

Laboratory	SGS India Pvt. Ltd., Plot No. 64, G.I.D.C. Main Road, Dharampur, Porbandar, Gujarat		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	31.05.2015
Certificate Number	T-1563	Valid Until	30.05.2017
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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I.	COAL, COKE & OTHER SOLID FUEL			
1.	Coal	Total Moisture	IS 1350 (Part 1): 1984 (RA 2013) ISO 589: 2010 (Method B-2) ASTM D 3302/ D3302M: 2012	1 % to 45 %
		Moisture in the Analysis Sample	IS 1350 (Part 1): 1984 (RA 2013) Clause 6.1e & 6.3.2 ASTM D 3173: 2011 ISO 11722: 2013	0.5 % to 25 %
		Ash	IS 1350 (Part 1): 1984 (RA 2013) ISO 1171: 2010 ASTM D 3174: 2012	0.5 % to 50 %
		Volatile Matter	IS 1350 (Part 1): 1984 (RA 2013) ISO 562: 2010 ASTM D 3175: 2011	15 % to 50 %
		Gross Calorific Value	IS 1350 (Part 2): 1975 (RA 2010) ISO 1928: 2009 ASTM D 5865: 2013	3000 kcal/kg to 12,000 kcal/kg
		Total Sulphur	IS 1350 (Part 3): 1969 (RA 2010) ISO 334: 2013, ASTM D 4239: 2014e1	0.05 % to 21 %
2.	Coke	Total Moisture	IS 1350 (Part 1) (RA 2013) ASTM D 3302/ D3302M: 2012 ISO 579: 2013	1 % to 25 %
		Moisture in the Analysis Sample	IS 1350 (Part 1): 1984 (RA 2013) Clause 6.1e & 6.3.2 ASTM D 3173: 2011 ISO 11722: 2013	0.1 % to 20 %

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	Coke	Ash	IS 1350 (Part 1): 1984 (RA 2013) ISO 1171: 2010 ASTM D 3174: 2012	0.1 % to 30 %
		Volatile Matter	IS 1350: 1984 (Part 1) (RA 2013) ISO 562: 2010 ASTM D 3175: 2011	0.3 % to 25 %
		Gross Calorific Value	IS 1350 (Part 2): 1975 (RA 2010) ISO 1928: 2009 ASTM D5865: 2013	3000 kcal/kg to 12,000 k.cal/kg
		Total Sulphur	IS 1350 (Part 3): 1969 (RA 2010) ISO 334: 2013 ASTM D 4239: 2014e1	0.05 % to 10 %
		Total Phosphorus	ISO 622: 1981 (E)	0.01 % to 0.6 %
II. ORES & MINERALS				
1.	Limestone	Loss on Ignition	IS 1760 (Part 1): 1991 (RA 2011)	10 % to 45 %
		Silica as SiO ₂	IS 1760 (Part 2): 1991 (RA 2011)	0.2 % to 10 %
		Iron Oxide as Fe ₂ O ₃	IS 1760 (Part 3): 1992 (RA 2011)	0.1 % to 5 %
		Alumina Oxide Al ₂ O ₃	IS 1760 (Part 3): 1992 (RA 2011)	0.05 % to 5 %
		Calcium Oxide as CaO	IS 1760 (Part 3): 1992 (RA 2011)	15 % to 60 %
		Magnesium Oxide as MgO	IS 1760 (Part 3): 1992 (RA 2011)	0.2 % to 5 %
2.	Bauxite	Loss on Ignition	IS 2000 (Part 1): 1985 (RA 2011)	1 % to 35 %
		Silica as SiO ₂	IS 2000 (Part 2): 1985 (RA 2011) ISO 6607: 1985 (E) Clause 3c	0.5 % to 40 %

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	Bauxite	Iron Oxide as Fe ₂ O ₃	IS 2000 (Part 4): 1985 (RA 2011)	0.5 % to 50 %
		Alumina Oxide Al ₂ O ₃	IS 1760 (Part 3): 1992 (RA 2011) IS 2000 (Part 3): 1985(RA 2011)	10 % to 90 %
		Calcium Oxide as CaO	IS 5949: 1990 (RA 2010)	0.05 % to 10 %
		Magnesium Oxide as MgO	IS 5949: 1990 (RA 2010)	0.05 % to 3 %
		Titanium Oxide as TiO ₂	IS 2000 (Part 5): 1985 (RA 2011)	1.0 % to 10 %
		Sodium Oxide as Na ₂ O	IS 9497: 2007	0.1 % to 1 %
		Potassium Oxide as K ₂ O	IS 9497: 2007	0.1 % to 1 %
3.	Feldspar	Loss on Ignition	IS 9749: 2007	0.1 % to 1 %
		Silica as SiO ₂	IS 9749: 2007	40 % to 70 %
		Iron Oxide as Fe ₂ O ₃	IS 9749: 2007	0.05 % to 0.5%
		Alumina Oxide Al ₂ O ₃	IS 9749: 2007	10 % to 30 %
		Calcium Oxide as CaO	IS 9749: 2007	0.1 % to 2 %
		Magnesium Oxide as MgO	IS 9749: 2007	0.1 % to 2 %
		Potassium Oxide as K ₂ O	IS 9749: 2007	1 % to 15 %
		Sodium Oxide as Na ₂ O	IS 9749: 2007	1 % to 10 %
III. BUILDING MATERIAL				
1.	China Clay	Loss on Ignition	IS 2840: 2002 (RA 2007)	5 % to 15 %
		Iron Oxide as Fe ₂ O ₃	IS 2840: 2002 (RA 2007)	0.1 % to 2 %

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	China Clay	Titanium Oxide as TiO ₂	IS 2840: 2002 (RA 2007)	1 % to 5 %
		Alumina Oxide Al ₂ O ₃	IS 2840: 2002 (RA 2007)	10 % to 45 %
		Calcium Oxide as CaO	IS 5949: 1990 (RA2010)	0.5 % to 5.0 %
		Magnesium Oxide as MgO	IS 5949: 1990 (RA 2010)	0.1 % to 2 %
		Potassium Oxide as K ₂ O	IS 9749: 2007	0.05 % to 5 %
		Sodium Oxide as Na ₂ O	IS 9749: 2007	0.05 % to 2 %
2.	Bentonite	Moisture	IS 6189: 1986 API13A (18 th Edition) 2010 ASTM D 2216:2010	5 % to 20 %
		Loss on Ignition	IS 12107 (Part 1): 1987 (RA 2011)	5 % to 15 %
		Silica as SiO ₂	IS 12107 (Part 2): 1987 (RA 2011)	40 % to 70 %
		Iron Oxide as Fe ₂ O ₃	IS 2000 (Part 4): 1985 (RA 2011)	5 % to 25 %
		Alumina Oxide Al ₂ O ₃	IS 1760 (Part 3): 1992 (RA 2011)	10 % to 30 %
		Titanium Oxide as TiO ₂	IS 12107 (Part 5): 1987 (RA 2011)	0.5 % to 5 %
		Calcium Oxide as CaO	IS 12107 (Part 8): 1987 (RA 2011)	0.5 % to 5 %
		Magnesium Oxide as MgO	IS 12107 (Part 8): 1987 (RA 2011)	0.5 % to 5 %
		Potassium Oxide as K ₂ O	IS 12107 (Part 9): 1987 (RA 2011)	0.5 % to 5 %
		Sodium Oxide as Na ₂ O	IS 12107 (Part 9): 1987 (RA 2011)	0.5 % to 5 %
	pH	IS 6186: 1986 (RA 2010)	0 to 14 pH	

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Bentonite	Free Swelling Value / Swelling Index in Water	ASTM D 5890: 2011	5 ml to 50 ml
		Residue Greater than 75 Mic.	API Specification 13A (18 th Edition), Feb 2010	0.1 % to 10%
		Filtrate Volume/Filtrate Loss	IS 6186: 1986, ANSI / API Specification 13A (18 th Edition), Feb 2010/ ISO 13500: 2010	5 ml to 20 ml
		Sand Content	IS 6186: 1986 (RA 2010)	0.5 % to 20%
		Methylene Blue Capacity	ISO 10146: 2008 IS 12446: 2007	200 mgmb/gm to 700 mgmb/gm
		Yield Point/Plastic Viscosity Ratio	IS 6186: 1986, ANSI / API Specification 13A, (18 th Edition), Feb 2010/ ISO 13500: 2010	1.0 % to 20 %
		Yield Point	IS 6186: 1986, ANSI / API Specification 13A, (18 th Edition), Feb 2010/ ISO 13500: 2010	(1 lb to 30 lb)/100ft ²
		Apparent Viscosity	IS 6186: 1986, ANSI / API Specification 13A, (18 th Edition), Feb 2010/ ISO 13500: 2010	5 mp.sec to 25 mp.sec
		Plastic Viscosity	IS 6186: 1986, ANSI / API Specification 13A, (18 th Edition), Feb 2010/ ISO 13500: 2010	2 mpa-sec to 25 mpa-sec

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Convenor

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	Bentonite	Viscometer Dial Reading at 300r/Min	IS 6186: 1986, ANSI / API Specification 13A, (18 th Edition), Feb 2010/ ISO 13500: 2010	2 rpm to 45 rpm
		Viscometer Dial Reading at 600r/Min	IS 6186: 1986, ANSI / API Specification 13A, (18 th Edition), Feb 2010/ ISO 13500: 2010	5 rpm to 75 rpm
3.	Cement & Cement Clinker	Loss on Ignition	IS 4032: 1985 (RA 2010)	0.05 % to 30 %
		Alumina Oxide Al ₂ O ₃	IS 4032: 1985 (RA 2010)	2 % to 8 %
		Calcium Oxide as CaO	IS 4032: 1985 (RA 2010)	40 % to 68 %
		Free Calcium Oxide as CaO	IS 4032: 1985 (RA 2010)	0.2 % to 3 %
		Chloride as Cl	IS 4032: 1985 (RA 2010)	0.005 % to 0.5 %
		Iron Oxide as Fe ₂ O ₃	IS 4032: 1985 (RA 2010)	1 % to 6 %
		Magnesium Oxide as MgO	IS 4032: 1985 (RA 2010)	0.2 % to 5.0 %
		Sodium Oxide as Na ₂ O	IS 4032: 1985 (RA 2010)	0.01 % to 1.0 %
		Potassium Oxide as K ₂ O	IS 4032: 1985 (RA 2010)	.01 % to 1.0 %
		Silicon Dioxide as SiO ₂	IS 4032: 1985 (RA 2010)	10 % to 30 %
		Sulfur Trioxide as SO ₃	IS 4032: 1985 (RA 2010)	0.2 % to 5.0 %
		Alka lies as Na ₂ O+0.658 K ₂ O	IS 4032: 1985 (RA 2010)	0.10 % to 3.0 %
		Insoluble Residue	IS 4032: 1985 (RA 2010)	0.1 % to 2.0 %

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IV. FOODS AND AGRICULTURAL PRODUCTS

1. Food Additives

a. Salt	Moisture	IS 253: 2014	0.1% to 10 %
	Matter Insoluble In Water	IS 253: 2014	0.01 % to 2.0 %
	Total Chloride (as NaCl)	IS 253: 2014	75 % to 100 %
	Calcium as Ca	IS 253: 2014	0.005 % to 1 %
	Magnesium as Mg	IS 253: 2014	0.005 % to 1 %
	Sulphate as SO ₄	IS 253: 2014	0.05 % to 2 %

V. INDUSTRIAL AND FINE CHEMICALS

1. Inorganic Chemicals

a. Salt	Moisture	IS 797: 1982 (RA 1985)	0.1% to 10 %
	Matter Insoluble In Water	IS 797: 1982 (RA 1985)	0.01 % to 2.0 %
	Total Chloride (as NaCl)	IS 797: 1982 (RA 1985)	75 % to 100 %
	Calcium as Ca	IS 797: 1982 (RA 1985)	0.005 % to 1 %
	Magnesium as Mg	IS 797: 1982 (RA 1985)	0.005 % to 1 %
	Sulphate as SO ₄	IS 797: 1982 (RA 1985)	0.05 % to 2 %

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