bauxite Mine (190.95 ha)
		Sampling Date	: 07.03.2024 to 08.03.2024
Mines Status	: Operational	Sample Received Date	: 12.03.2024
Period of Analysis	: 12.03.2024 to 19.03.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	61	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-2): 2001; RA2022	7.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	25.1	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05	<0.5	01(Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

Page 1 of 1



TEST REPORT

Test Report No. : ELES/RNC/2024/1461	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1297
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pakri Gada Village
		Sampling Date	: 06.03.2024 to 07.03.2024
Mines Status	: Operational	Sample Received Date	: 12.03.2024
Period of Analysis	: 12.03.2024 to 19.03.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DQC/SMP/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	69	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-2): 2001; RA2022	8.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	16.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05	<0.5	01(Annual)

Reviewed by :

(Saswata Burman Roy, Dy. Quality Manager)

****End of Report****

Authorised Signatory :

(Bapan Das, Dy. Technical Manager)





TEST REPORT

Test Report No. : ELES/RNC/2024/1462	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1298
Address	: Lohardaga, Jharkhand-835302	Location	: Near Pol Pol Village
		Sampling Date	: 06.03.2024 to 07.03.2024
Mines Status	: Operational	Sample Received Date	: 12.03.2024
Period of Analysis	: 12.03.2024 to 19.03.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	63	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-2): 2001; RA2022	9.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	25.3	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05	<0.5	01 (Annual)

Reviewed by :

(Saswata Burman Roy, Dy. Quality Manager)

****End of Report****

Authorised Signatory :

(Bapan Das, Dy. Technical Manager)





TEST REPORT

Test Report No. : ELES/RNC/2024/1463	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1299
Address	: Lohardaga, Jharkhand-835302	Location	: Near Shakhupani Village
		Sampling Date	: 06.03.2024 to 07.03.2024
Mines Status	: Operational	Sample Received Date	: 12.03.2024
Period of Analysis	: 12.03.2024 to 19.03.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	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-2): 2001; RA2022	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	25.2	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	0.015	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	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05	<0.5	01(Annual)

Reviewed by :

(Saswata Burman Roy, Dy. Quality Manager)

****End of Report****

Authorised Signatory :

(Bapan Das, Dy. Technical Manager)



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TEST REPORT

Test Report No. : ELES/RNC/2024/1464	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/AA/1300
Address	: Lohardaga, Jharkhand-835302.	Location	: Near Dipa Kujan Village
		Sampling Date	: 06.03.2024 to 07.03.2024
Mines Status	: Operational	Sample Received Date	: 12.03.2024
Period of Analysis	: 12.03.2024 to 19.03.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 49	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m ³	IS 5182 (Part-23): 2006; RA2022	51	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): 2001; RA2022	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m ³	IS 5182 (Part-6): 2006; RA2022	21.5	80 (24hrs)
Ozone (O ₃)	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<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): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	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	<2.0	06 (Annual)
Benzene (C ₆ H ₆)	µg/m ³	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m ³	ELES/GC/SOP/05	<0.5	01(Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

****End of Report****

Authorised Signatory :



(Bapan Das, Dy. Technical Manager)



TEST REPORT

Test Report No. : ELES/RNC/2024/1538	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2024/SW/1524
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 08.03.2024
		Sample Received Date	: 12.03.2024
Mines Status	: Operational	Type of Sample	: Surface Water
		Source of Sample	: Spring Water
		Location of Sample	: Jhapa Jhuri, Amtipani Bauxite Mine (190.95 ha)
Period of Analysis	: 12.03.2024 to 29.03.2024	Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.9 °C)	-	IS 3025 (Part 11) : 2022	6.58	6.5-8.5
Colour	Hazen	IS 3025 (Part -4) : 2021	2.0	300
Odour	-	IS 3025 (Part-5) : 2018	Unobjectionable	--
Taste	-	APHA 23 rd Ed.2017, 2160 C	N/A	--
Turbidity	mg/L	IS 3025 (Part-10) :1984;RA2017	0.32	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	208	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23) :1986; RA2019	74.6	--
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21) : 2009; RA2019	95.4	--
Sulphate (as SO ₄)	mg/L	IS 3025 (Part 24) : 1986; RA2019	5.2	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	1.81	50
Chloride (as Cl)	mg/L	IS 3025 (Part-32) :1988; RA2019	17.8	600
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.135	1.5
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05
Phenols Compounds (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43): 1992;RA2019	BDL (DL: 0.001)	0.005

TEST REPORT

Test Report No. : ELES/RNC/2024/1538	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline: Chemical		Group: Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 1991;RA2019	25.4	--
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) :2021	BDL (DL: 0.1)	--
Anionic Surfactants (as MBAS)	mg/L	APHA 24 th Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Discipline: Chemical		Group: Residues in Water		
Aluminium (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	--
Arsenic (as As)	mg/L	IS 3025 (Part-37): 2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57) :2021	BDL (DL: 0.2)	--
Cadmium (as Cd)	mg/L	APHA 23 rd Ed.2017; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 23 rd Ed.2017; 3111B	BDL (DL: 0.03)	--
Copper (as Cu)	mg/L	APHA 23 rd Ed.2017; 3111B	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 23 rd Ed.2017; 3111B	0.090	50
Lead (as Pb)	mg/L	APHA 23 rd Ed.2017, 3111 B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017; 3111 B	BDL (DL: 0.05)	--
Mercury (as Hg)	mg/L	IS 3025 (Part-48) :1994; RA2019	BDL (DL: 0.001)	--
Selenium (as Se)	mg/L	IS 3025 (Part-56) :2003; RA2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 23 rd Ed.2017, 3111 B	BDL (DL: 0.1)	15
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04	BDL (DL: 0.05)	--

Remarks: 1. pH & RFC done at Lab.

TEST REPORT

Test Report No. : ELES/RNC/2024/1538	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Pesticides				
Alachlor	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	--
Atrazine	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	--
Bujachlor	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	--
Chlorpyrifos	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	--
Ethion	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	--
Malathion	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	--
Methyl parathion	µg/L	ELES/GC/SOP/01	BDL (DL: 0.1)	--
Monocrotophos	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	--
Phorate	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	--
Phorate Sulphone	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	--
Dieldrin	µg/L	ELES/GC/SOP/02	BDL (DL: 0.01)	--
Alpha HCH	µg/L	ELES/GC/SOP/02	BDL (DL: 0.006)	--
Beta HCH	µg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	--
Delta HCH	µg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	--
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	--
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02	BDL (DL: 0.05)	--
DDT(o,p and p,p-isomers of DDT,DDEand DDD)	µg/L	ELES/GC/SOP/02	BDL (DL: 0.05)	--



TEST REPORT

Test Report No. : ELES/RNC/2024/1538	Report Release Date : 10.04.2024
Work Order No. : 13612310218	Work Order Date : 21.04.2023

Discipline : Biological		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Total Coliform	CFU/100 mL	IS 15185: 2016, RA2021	48.0	5000
Escherichia Coli	CFU/100 mL	IS 15185: 2016; RA2021	<1.0	—

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

****End of Report****

Authorised Signatory :



(Bapan Das, Dy. Technical Manager)





Annexure 3

Date – 01.05.2024

Office Order

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

1. Mr. Yogendra Lihare (Coordinator)
2. Mr. Preet Ranjan Kuanr - Geologist
3. Mr. Anand Prakash Tiwari – Environment Engineer

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

A handwritten signature in blue ink, appearing to read "Basudev", with a stylized flourish extending to the right.

Basudev Gangopadhyay
AVP (Planning, Environment& Compliance)

Annexure 4

Production, Mined Out, Back Filled and Over Burden removal from October'23 to March'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	102292	0.68	0.32	68480.59
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	42069	0.8	0.00	39067.98
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	130749.2	2.06	0.56	534025.4
7	Sherangdag-A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	11950	0.81	0.76	55693.68
8	Serangdag-B Bauxite Mine	77.89	100000	04.10.1978 to 31.03.2030	36230	2.81	1.65	116122.92
9	Jalim & Sanai Bauxite Mine	12.14	50000	16.10.1974 to 31.03.2030	16450	0.07	0.06	17533.27
10	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	145680	5.91	3.23	201022.508
11	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	5480	0.46	2.91	72661.44
12	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	66000	2.79	9.53	61380.23
13	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	48600	1.85	1.15	131087.65

Annexure 4

Minerals & Minerals Limited								
14	Pakhar (109.507) Bauxite Mine	109.507	280000	26.07.2008 to 25.07.2058	142288	1.01	1.12	213450.18
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	67450	3.41	3.29	101973.71
17	Amtipani Chirodih Bauxite Mines	130.01	450000	11.01.2017 to 10.01.2067	123330	8.583	5.67	208720.97

*Static information about the mines included in the above table



Basudev Gangopadhyay
AVP (Planning, Environment and Compliance)

Annexure-5

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

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

S No	Description	Budget (in Rupees) FY 2023-24	Actual (in Rupees) FY 2023-24 (From Oct'23 to Mar'24)
1	Pollution Control & Environment monitoring	1,57,41,102.00	73,14,906.01
2	Reclamation/ Back filing & Rehabilitation**	1,36,62,095.00	6,53,29,973.21
3	Green belt, Plantation & Water sprinkling arrangement	67,45,898.00	32,08,288.90
4	Rural Development	6,19,33,534.00	2,08,14,673.36

**Part of OB removed cost.



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