

ADITYA BIRLA



Ref No: HIL/LHD/VP (M)/MoEF/ 115

Date: 22.05.13

To,  
Mr S Kerketta  
Joint Director(S)  
MoEF ,GOI, Eastern Regional Office  
A/3,Chandrashekharpur,  
Bhubaneshwar- 751023 (Orissa)

Sub: **Compliance Report of EC conditions for Jalim & Sanai Bauxite Mining project of M/s Hindalco Industries Limited located in Gumla, Jharkhand for the period Oct' 2012 - March' 2013.**

Ref: **Environmental Clearance letter no J-11015/138/2006-IA II (M) dated 10<sup>th</sup> April 2007**


Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Jalim & Sanai (12.14 Ha)** Bauxite Mining project of M/s Hindalco Industries Limited located in Gumla, Jharkhand for the period **Oct' 2012 - March' 2013.**

Hope you will find the same in order.

Thanking You

Yours Sincerely  
FOR HINDALCO INDUSTRIES LIMITED

  
(Bijesh Kumar Jha)  
VP (Mines)

Enclosure:- As Above

HINDALCO INDUSTRIES LIMITED

Hindalco Complex  
Court Road, Lohardaga-835302  
Distt. Lohardaga (Jharkhand)

Telephone +91 6526 224112/224015/223113  
Fax +91 6526 224118

Website [www.hindalco.com](http://www.hindalco.com)

**Compliance of conditions laid down in Environmental Clearance**

**JALIM & SANAI BAUXITE MINES**

**Period : Oct'12 - March'13**

J-11015/138/2006-IA.II (M) Dated 10.4.2007

<b>Sl No</b>	<b>Conditions</b>	<b>Compliance Status</b>
Specific Conditions		
1	All the conditions stipulated by SPCB in their NOC shall be effectively implemented.	Complied
2	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.	Mining Lease is granted / renewed by the State Govt. after due consideration & cabinet approval on recommendation of D.C. D.C is competent authority for diversion of agricultural land for non-agricultural use. Copy already submitted with previous six monthly compliance report.
3	Mining shall not intersect groundwater. The mine working shall be restricted to ground water table. Prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained for mining below water table.	Bauxite mining is being done at shallow depth in this mines also, hence at no point it will intersect the ground water table. Thus there will be no interference.
4	The project proponent shall ensure that no natural watercourse shall be obstructed due to any mining operations.	It is being ensured. No natural water course is obstructed during mining operation
5	Top soil shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas.	It is being ensured & the top soil is being used for reclamation & rehabilitation of mined out areas. Details of land reclamation for the year 2012-13 is enclosed as Annexure
6	The waste generated shall be concurrently backfilled in the mined out area. There shall be no external OB dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forest on six month basis.	Waste generated is used in backfilling, data enclosed

7	<p>Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly.</p> <p>Garland drain (size, gradient and length) shall be constructed for mine pit and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper setting of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.</p>	<p>No runoff is generated from mining activities. However, to collect &amp; manage rain water during monsoon, part of mined out area is used as settling tank for the runoff. Sediment rain water is being used for watering the mine area, roads, green belt development etc.</p>
8	<p>Plantation shall be raised in an area of 10.58 ha including a green belt of adequate width by planting the native species around the ML area, roads, reclaimed area etc. in consultation with the local DFO / Agriculture Department. The density of the trees should be around 1500 plants per ha.</p>	<p>During 2012-13, we have planted 1000 plants. Rest to be complied during project period.</p>
9.	<p>The project proponent shall ensure that there shall be no discharge from the mine.</p>	<p>Ensured. There is no discharge from the mine.</p>
10.	<p>The project proponent shall carry out regular monitoring of spring discharge and its quality near Shrengdag village on long term basis.</p>	<p>It is being carried out.</p>
11	<p>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.</p>	<p>A plan is drawn on the basis of discussions with Scientists of State unit office of Central Ground Water Board, Ranchi to implement suitable conservation measures to augment ground water resources in the area and is also submitted to the Regional Director, Central Ground Water Board, Patna, for his further suggestions. Recommendation of CGWB shall be implemented to augment the ground water resources of the area. Copy of letter already submitted.</p>
12	<p>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</p>	<p>It is being monitored. Monitoring report is enclosed as <b>Annexure</b></p>

	regularly to MOEF, Central Ground water Authority and Regional Director Central Ground Water Board.	
13	Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.	Agreed.
14	Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.	To keep vehicular emissions in control, company vehicles are periodically checked & repaired. All measures are being taken to control vehicular emission.
15	Drills should either be operated with dust extractors or should be equipped with water injection system.	Drilling is done with water pouring in the holes intermittently for dust suppression which is the best method for jackhammer type drilling.
16	Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibration and to arrest fly rocks and boulders should be implemented.	Blasting at Mines is done at fixed blasting period of 12.00 Noon to 1.00 PM on working days. Mobile mining activities are stopped during blasting. All the precautionary and mitigative measures to control ground vibration and to arrest generation of fly rocks is being exercised
17	Consent to operate should be obtained from SPCB prior to start of enhanced production from the mine.	Obtained & copy being submitted enclosed as Annexure
18	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	There is no effluent discharge from Mine, hence ETP has not been installed. The sewage water from domestic uses is being collected through individual septic tanks & soak pits. Sullage is collected to an integrated soak pit.
19	The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna such as Indian Python, <i>Presbytis phayrei</i> etc. Spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. Copy of action plan may be submitted to the Ministry and its Regional Office within 3 months.	Action plan for conservation of flora and fauna spotted in the study area has been prepared based on discussions with D.F.O of the area for implementation and a copy of the same is submitted to the D.F.O on receipt of any suggestion to our action plan the same will be intimated to MOEF. A copy of Action plan drawn and of letter for submission to DFO is al ready submitted to regional office.

20	A Final Mine Closure plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forest 5 years in advance of final mine closure for approval.	Progressive Mine closure plan dully approved by Indian Bureau of Mines. The same has been submitted to Regional office. FMCP related statue will be compiled.
----	--	---

### GENERAL CONDITIONS

Sl No	Conditions	Compliance Status
1	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forest	Complied. Mining is as per Mining plan.
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.	Excavation of over burden & bauxite are within calendar plan. Details attached as Annexure for the financial year FY12-13
3	Four ambient air quality-monitoring station should be established in the core zone as well as in the buffer zone for RPM, SPM, SO <sub>2</sub> , NO <sub>x</sub> monitoring. Location of the stations should be decided based on the metrological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	Monitoring locations has been fixed and regular monitoring is being done with available in-house facilities.  Monitoring Reports of AAQ data is attached as <b>Annexure</b>
4	Data on ambient air quality (RPM, SPM, SO <sub>2</sub> , NO <sub>x</sub> ) should be regularly submitted to the Ministry including its Regional office located at Bhubneshwar and the State Pollution Control Board / Central pollution Control Board once in six months.	Monitoring Reports of AAQ data is attached as <b>Annexure</b>
5	Fugitive dust emission from all the sources should be controlled regularly. Water spraying arrangements on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Two no of water tanker with sprinkling facility have been provided along haul roads, loading unloading,& at transfer points to arrest dust emissions.
6	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operation of HEMM, etc. should be provided with ear plug / muffs.	Noise monitoring is done regularly. Workers engaged in operation of HEMM, etc. are provided with ear plug / muffs. Monitoring report enclosed as annexure.

7	Industrial waste water (workshops and waste water from the mine) Should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19 <sup>th</sup> May, 1993 and 31 <sup>st</sup> December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	There is no effluent discharge from Mine ,  Discharge of Workshop effluents is being passed through Oil catchment pit to trap Oil and grease.
8	Personnel working in dusty areas should wear protective respiratory devices and they should also provided with adequate training and information on safety and health aspects.  Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	Complied  Use of Personal Protective Equipment is provided & used by the individuals. we have an well equipped hospital at mine site where health checkup of workmen is carried out regularly.  Training on safety, health & environmental aspects of mining is being regularly imparted through VT training & other training programmes.
9	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.	Separate management cell is functioning with qualified in-house members. Copy enclosed.(Annexure )
10	The project authorities should inform to the Regional Office located at Bhubneshwar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Not applicable. The mine is a running mine since 1 <sup>st</sup> nov 1983.
11	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubneshwar.	Statement of Budgetary provision & actual expenses for environmental protection measure is submitted.(Annexure).
12	The Regional Office of this Ministry located at Bhubneshwar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	Complied.
13.	The project proponent shall submit six monthly report on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Lucknow, Central Pollution	Being complied

	Control Board and State Pollution Control Board.	
14	A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.	Complied .Copy submitted to regional office.
15	State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Center and Collector's office / Tehsildar's Office for 30 days.	Not applicable to this project.
16	The project authorities should advertise at least in two local newspapers widely circulated, one of which locality concerned, within 7days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubneshwar.	Complied. Copy of paper cuttings containing advertisements is already submitted vide letter no.HIL/GMO(M)/ENV/141 dated 23.04.07.



# Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 19/03/2013

Report No : KG13-001954.001

JOE No : KG13-001954

Report Control No : KGR0000012255

Sample Described by Customer as : AMBIENT AIR QUALITY MONITORING

Client Name : Hindalco Industries Limited(Mines Division)  
Client Address : Lohardaga,  
Postal Code : 835203  
State : Jharkhand  
Country : India  
Sample Type : AMBIENT AIR QUALITY MONITORING  
Received : 12/03/2013  
Registered : 12/03/2013  
Marks on Sample : Location : Mines Lease Area, date : 25.02.2013  
Sampling Site : Shrengdag(155.81)/Serengdag(140.07)/Jalim & Sanal Bauxite Mines(Shrengda  
Test Start/End Date : 12/03/2013 - 19/03/2013

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10 )	IS:5182 (Part-23 ):2006	85	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	42.71	ug/m3	-	60
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	6.78	ug/m3	-	80
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff.2006)	<5.00	ug/m3	-	80
Carbon Monoxide	By NDIR Spectroscopy.	<1.00	mg/m3		

Per pro SGS India Private Ltd

Satya Manna  
Section Incharge - ENVI  
Authorized Signatory

Page 1 of 2

WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd. | SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas, Kolkata - 700104 Phone: +91 33 64996700/6701  
Head & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)





## Test Report

Print Date : 19/03/2013

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Report No : KG13-001954.001

JOE No : KG13-001954

Report Control No : KGR0000012255

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

### Page 2 of 2

WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

**SGS India Pvt. Ltd.** | SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996700/6701  
Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)



## Test Report

Print Date : 19/03/2013

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Report No : KG13-001954.002

JOE No : KG13-001954

Report Control No : KGR0000012255

Sample Described by Customer as : AMBIENT AIR QUALITY MONITORING

Client Name : Hindalco Industries Limited(Mines Division)  
Client Address : Lohardaga,  
Postal Code : 835203  
State : Jharkhand  
Country : India  
Sample Type : AMBIENT AIR QUALITY MONITORING  
Received : 12/03/2013  
Registered : 12/03/2013  
Marks on Sample : Location : Kachki Village, date : 25.02.2013  
Sampling Site : Shrengdag(155.81)/Serengdag(140.07)/Jalim & Sanal Bauxite Mines(Shrengda)  
Test Start/End Date : 12/03/2013 - 19/03/2013

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10 )	IS:5182 (Part-23 ):2006	46	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	21.01	ug/m3	-	60
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	11.40	ug/m3	-	80
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff.2006)	<5.00	ug/m3	-	80
Carbon Monoxide	By NDIR Spectroscopy.	<1.00	mg/m3		

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

Authorized Signatory

### Page 1 of 2

WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd. | SGS India Private Limited, CS Plot -512(p) .Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas, Kolkata - 700104 Phone: +91 33 64996700/6701  
Regd & Corp. Off : SGS House, 4B, A S. Marq, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)



## Test Report

Print Date : 19/03/2013

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Report No : KG13-001954.002

JOE No : KG13-001954

Report Control No : KGR0000012255

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

### Page 2 of 2

WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996700/6701  
Regd & Corp. Off : SGS House, 4B, A.S. Marq, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)



# Test Report

Print Date : 19/03/2013

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Report No : KG13-001954.003

JOE No : KG13-001954

Report Control No : KGR0000012255

Sample Described by Customer as : AMBIENT AIR QUALITY MONITORING

Client Name : Hindalco Industries Limited(Mines Division)  
Client Address : Lohardaga,  
Postal Code : 835203  
State : Jharkhand  
Country : India  
Sample Type : AMBIENT AIR QUALITY MONITORING  
Received : 12/03/2013  
Registered : 12/03/2013  
Marks on Sample : Location : Paurni Village, date : 26.02.2013  
Sampling Site : Shrengdag(155.81)/Serengdag(140.07)/Jalim & Sanal Bauxite Mines(Shrengda)  
Test Start/End Date : 12/03/2013 - 19/03/2013

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10 )	IS:5182 (Part-23 ):2006	62	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	32.07	ug/m3	-	60
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	8.95	ug/m3	-	80
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff.2006)	<5.00	ug/m3	-	80
Carbon Monoxide	By NDIR Spectroscopy.	<1.00	mg/m3		

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

Authorized Signatory

Page 1 of 2

WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996700/6701  
Regd & Corp. Off : SGS House, 4B, A.S. Maru, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)



## Test Report

Print Date : 19/03/2013

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Report No : KG13-001954.003

JOE No : KG13-001954

Report Control No : KGR0000012255

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

### Page 2 of 2

WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p) ,Mouza, Hanspukuria, Diamond Harbour Road PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996700/6701  
Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)



## Test Report

Print Date : 19/03/2013

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Report No : KG13-001954.004

JOE No : KG13-001954

Report Control No : KGR0000012255

Sample Described by Customer as : AMBIENT AIR QUALITY MONITORING

Client Name : Hindalco Industries Limited(Mines Division)  
Client Address : Lohardaga,  
Postal Code : 835203  
State : Jharkhand  
Country : India  
Sample Type : AMBIENT AIR QUALITY MONITORING  
Received : 12/03/2013  
Registered : 12/03/2013  
Marks on Sample : Location : Jalim Village, date : 26.02.2013  
Sampling Site : Shrengdag(155.81)/Serengdag(140.07)/Jalim & Sanal Bauxite Mines(Shrengda)  
Test Start/End Date : 12/03/2013 - 19/03/2013

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10 )	IS:5182 (Part-23 ):2006	57	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	25.41	ug/m3	-	60
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	8.46	ug/m3	-	80
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff.2006)	<5.00	ug/m3	-	80
Carbon Monoxide	By NDIR Spectroscopy.	<1.00	mg/m3		

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

Authorized Signatory

### Page 1 of 2

WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd. | SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996700/6701  
Regd & Corp. Off: SGS House, 4B, A S. Marq, Vikhroli (West), Mumbai-400083. Tel: (022) 25798421 to 28 Fax: (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)



## Test Report

Print Date : 19/03/2013

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Report No : KG13-001954.004

JOE No : KG13-001954

Report Control No : KGR0000012255

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

### Page 2 of 2

WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuna, Diamond Harbour Road PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996700/6701  
Regd & Corp. Off: SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel: (022) 25798421 to 28 Fax: (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)



## Test Report

Print Date : 22/03/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-001960.001

JOE No : KG13-001960

Report Control No : KGR0000012732

Sample Described by Customer as : SOIL(COMPOSITE)

Client Name : Hindalco Industries Limited(Mines Division)  
Client Address : Lohardaga,  
Postal Code : 835203  
State : Jharkhand  
Country : India  
Sample Type : SOIL(COMPOSITE)  
Received : 12/03/2013  
Registered : 12/03/2013  
Marks on Sample : Location:Barpat 2 No. Quarry Reclaimed area,  
Sampling Site : Shrengdag(155.81)/(140.07)/Jalim&Sanal Bauxite Mines(Shrengdag plateau)  
Sample Collected : 26.02.2013  
Quantity : 2.5Kg app  
Test Start/End Date : 12/03/2013 - 21/03/2013

Analysis	Method	Result	Limit of Reporting (LOR)	Unit
Conductivity (1:5) Soil Suspension. ( 1 : 2 aqueous solution )	F.A.U.N (2007)	32.1	1.00	µs/cm
pH (1:2) Soil Suspension ( 1 : 2 aqueous solution )	F.A.U.N (2007)	6	0.50	--
Porosity	F.A.U.N (2007)	51.28	-	%
Bulk Density	By Bulk Density Apparatus	1.10	0.10	gram/ml
Phosphorus (as P)	F.A.U.N (2007)	<20.000	20.00	mg/kg
Texture	F.A.U.N (2007)	Sandy clay loam	-	
Clay	F.A.U.N (2007)	34.3	5.00	%
Sand	F.A.U.N (2007)	48.2	1.00	%
Silt	F.A.U.N (2007)	17.5	1.00	%
Available Chloride (as Cl)	Soil & Agriculture Organization (U.N-2007)	21.47	20.00	mg/kg
Available Nitrogen	Food & Agriculture Organization (U.N-2007)	341.61	20.00	mg/kg

Page 1 of 2

WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd. | SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996700/6701  
Regd & Corp. Off : SGS House, 4B, A.S. Marq, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com





## Test Report

Print Date : 22/03/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-001960.001

JOE No : KG13-001960

Report Control No : KGR0000012732

Analysis	Method	Result	Limit of Reporting (LOR)	Unit
Available Potassium (as K)	Soil & Water Book By P.K. Gupta	1090.86	1.00	mg/kg
Available Magnesium (as Mg)	Soil & Water Book By P.K. Gupta	1428.88	1.00	mg/kg
Lead (as Pb)	USEPA 3052	18.12	2.00	mg/kg
Chromium (as Cr)	USEPA 3052	70.60	2.00	mg/kg
Mercury (as Hg)	USEPA 3052	1.19	1.00	mg/kg
Total Organic Matter	Black & Walkely Wet Digestion Method	0.48	0.01	%

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

Authorized Signatory

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

### Page 2 of 2

WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996700/6701  
Read & Corp. Off : SGS House, 4B, A.S. Maru, Vikhroli (West), Mumbai-400063 Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)



## Test Report

Print Date : 22/03/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-001960.002

JOE No : KG13-001960

Report Control No : KGR0000012732

Sample Described by Customer as : SOIL(COMPOSITE)

Client Name : Hindalco Industries Limited(Mines Division)  
Client Address : Lohardaga,  
Postal Code : 835203  
State : Jharkhand  
Country : India  
Sample Type : SOIL(COMPOSITE)  
Received : 12/03/2013  
Registered : 12/03/2013  
Marks on Sample : Location:Harapart 3 No. Quarry Reclaimed Area  
Sampling Site : Shrengdag(155.81)/(140.07)/Jalim&Sanal Bauxite Mines(Shrengdag plateau)  
Sample Collected : 26.02.2013  
Quantity : 2.5Kg app  
Test Start/End Date : 12/03/2013 - 21/03/2013

Analysis	Method	Result	Limit of Reporting (LOR)	Unit
Conductivity (1:5) Soil Suspension. ( 1 : 2 aqueous solution )	F.A.U.N (2007)	26.0	1.00	µs/cm
pH (1:2) Soil Suspension ( 1 : 2 aqueous solution )	F.A.U.N (2007)	6	0.50	--
Porosity	F.A.U.N (2007)	48.58	-	%
Bulk Density	By Bulk Density Apparatus	1.12	0.10	gram/ml
Phosphorus (as P)	F.A.U.N (2007)	<20.000	20.00	mg/kg
Texture	F.A.U.N (2007)	Sandy clay loam	-	
Clay	F.A.U.N (2007)	32.5	5.00	%
Sand	F.A.U.N (2007)	57.5	1.00	%
Silt	F.A.U.N (2007)	10.0	1.00	%
Available Chloride (as Cl)	Soil & Agriculture Organization (U.N-2007)	<20.00	20.00	mg/kg
Available Nitrogen	Food & Agriculture Organization (U.N-2007)	280.28	20.00	mg/kg

Page 1 of 2

WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996700/6701  
Repd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)



## Test Report

Print Date : 22/03/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-001960.002

JOE No : KG13-001960

Report Control No : KGR0000012732

Analysis	Method	Result	Limit of Reporting (LOR)	Unit
Available Potassium (as K)	Soil & Water Book By P.K. Gupta	1570.33	1.00	mg/kg
Available Magnesium (as Mg)	Soil & Water Book By P.K. Gupta	2095.47	1.00	mg/kg
Lead (as Pb)	USEPA 3052	12.75	2.00	mg/kg
Chromium (as Cr)	USEPA 3052	60.47	2.00	mg/kg
Mercury (as Hg)	USEPA 3052	<1.00	1.00	mg/kg
Total Organic Matter	Black & Walkely Wet Digestion Method	0.40	0.01	%

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

Authorized Signatory

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

### Page 2 of 2

WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996700/6701  
Read & Corp. Off : SGS House, 4B, A.S. Maru, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)



# Test Report

Print Date : 02/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-002097.001

JOE No : KG13-002097

Report Control No : KGR0000013918

Sample Described by Customer as : SPRING WATER

Client Name : Hindalco Industries Limited(Mines Division)  
 Client Address : Lohardaga,  
 Postal Code : 835203  
 State : Jharkhand  
 Country : India  
 Sample Type : SPRING WATER  
 Received : 18/03/2013  
 Registered : 18/03/2013  
 Marks on Sample : Location: Serendag-Chapa Kona  
 Quantity : 5.5L app  
 Sample Collected : 11.03.2013, time :11.00 am  
 Test Start/End Date : 18/03/2013 - 01/04/2013

Analysis	Method	Result	Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissible
Colour	IS:3025 (Part-4):1983 (Reaff.2006)	5.0	Hz	5	15
Odour	IS:3025 (Part-5):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeable
Taste	IS:3025 (Part-8):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeable
pH	IS:3025 (Part-11):1983 (Reaff.2006)	7.00*		6.5	8.5
Total Hardness (as CaCO <sub>3</sub> )	IS:3025 (Part-21):1983 (Reaff.2006)	2.52	mg/L	200	600
Iron (as Fe)	IS:3025 (Part-2)	0.23	mg/L	0.3	No relaxation
Fluoride (as F)	IS:3025 (Part-60):2008	<0.10	mg/L	1.0	1.5
Residual Free Chlorine	IS:3025 (Part-26):1986 (Reaff.2003)	<0.10	mg/L	0.2	1.0
Chloride (as Cl)	IS:3025 (Part-32):1988 (Reaff.1999)	<5.00	mg/L	250	1000
Total Dissolved Solids	IS:3025 (Part-16):1984 (Reaff.1996)	8.80	mg/L	500	2000
E.coli	IS:1622:1981(Reaff.2003)	Absent	per 100ml		Absent/100m

Page 1 of 3

WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd. | SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996700/6701  
 Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)



# Test Report

Print Date : 02/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-002097.001

JOE No : KG13-002097

Report Control No : KGR0000013918

Analysis	Method	Result	Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissible
Coliform bacteria	IS:1622-1981 (Reaffirmation 2003)	Present	per 100ml		Absent/100ml
Calcium (as Ca)	IS:3025 (Part-40):1991 (Reaff.2003)	<1.00	mg/L	75	200
Magnesium (as Mg)	IS:3025 (Part-46):1994 (Reaff.1999)	<1.00	mg/L	30	100
Copper (as Cu)	IS:3025 (Part-2)	<0.01	mg/L	0.05	1.5
Manganese (as Mn)	IS:3025 (Part-2)	<0.01	mg/L	0.1	0.3
Sulphate (as SO4)	IS:3025 (Part-24):1986 (Reaff.1998)	<2.00	mg/L	200	400
Nitrate (as NO3)	IS:3025 (Part-34):1988 (Reaff.1999)	<0.50	mg/L	45	No relaxation
Phenolic Compound (as C6H5OH)	IS:3025 (Part-43):1992 (Reaff.2003)	<0.001	mg/L	0.001	0.002
Mercury (as Hg)	IS:3025 (Part-48):1994 (Reaff.1999)	<0.001	mg/L	0.001	No relaxation
Cadmium (as Cd)	IS:3025 (Part-41):1992 (Reaff.2003)	<0.003	mg/L	0.003	No relaxation
Selenium (as Se)	IS:3025 (Part-2)	<0.005	mg/L	0.01	No relaxation
Arsenic (as As)	IS:3025 (Part-37):1988 (Reaff.1999)	<0.005	mg/L	0.01	No relaxation
Cyanide (as CN)	IS:3025 (Part-27):1986 (Reaff.2003)	<0.020	mg/L	0.05	No relaxation
Lead (as Pb)	IS:3025 (Part-47):1994 (Reaff.1999)	0.029	mg/L	0.01	No relaxation
Zinc (as Zn)	IS:3025 (Part-2)	<0.01	mg/L	5	15
Anionic Surface Active Agent (as MBAS)	IS:13428:2005 Annex K	<0.05	mg/L	0.2	1.0
Chromium (as Cr)	IS:3025 (Part-2)	<0.01	mg/L	0.05	No relaxation
Mineral Oil	IS:3025 (Part-39):1991 (Reaff.2003)	<0.01	mg/L	0.5	No relaxation
Total Alkalinity (as CaCO3)	IS:3025 (Part-23):1986 (Reaff.2003)	4.14	mg/L	200	600
Aluminium (as Al)	IS:3025 (Part-55):2003	<0.03	mg/L	0.03	0.2
Boron (as B)	IS:3025 (Part-57):2005	0.13	mg/L	0.5	1.0
Turbidity	IS:3025 (Part-10):1984 (Reaff.2006)	2.25	NTU	1	5

Page 2 of 3

WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd. | SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas, Kolkata - 700104 Phone: +91 33 64996700/6701  
Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)



## Test Report

Print Date : 02/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-002097.001

JOE No : KG13-002097

Report Control No : KGR0000013918

Analysis	Method	Result	Unit	Requirement/Limit As per IS:10500:2012	Acceptable	Permissible
Remark : *Analyzed at site.						

Per pro SGS India Private Lt

*Asish Chakraborty*

**Asish Chakraborty**  
**Laboratory Manager**  
**Authorized Signatory**

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

Page 3 of 3

WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996700/6701  
Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)



# Test Report

Print Date : 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-002094.001

JOE No : KG13-002094

Report Control No : KGR0000013687

Sample Described by Customer as : GROUND WATER

Client Name : Hindalco Industries Limited(Mines Division)  
 Client Address : Lohardaga,  
 Postal Code : 835203  
 State : Jharkhand  
 Country : India  
 Sample Type : GROUND WATER  
 Received : 18/03/2013  
 Registered : 18/03/2013  
 Marks on Sample : Location: Serendag-Hadabad Village  
 Quantity : 5.5L app  
 Sample Collected : 11.03.2013, time : 2.30 pm  
 Test Start/End Date : 18/03/2013 - 01/04/2013

Analysis	Method	Result	Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissible
Colour	IS:3025 (Part-4):1983 (Reaff.2006)	20.0	Hz	5	15
Odour	IS:3025 (Part-5):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeable
Taste	IS:3025 (Part-8):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeable
pH	IS:3025 (Part-11):1983 (Reaff.2006)	7.20*		6.5	8.5
Total Hardness (as CaCO3)	IS:3025 (Part-21):1983 (Reaff.2006)	4.04	mg/L	200	600
Iron (as Fe)	IS:3025 (Part-2)	3.03	mg/L	0.3	No relaxation
Fluoride (as F)	IS:3025 (Part-60):2008	<0.10	mg/L	1.0	1.5
Residual Free Chlorine	IS:3025 (Part-26):1986 (Reaff.2003)	<0.10	mg/L	0.2	1.0
Chloride (as Cl)	IS:3025 (Part-32):1988 (Reaff.1999)	<5.00	mg/L	250	1000
Total Dissolved Solids	IS:3025 (Part-16):1984 (Reaff.1996)	15.00	mg/L	500	2000
E.coli	IS:1622:1981(Reaff.2003)	Absent	per 100ml		Absent/100ml
Coliform bacteria	IS:1622-1981 (Reaffirmation 2003)	Absent	per 100ml		Absent/100ml
Calcium (as Ca)	IS:3025 (Part-40):1991 (Reaff.2003)	1.01	mg/L	75	200
Magnesium (as Mg)	IS:3025 (Part-46):1994 (Reaff.1999)	<1.00	mg/L	30	100

Page 1 of 3

WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas, Kolkata - 700104 Phone: +91 33 64996700/6701  
 Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com



## Test Report

Print Date : 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-002094.001

JOE No : KG13-002094

Report Control No : KGR0000013687

Analysis	Method	Result	Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissible
Copper (as Cu)	IS:3025 (Part-2)	0.04	mg/L	0.05	1.5
Manganese (as Mn)	IS:3025 (Part-2)	0.03	mg/L	0.1	0.3
Sulphate (as SO <sub>4</sub> )	IS:3025 (Part-24):1986 (Reaff.1998)	<2.00	mg/L	200	400
Nitrate (as NO <sub>3</sub> )	IS:3025 (Part-34):1988 (Reaff.1999)	2.04	mg/L	45	No relaxation
Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	IS:3025 (Part-43):1992 (Reaff.2003)	<0.001	mg/L	0.001	0.002
Mercury (as Hg)	IS:3025 (Part-48):1994 (Reaff.1999)	<0.001	mg/L	0.001	No relaxation
Cadmium (as Cd)	IS:3025 (Part-41):1992 (Reaff.2003)	<0.003	mg/L	0.003	No relaxation
Selenium (as Se)	IS:3025 (Part-2)	<0.005	mg/L	0.01	No relaxation
Arsenic (as As)	IS:3025 (Part-37):1988 (Reaff.1999)	<0.005	mg/L	0.01	No relaxation
Cyanide (as CN)	IS:3025 (Part-27):1986 (Reaff.2003)	<0.020	mg/L	0.05	No relaxation
Lead (as Pb)	IS:3025 (Part-47):1994 (Reaff.1999)	<0.005	mg/L	0.01	No relaxation
Zinc (as Zn)	IS:3025 (Part-2)	0.10	mg/L	5	15
Anionic Surface Active Agent (as MBAS)	IS:13428:2005 Annex K	<0.05	mg/L	0.2	1.0
Chromium (as Cr)	IS:3025 (Part-2)	<0.01	mg/L	0.05	No relaxation
Mineral Oil	IS:3025 (Part-39):1991 (Reaff.2003)	<0.01	mg/L	0.5	No relaxation
Total Alkalinity (as CaCO <sub>3</sub> )	IS:3025 (Part-23):1986 (Reaff.2003)	6.62	mg/L	200	600
Aluminium (as Al)	IS:3025 (Part-55):2003	<0.03	mg/L	0.03	0.2
Boron (as B)	IS:3025 (Part-57):2005	0.11	mg/L	0.5	1.0
Turbidity	IS:3025 (Part-10):1984 (Reaff.2006)	30.40	NTU	1	5

Remark : \*Analyzed at site.

### Page 2 of 3

WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas, Kolkata - 700104 Phone: +91 33 64996700/6701  
Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)





## Test Report

Print Date : 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-002094.001

JOE No : KG13-002094

Report Control No : KGR0000013687

Per pro SGS India Private Lt

**Aish Chakraborty**  
**Laboratory Manager**  
**Authorized Signatory**

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

### Page 3 of 3

WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas, Kolkata - 700104 Phone: +91 33 64996700/6701  
Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)



TEST REPORT

Report No. : CA:GL:3120015198 DATE : 18/10/2012

JOE No. : 1212806597

Report Control No.:3125016276

SAMPLE DRAWN BY SGS INDIA PRIVATE LIMITED

SAMPLE IDENTIFIED AS : AMBIENT AIR QUALITY MONITORING
CUSTOMER NAME HINDALCO INDUSTRIES LIMITED (MINES DIVISION)
ADDRESS LOHARDAGA, JHARKHAND
CITY 835302
COUNTRY INDIA
SAMPLING METHOD N.A.
SAMPLE DESCRIPTION AMBIENT AIR QUALITY MONITORING

MARK/LOCATION SITE:SHRENDAG(155.81)/SERENDGAG(140.07)/JALIM&SANAL BAUXITE
MINES(SHRENGDAG PLATEAU)
LOCATION:MINES LEASE AREA (CORE ZONE)
DATE:29.09.12 TO 30.09.12

SAMPLE RECD ON 11/10/2012
TEST START DATE 11/10/2012
TEST END DATE 18/10/2012

Table with 4 columns: TESTS, PROTOCOL, RESULT, REQUIREMENT/LIMIT. Rows include CARBON MONOXIDE (CO), OXIDES OF NITROGEN (NOx), PARTICULATE MATTER(10), PARTICULATE MATTER(2.5), and SULPHUR DIOXIDE (SO2).

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

per pro SGS India Private Ltd.

Signature of Asish Chakraborty
Asish Chakraborty
Manager Laboratory

A. B. Datta
Official stamp

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company.



**TEST REPORT**

**Report No. : CA:GL:3120015199**

**DATE : 18/10/2012**

JOE No. : 1212806597

Report Control No.:3125016277

**SAMPLE DRAWN BY SGS INDIA PRIVATE LIMITED**

**SAMPLE IDENTIFIED AS : AMBIENT AIR QUALITY MONITORING**

**CUSTOMER NAME HINDALCO INDUSTRIES LIMITED (MINES DIVISION)**  
**ADDRESS LOHARDAGA, JHARKHAND**  
**CITY 835302**  
**COUNTRY INDIA**  
**SAMPLING METHOD N.A.**  
**SAMPLE DESCRIPTION AMBIENT AIR QUALITY MONITORING**

**MARK/LOCATION SITE:SHRENDAG(155.81)/SERENGDAG(140.07)/JALIM&SANAL BAUXITE MINES(SHRENGDAG PLATEAU)**  
**LOCATION:PAURNI VILLAGE (BUFFER ZONE)**  
**DATE:29.09.12 TO 30.09.12**

**SAMPLE RECD ON 11/10/2012**  
**TEST START DATE 11/10/2012**  
**TEST END DATE 18/10/2012**

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			As per CPCB RESIDENTIAL AREA	
			MIN	MAX
CARBON MONOXIDE (CO)	USEPA CHAPTER-2	< 0.1 ppm		1.7ppm(8h)
OXIDES OF NITROGEN (NO <sub>x</sub> )	IS 5182 PART 6:2006	7.1 µg/m <sup>3</sup>		80 µg/m <sup>3</sup>
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	70.3 µg/m <sup>3</sup>		100 µg/m <sup>3</sup>
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	32.1 µg/m <sup>3</sup>		60 µg/m <sup>3</sup>
SULPHUR DIOXIDE (SO <sub>2</sub> )	IS 5182:PART 2:2001	< 4.0 µg/m <sup>3</sup>		80 µg/m <sup>3</sup>

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

per pro SGS India Private Ltd.

**Asish Chakraborty**  
Manager Laboratory

Page 1 of 1

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or fabrication of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company.

SGS India Pvt. Ltd. | Laboratory, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas, Kolkata-700104 Phone: +91 : 33 64996701/ 64996700.  
Reqd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083 Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)

Member of the SGS Group (SGS SA)



TEST REPORT

Report No. : CA:GL:3120015200

DATE : 18/10/2012

JOE No. : 1212806597

Report Control No.:3125016278

SAMPLE DRAWN BY SGS INDIA PRIVATE LIMITED

SAMPLE IDENTIFIED AS : AMBIENT AIR QUALITY MONITORING
CUSTOMER NAME HINDALCO INDUSTRIES LIMITED (MINES DIVISION)
ADDRESS LOHARDAGA, JHARKHAND
CITY 835302
COUNTRY INDIA
SAMPLING METHOD N.A.
SAMPLE DESCRIPTION AMBIENT AIR QUALITY MONITORING

MARK/LOCATION SITE:SHRENDAG(155.81)/SERENDGAG(140.07)/JALIM&SANAL BAUXITE
MINES(SHRENGDAG PLATEAU)
LOCATION:KACHKI VILLAGE (BUFFER ZONE)
DATE:30.09.12 TO 01.10.12

SAMPLE RECD ON 11/10/2012
TEST START DATE 11/10/2012
TEST END DATE 18/10/2012

Table with 4 columns: TESTS, PROTOCOL, RESULT, REQUIREMENT/LIMIT. Rows include CARBON MONOXIDE (CO), OXIDES OF NITROGEN (NOx), PARTICULATE MATTER(10), PARTICULATE MATTER(2.5), and SULPHUR DIOXIDE (SO2).

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

per pro SGS India Private Ltd.

Signature of Asish Chakraborty, Manager Laboratory

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm...



TEST REPORT

Report No. : CA:GL:3120015201

DATE : 18/10/2012

JOE No. : 1212806597

Report Control No.:3125016279

SAMPLE DRAWN BY SGS INDIA PRIVATE LIMITED

SAMPLE IDENTIFIED AS : AMBIENT AIR QUALITY MONITORING
CUSTOMER NAME HINDALCO INDUSTRIES LIMITED (MINES DIVISION)
ADDRESS LOHARDAGA, JHARKHAND
CITY 835302
COUNTRY INDIA
SAMPLING METHOD N.A.
SAMPLE DESCRIPTION AMBIENT AIR QUALITY MONITORING

MARK/LOCATION SITE:SHRENDAG(155.81)/SERENDGAG(140.07)/JALIM&SANAL BAUXITE
MINES(SHRENGDAG PLATEAU)
LOCATION:JALIM VILLAGE (BUFFER ZONE)
DATE:30.09.12 TO 01.10.12

SAMPLE RECD ON 11/10/2012
TEST START DATE 11/10/2012
TEST END DATE 18/10/2012

Table with 5 columns: TESTS, PROTOCOL, RESULT, REQUIREMENT/LIMIT (As per CPCB RESIDENTIAL AREA MIN, MAX). Rows include CARBON MONOXIDE (CO), OXIDES OF NITROGEN (NOx), PARTICULATE MATTER(10), PARTICULATE MATTER(2.5), and SULPHUR DIOXIDE (SO2).

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

per pro SGS India Private Ltd.

Signature of Asish Chakraborty
Asish Chakraborty
Manager Laboratory

Signature of H. Datta
H. Datta
Chemist cum OIR

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company.



**TEST REPORT**

**Report No. : CA:GL:3120013026** **DATE : 12/09/2012**

JOE No. : 1212805744

Control No.:3125014125

**SAMPLE COLLECTED BY SGS**

**SAMPLE IDENTIFIED AS : SPRING WATER**

**COMPANY NAME HINDALCO INDUSTRIES LIMITED (MINES DIVISION)**

**ADDRESS LOHARDAGA, JHARKHAND**  
**CITY 835302**

**SAMPLING METHOD APHA 1060B 9060A**

**SAMPLE DESCRIPTION SPRING WATER**

**SAMPLE CONDITION IN PLASTIC BOTTLE**

**SAMPLE QTY. 5.5L APP**

**MARK/LOCATION SERENDAG BANDAPATH**

**COLLECTED ON 28/08/12, TIME:12.15 PM**

**REGISTERED ON 01/09/2012**

**TEST START DATE 03/09/2012**

**TEST END DATE 12/09/2012**

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
ALKALINITY (as CaCO3)	IS 3025:PART 23 :1986(Reaff.1998)	<5.0 mg/l	200mg/l	600mg/l
ALUMINIUM (as Al)	IS 3025 : Part 55 : 2003	0.06 mg/l	0.03mg/l	0.2mg/l
ANIONIC DETERGENTS (as MBAS)	ANNEX. K of IS 13428: 2005	<0.05 mg/l	0.2mg/l	1mg/l
ARSENIC (as As)	IS 3025:PART 37:1988(Reaff.1999)BY ICPOES	<0.005 mg/l	0.01mg/l	No Relax.
BORON	Annex.H OF IS:13428:2005	<0.05 mg/l	1.0mg/l	5.0mg/l
CADMIUM (as Cd)	IS 3025:PART 41 :1992(Reaff.1998)BY ICPOES	<0.005 mg/l	0.01mg/l	No Relax.

Page 1 of 4

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd. Laboratory, Behala Industrial Complex, Phase II, First Floor, 620, Diamond Harbour Road, Kolkata-700034 Phone : 91-33-64996700, 64996701, Fax : 91-33-24470267  
Regd & Corp. Off : SGS House, 4B, A. S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)

Member of the SGS Group (SGS SA)



**TEST REPORT**

**Report No. : CA:GL:3120013026** **DATE : 12/09/2012**

JOE No. : 1212805744

Control No.:3125014125

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			As per IS 10500:1991(REAFF.1993)	
			Desirable	Permissible
<b>CALCIUM (as Ca)</b>	IS 3025:PART 40 :1991(Reaff.2003)	<1.0 mg/l	75mg/l	200mg/l
<b>CHLORIDE ( as Cl)</b>	Clause 2 of IS 3025 Part 32:1988(Reaff. 1999)	<2.0 mg/l	250mg/l	1000mg/l
<b>CHROMIUM (Cr6+)</b>	IS 3025:PART 52:2003	<0.01 mg/l	0.05mg/l	No Relax.
<b>COLOUR ( HAZEN UNITS)</b>	IS 3025:PART 4 :1983(Reaff.2002)	5	5.0	25
<b>COPPER</b>	IS 3025: PART 42:1992(Reaff. 2003) BY ICPOES	<0.01 mg/l	0.05mg/l	1.5mg/l
<b>CYANIDE ( as CN)</b>	IS 3025:PART 27 :1986(Reaff.1998)	<0.02 mg/l	0.05mg/l	No Relax.
<b>E.coli</b>	IS 1622:1981(Reaff.2003)	Absent/100ml		ABS/100ml
<b>Faecal coliforms</b>	IS 1622:1981(Reaff2003)	Absent/100ml		ABS/100ml
<b>FLUORIDE</b>	IS:3025(PART 60):2008	<0.10 mg/l	1.0mg/l	1.5mg/l
<b>IRON ( as Fe)</b>	IS 3025:PART 53:2003 (BY ICPOES)	0.10 mg/l	0.3mg/l	1 mg/l
<b>LEAD (as Pb)</b>	IS 3025:PART 47:1994(Reaff.2003) BY ICPOES	0.03 mg/l	0.05mg/l	No Relax.
<b>MAGNESIUM ( as Mg)</b>	IS 3025:PART 46 :1994(Reaff.1999)	<1.0 mg/l	30mg/l	100mg/l
<b>MANGANESE</b>	IS:3025(PART 59) 2006	<0.01 mg/l	0.1mg/l	0.3mg/l

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd. Laboratory, Behala Industrial Complex, Phase II, First Floor, 620, Diamond Harbour Road, Kolkata-700034 Phone : 91-33-64996700, 64996701, Fax : 91-33-24470267

Regd & Corp. Off : SGS House, 4B, A. S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)

Member of the SGS Group (SGS SA)



**TEST REPORT**

**Report No. : CA:GL:3120013026** **DATE : 12/09/2012**

JOE No. : 1212805744

Control No.:3125014125

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			As per IS 10500:1991(REAFF.1993)	
			Desirable	Permissible
MERCURY (as Hg)	IS 3025:PART 48 :1994(Reaff.1999)BY ICPOES	<0.001 mg/l	0.001mg/l	No Relax.
MINERAL OIL	CLAUSE 6 OF IS 3025:PART 39:1991(Reaff. 2003)	BDL(DL-0.01 mg/l)	0.01mg/l	0.03mg/l
NITRATE	IS 3025:PART 34 :1988(Reaff. 1999)	5.53 mg/l	45mg/l	No Relax.
ODOUR	IS 3025:PART 5:1983(Reaff.2002)	Unobjectionable	Unobject.	Unobject.
pH	IS 3025:PART 11:1983(Reaff.2002)	7.4 *	6.5-8.5	No Relax.
PHENOLIC COMPOUNDS (as C6H5OH)	IS 3025(Part 43)1992(Reaff 2005)	<0.001 mg/l	0.001mg/l	0.002mg/l
RESIDUAL FREE CHLORINE	GEN/SOP/CALLAB-13 3	<0.10 mg/l *	0.2mg/l	--
SELENIUM	IS 3025:PART 56:2003 (BY ICPOES)	<0.005 mg/l	0.01mg/l	No Relax.
SULPHATE	CLAUSE 4 OF IS 3025:PART 24:1986(Reaff. 2003)	<2.0 mg/l	200mg/l	400mg/l
TASTE	IS 3025:PART 7 :1984(Reaff.2002)	Agreeable	Agreeable	-
Total Coliforms	IS 1622:1981(Reaff.2003)	<2 MPN/100ml		10/100 ml
TOTAL HARDNESS (as CaCO3)	IS 3025:PART 21 :1983(Reaff.2002)	3.80 mg/l	300mg/l	600mg/l
TURBIDITY( in NTU )	IS 3025:PART 10 :1984(Reaff.2002)	1.44	5.0NTU	10NTU

Page 3 of 4

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd. | Laboratory, Behala Industrial Complex, Phase II, First Floor, 620, Diamond Harbour Road, Kolkata-700034 Phone : 91-33-64996700, 64996701, Fax : 91-33-24470267

Regd & Corp. Off : SGS House, 4B, A. S. Marg, Vikhroli (West), Mumbai-400083 Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)

Member of the SGS Group (SGS SA)





**TEST REPORT**

**Report No. : CA:GL:3120013026** **DATE : 12/09/2012**

JOE No. : 1212805744

Control No.:3125014125

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
ZINC (as Zn)	IS 3025 Part 49:1991(Reaff.2003) BY ICPOES	0.01 mg/l	5mg/l	15mg/l
TOTAL DISSOLVED SOLIDS	IS 3025:PART 16:1984(Reaff.2002)	14 mg/l	500mg/l	2000mg/l

\* Analyzed at site.

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

per pro SGS India Private Ltd.

**Dr.Nemaj Ghosh**  
Manager Laboratory

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd. Laboratory, Behala Industrial Complex, Phase II, First Floor, 620, Diamond Harbour Road, Kolkata-700034 Phone : 91-33-64996700, 64996701, Fax : 91-33-24470267

Regd & Corp. Off : SGS House, 4B, A. S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)

Member of the SGS Group (SGS SA)



TEST REPORT

Report No. : CA:GL:3120013032

DATE : 13/09/2012

JOE No. : 1212805745

Control No.:3125014193

SAMPLE COLLECTED BY SGS

SAMPLE IDENTIFIED AS : GROUND WATER

COMPANY NAME HINDALCO INDUSTRIES LIMITED (MINES DIVISION)

ADDRESS LOHARDAGA, JHARKHAND  
CITY 835302

SAMPLING METHOD APHA 1060B 9060A

SAMPLE DESCRIPTION GROUND WATER

SAMPLE CONDITION IN PLASTIC BOTTLE

SAMPLE QTY. 5.5L APP

MARK/LOCATION SERENDAG-HARAPATH

COLLECTED ON 28/08/12, TIME:3.00 PM

REGISTERED ON 01/09/2012

TEST START DATE 03/09/2012

TEST END DATE 13/09/2012

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			As per IS	
			10500:1991(REAFF.1993)	
			Desirable	Permissible
ALKALINITY (as CaCO3)	IS 3025:PART 23 :1986(Reaff.1998)	<5.0 mg/l	200mg/l	600mg/l
ALUMINIUM (as Al)	IS 3025 : Part 55 : 2003	0.02 mg/l	0.03mg/l	0.2mg/l
ANIONIC DETERGENTS (as MBAS)	ANNEX. K of IS 13428: 2005	<0.05 mg/l	0.2mg/l	1mg/l
ARSENIC (as As)	IS 3025:PART 37:1988(Reaff.1999)BY ICPOES	<0.005 mg/l	0.01mg/l	No Relax.
BORON	Annex.H OF IS:13428:2005	<0.05 mg/l	1.0mg/l	5.0mg/l
CADMIUM (as Cd)	IS 3025:PART 41 :1992(Reaff.1998)BY ICPOES	<0.005 mg/l	0.01mg/l	No Relax.

Page 1 of 4

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd. Laboratory, Behala Industrial Complex, Phase II, First Floor, 620, Diamond Harbour Road, Kolkata-700034 Phone : 91-33-64996700, 64996701, Fax : 91-33-24470267

Regd & Corp. Off : SGS House, 4B, A. S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)

Member of the SGS Group (SGS SA)



**TEST REPORT**

<b>Report No. : CA:GL:3120013032</b>	<b>DATE : 13/09/2012</b>
JOE No. : 1212805745	Control No.:3125014193

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			As per IS	
			Desirable	Permissible
<b>CALCIUM (as Ca)</b>	IS 3025:PART 40 :1991(Reaff.2003)	<1.0 mg/l	75mg/l	200mg/l
<b>CHLORIDE ( as Cl)</b>	Clause 2 of IS 3025 Part 32:1988(Reaff. 1999)	<2.0 mg/l	250mg/l	1000mg/l
<b>CHROMIUM (Cr6+)</b>	IS 3025:PART 52:2003	<0.01 mg/l	0.05mg/l	No Relax.
<b>COLOUR ( HAZEN UNITS)</b>	IS 3025:PART 4 :1983(Reaff.2002)	10	5.0	25
<b>COPPER</b>	IS 3025: PART 42:1992(Reaff. 2003) BY ICPOES	<0.01 mg/l	0.05mg/l	1.5mg/l
<b>CYANIDE ( as CN)</b>	IS 3025:PART 27 :1986(Reaff.1998)	<0.02 mg/l	0.05mg/l	No Relax.
<b>E.coli</b>	IS 1622:1981(Reaff.2003)	Absent/100ml		ABS/100ml
<b>Faecal coliforms</b>	IS 1622:1981(Reaff2003)	Absent/100ml		ABS/100ml
<b>FLUORIDE</b>	IS:3025(PART 60):2008	<0.10 mg/l	1.0mg/l	1.5mg/l
<b>IRON ( as Fe)</b>	IS 3025:PART 53:2003 (BY ICPOES)	.85 mg/l	0.3mg/l	1 mg/l
<b>LEAD (as Pb)</b>	IS 3025:PART 47:1994(Reaff.2003) BY ICPOES	0.03 mg/l	0.05mg/l	No Relax.
<b>MAGNESIUM ( as Mg)</b>	IS 3025:PART 46 :1994(Reaff.1999)	<1.0 mg/l	30mg/l	100mg/l
<b>MANGANESE</b>	IS:3025(PART 59) 2006	0.03 mg/l	0.1mg/l	0.3mg/l

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company.



**TEST REPORT**

**Report No. : CA:GL:3120013032** **DATE : 13/09/2012**

JOE No. : 1212805745

Control No.:3125014193

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			As per IS	
			10500:1991(REAFF.1993)	
			Desirable	Permissible
MERCURY (as Hg)	IS 3025:PART 48 :1994(Reaff.1999)BY ICPOES	<0.001 mg/l	0.001mg/l	No Relax.
MINERAL OIL	CLAUSE 6 OF IS 3025:PART 39:1991(Reaff. 2003)	BDL(DL-0.01 mg/l)	0.01mg/l	0.03mg/l
NITRATE	IS 3025:PART 34 :1988(Reaff.1999)	<0.50 mg/l	45mg/l	No Relax.
ODOUR	IS 3025:PART 5:1983(Reaff.2002)	Unobjectionable	Unobject.	Unobject.
pH	IS 3025:PART 11:1983(Reaff.2002)	7.6*	6.5-8.5	No Relax.
PHENOLIC COMPOUNDS (as C6H5OH)	IS 3025(Part 43)1992(Reaff 2005)	<0.001 mg/l	0.001mg/l	0.002mg/l
RESIDUAL FREE CHLORINE	GEN/SOP/CALLAB-13 3	<0.10 mg/l *	0.2mg/l	--
SELENIUM	IS 3025:PART 56:2003 (BY ICPOES)	<0.005 mg/l	0.01mg/l	No Relax.
SULPHATE	CLAUSE 4 OF IS 3025:PART 24:1986(Reaff. 2003)	<2.0 mg/l	200mg/l	400mg/l
TASTE	IS 3025:PART 7 :1984(Reaff.2002)	Agreeable	Agreeable	-
Total Coliforms	IS 1622:1981(Reaff.2003)	<2 MPN/100ml		10/100 ml
TOTAL HARDNESS (as CaCO3)	IS 3025:PART 21 :1983(Reaff.2002)	<1.0 mg/l	300mg/l	600mg/l
TURBIDITY( in NTU )	IS 3025:PART 10 :1984(Reaff.2002)	7.2	5.0NTU	10NTU

Page 3 of 4

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd. Laboratory, Behala Industrial Complex, Phase II, First Floor, 620, Diamond Harbour Road, Kolkata-700034 Phone : 91-33-64996700, 64996701, Fax : 91-33-24470267  
 Regd & Corp Off : SGS House, 4B, A. S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)

Member of the SGS Group (SGS SA)



**TEST REPORT**

**Report No. : CA:GL:3120013032**

**DATE : 13/09/2012**

JOE No. : 1212805745


Control No.:3125014193

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
ZINC (as Zn)	IS 3025 Part 49:1991(Reaff.2003) BY ICPOES	<0.01 mg/l	5mg/l	15mg/l
TOTAL DISSOLVED SOLIDS	IS 3025:PART 16:1984(Reaff.2002)	<10 mg/l	500mg/l	2000mg/l

Remarks : Based on the above parameters the sample does not comply with desirable limit with respect to colour and does not comply with respect to iron,turbidity with the permissible limit as per IS:10500:1991 (Reaff 1993),  
BDL=Below Detection Limit ,  
\* analysed at site.

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

per pro SGS India Private Ltd.

  
**Dr.Nema Ghosh**  
Manager Laboratory

\*This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company

SGS India Pvt. Ltd. Laboratory, Behala Industrial Complex, Phase II, First Floor, 620, Diamond Harbour Road, Kolkata-700034 Phone : 91-33-64996700, 64996701, Fax : 91-33-24470267

Regd & Corp. Off : SGS House, 4B, A. S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 [www.sgs.com](http://www.sgs.com)

Member of the SGS Group (SGS SA)



**झारखण्ड राज्य प्रदूषण नियंत्रण पर्वद**  
**JHARKHAND STATE POLLUTION CONTROL BOARD**  
[ CONSTITUTED UNDER SECTION 4 OF THE WATER (PREVENTION & CONTROL OF POLLUTION ACT, 1974 )  
T.A.DIVISION BUILDING (GROUND FLOOR),HEC COMPLEX, DHURWA, RANCHI-834004.  
Phone No:-0651- 2400852, 2400851, Fax No:- 2400850.

Ref.No. PC/RNC/2/07

Dated-

**CONSENT TO OPERATE**

With reference to the application dated **28.08.2012** of **M/s Hindalco Industries Ltd; P.O.+ Dist -Gumla, I/C Jalim Sanai Bauxite Mines-12.42 Ha.** for consent under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and that under section 21 of the Air (Prevention & Control of Pollution) Act,1981, he (they) is (are) granted consent to bring into use his(their) new/altered/existing outlet(s) for discharge of trade effluent and (or) domestic sewage and to operate his (their) industrial plant to produce maximum **50,000 TPA** of Bauxite ore **At-Jalim Sanai, P.O. Bishunpur, Dist- Gumla** for the period from **01.01.2013 to 31.12.2013** with the following conditions :

1. That, he(they) shall make any alteration, addition, deletion or modification in the mines without the prior clearance from the Board.
2. That, he(they) shall abide by the obligations provided under section 24, 31 and 33A of the Water (Prevention & Control of Pollution) Act, 1974 and shall extend co-operation to the Board in performing its functions entrusted under section 20, 21, 23, 30 and 32 of the Act.
3. That, he(they) shall comply with the requirements of the Water (Prevention & Control of Pollution) Cess Act, 1977 read with the Water (Prevention & Control of Pollution) Cess Rules, 1978.
4. That, he(they) shall abide by the obligations provided under section 22, 23 and 31A of the Air (Prevention & Control of Pollution) Act, 1981 and shall extend co-operation to the Board in performing its functions entrusted under sections 24, 25 and 26 of the Act.
5. That, he(they) shall abide by the obligations provided under sections 5, 7, 8 and 9 of the Environment (Protection) Act, 1986 and shall extend co-operation in performing the functions entrusted under section 3, 10 and 11 of the Act.
6. That, he(they) shall abide by the applicable provisions of the Environment (Protection) Rules, 1986, the Hazardous Wastes (Management, Handling & Transboundary Movement) Rules, 2008; the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989; the Bio-medical Waste (Management & Handling) Rules, 1998; the Municipal Solid Wastes (Management & Handling) Rules, 2000 and the Batteries (Management & Handling) Rules, 2001.
7. That, he(they) shall maintain the quality of discharge and (or) emission and (or) noise level of environmental pollutants in conformity with the standards as laid under Rule 3 of the Environment (Protection) Rules, 1986.

Xess/Con/136

8. That, he(they) shall monitor his(their) effluent(s), emission(s) and the ambient air, noise level regularly and shall submit the report to the Board in compliance of the condition laid in paragraph 7.
9. That, he(they) shall establish well equipped environmental laboratory with the facilities of system(s) of continuous monitoring of effluent(s), emission(s) ambient water quality(ies), ambient air quality(ies) and ambient noise level(s) and transferring them (monitoring results) to his(their) website(s) and to the e-mail address(es) of the key persons of Jharkhand State Pollution Control Board, Zonal Office, Kolkata and Ministry of Environment & Forests, Regional Office, Bhubneshwar with simultaneous displaying at prominent locations in front of his(their)premises. [\*Unit(s) of medium and large scale under 17 categories of polluting industries of category A of EIA Notification, 2006.]
10. That, he(they) shall submit the environmental statement every year by 30<sup>th</sup> September and shall harvest all rain water precipitating in the premises and do three tier tree plantation in the premises as air barrier.
11. That, he(they) shall submit application for consent under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and that under section 21 of the Air (Prevention & Control of Pollution) Act, 1981 again 120 days before the expiration of the consent order **31.12.2013** or within 120 days from the date of receipt of the order, whichever is earlier.
12. *That, unit shall submit quality report of Ambient Air Quality and Ground Water Quality every quarter of the year.*
13. *That, the unit shall submit the status of compliance Environmental Clearance every quarter to the Board.*
14. *That the unit shall reclaim the mined out area in phased manner as per EIA/EMP report.*
15. *That the unit shall implement harvest rain water of the mine and recharge it to the ground by the method of Central Ground Water Board Guideline that fits most to the mine .*
16. *That, the unit shall make arrangement to control the fugitive emissions occurring during the mining activities and plying of vehicles on haul as well as transport road;*
17. *That, the unit shall ensure that no transport vehicle should ply on road without covering the materials;*
18. *That, the unit shall submit compliance report of Environmental Clearance order dated 10.04.2007 and submit photographs in compliance of specific condition No.vii and xi of the same.*

Sd/-  
(Sanjay Kumar Sinha)  
Member Secretary.

Memo No. *6.453*  
Copy forwarded to G.M. (Operation), M/s Hindalco Industries Ltd; P.O.+ Dist -Gumla, I/C Jalim Sanai Bauxite Mines-12.42 Ha. *h* Deputy Commissioner Gumla/ Divisional Forest Officer, Gumla Division, Gumla/ District Mining Officer, Gumla/ Regional Officer, Regional Office, Ranchi for information & necessary action.

Ranchi, Dated - *5.2.13*

*Sanjay Kumar Sinha*  
(Sanjay Kumar Sinha)  
Member Secretary.

Xess/Con/137



**BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2012-13**

The composite cost during the year 2012-13 (April to March) for environmental protection & pollution control by Jharkhand Mines division of Hindalco Industries Ltd for implementation the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Pakhar (115.13 Ha), Pakhar (15.58 Ha), Pakhar (109.507 Ha), Pakhar (8.09 Ha), Pakhar (35.12Ha), Serengdag (140.06 Ha), Serengdag (155.81 Ha), Jalim & Sanai (12.14 Ha), Gurdari (584.19 Ha), Amtipani (190.95 Ha), Kujam I (80.97 Ha) Kujam II (157.38 Ha) and Bagru (75.41 Ha), Hisri, Chiro kukud, & Orsa pat.

Sl No	Description	Budget (in Lakh Rs.)	Actual (in Lakh Rs.) FY 2012-2013
1	Pollution Control & Environment monitoring	7.50	11.32
2	Reclamation/ Back filing & Rehabilitation	**	46.60
3	Green belt & Plantation	25.00	88.09
4	Rural Development	65.00	81.50

\*\*part of OB removed cost.

  
Convener

Environment Management Cell.

HINDALCO INDUSTRIES LIMITED  
Hindalco Complex  
Court Road, Lohardaga-835302  
Distt. Lohardaga (Jharkhand)

Telephone: +91 6526 224112/224015/223113  
Fax: +91 6526 224118

Website: [www.hindalco.com](http://www.hindalco.com)





Date:20.03.13

**OFFICE ORDER**

In connection with the earlier office order dated 12.11.2011 the re constituted team of Environment management cell to ensure compliance of various environmental Acts, regulations & rules at Mines Division, Hindalco, Lohardaga as follows:


The Environment Management Cell will consist of:

1. B. K. Mahapatra, AGM (Quality & Environment), Convenor.

Members:

2. Utpal Gupta, Manager (Environment)
3. Biplab Mukherjee (Asst Manager Geology)
4. S. Joshi, Manager (Bagru Mines)
5. A. Anbarasu, Mines Manager (Serengdag A)
6. Ajay Pandey, Mines Manager (Pakhar)
7. Kiran Sankar Singh, Mines Manager (Gurdari)
8. Vidya Sagar Singh, Mines Manager (Serengdag B)
9. Ashish Upadhyay, Mines Manager (Kujam I & II)
10. Amar Bharati, Mines Manager (Amtipani)
11. Monaj Kumar Singh, Mines Manager (Pakhar 109.507 Ha)
12. Rajesh Ambastha, Mines Manager (Chiro Kukud & Orsa)

By order

  
Bijesh Kumar Jha  
VP (Mines)

Cc to: - All Mines Manager  
All Department head  
Notice Board.

**DETAILS OF PRODUCTION, OVERBURDEN HANDLING, AREA MINED OUT AND AREA RECLAIMED**  
**FROM APR-12 TO MAR-13**

SN	Name of Leases	Lease Area (in Ha)	Production (in MT)	Overburden Handling (in MT)	Mined Out Area (in Acres)	Reclaimed Area (in Acres)
1	Pakhar Bauxite Mines	8.09	78470	51682	0.75	1.10
2	Pakhar (115.13)	115.13	208503	425872	7.42	2.42
3	Gurdari	584.19	324648	832640	14.70	24.80
4	Kujam-I	80.87	149018	158530	14.70	12.10
5	Kujam-II	157.38	149542	677633	18.18	11.41
6	Amtipani	190.95	149579	468731	18.02	15.37
7	Shrengdag	155.81	259630	570878	19.50	35.00
8	Serengdag Bauxite Mines	140.06	99772	133089	6.52	5.80
9	Jalim & Sanai	12.14	49505	34438	1.24	0.80
10	Bagru	75.41	84320	188767	1.78	9.69
11	Hisri New	14.55	99651	115676	1.24	0.00
12	Chiro-Kukud	152.57	64847	78598	3.13	5.37
<b>M/s Minerals &amp; Minerals Limited</b>						
1	Pakhar Bauxite Mines	15.58	34445	115848	1.25	2.00
2	Pakhar (109.507)	109.507	99840	204868	6.76	1.92