

Laboratory	Rahul Engineers Laboratory, 5 A, Chitrakut Nagar, Bhuwana By Pass Road, Udaipur, Rajasthan		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	17.11.2014
Certificate Number	T-1502	Valid Until	16.11.2016
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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. BUILDING MATERIAL				
1.	Cement & Other Mortars (OPC / PPC White Cement)	Chemical Analysis of Cement Loss on Ignition Silica CaO MgO Fe ₂ O ₃ Al ₂ O ₃ = (R ₂ O ₃ – Fe ₂ O ₃) Insoluble Residue Sulphuric Anhydride	IS 4032: 1985 (RA 1995 & 2005)	0.10 % to 15 % 10 % to 40 % 30 % to 70 % 0.22 % to 10 % 0.10 % to 10 % 0.20 % to 20 % 0.10 % to 40 % 0.10 % to 7.0 %
II. ORES & MINERALS				
1.	Lime stone & Dolomite / Calcite	LOI SiO ₂ CaO MgO Al ₂ O ₃ Fe ₂ O ₃ Chloride Total Carbonates MgCO ₃ CaCO ₃	IS 1760 (Part 1): 1991 IS 1760 (Part 2): 1991 IS 1760 (Part 3): 1991 IS 1760 (Part 3): 1991 IS 1760 (Part 3): 1991 I IS 1760 (Part 3): 1991 IS 1760 (Part 5): 1991 SOP-REL/TP/TC/01: 2014 (Ref A.I. Vogel).	0.1 % to 46 % 0.1% to 70 % 0.28 % to 54 % 0.2 % to 40 % 0.2 % to 10 % 0.1 % to 10 % 0.001 % to 5.0 % 70 % to 100 % 80 % to 99 % 1.0 % to 5.0 %
2.	Bauxite / Aluminum Ore	LOI SiO ₂ CaO MgO Al ₂ O ₃ Fe ₂ O ₃ TiO ₂	IS 2000 (Part 1): 1985 (RA 2001) IS 2000 (Part 2): 1985 (RA 2001) IS 2000 (Part 9): 1989 IS 2000 (Part 9): 1989 IS 2000 (Part 3): 1985 (RA 2001) IS 2000 (Part 4): 1985 (RA 2001) IS 2000 (Part 5): 1985 (RA 2001)	0.1 % to 10 % 0.1 % to 15 % 0.2 % to 5 % 0.1 % to 5 % 0.2 % to 35 % 0.1 % to 20 % 0.1 % to 5 %

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3.	Other Minerals			
a.	China Clay / Kaolin/ Clay	LOI SiO ₂ CaO MgO Fe ₂ O ₃ Al ₂ O ₃ TiO ₂	IS 2840: 2002 SOP-REL/TP/CCL/1: 2014 IS 2840: 2002 IS 2840: 2002 IS 2840: 2002 IS 2840: 2002 IS 2840: 2002	0.1 % to 15 % 10 % to 75 % 0.1 % to 5 % 0.1 % to 5 % 0.1 % to 5 % 0.2 % to 40 % 0.1 % to 5 %
b.	Iron Ore	Total Iron SiO ₂	IS 1493 (Part 1): 1981 (RA 2001) IS 1493 (Part 1): 1981 (RA 2001)	2.0 % to 65.0 % 0.5 % to 50 %
c.	Feld Spar	Na ₂ O K ₂ O Al ₂ O ₃ SiO ₂	IS 9749: 2007 (By Flame Photometer) IS 9749: 2007 IS 9749: 2007	0.1 % to 13 % 0.1 % to 13 % 0.1 % to 5 % 0.1 % to 35 %
d.	Quartz/ Silica Sand	SiO ₂ Iron	IS 1917 (Part 3): 1992 IS 1917 (Part 5): 1992	10 % to 99 % 0.05 % to 2 %
e.	Diatomaceous/ Siliceous Earth	Total Silica Non Reactive Silica LOI CaO MgO Al ₂ O ₃ Fe ₂ O ₃ Moisture	IBM Manual : 1979 SOP/RE/TP/DE/01: 2010 IS 1760: 1991 IS 1760: 1991 IS 1760: 1991 IS 1760: 1991 IS 1760: 1991 IS 1760: 1991	20 % to 95 % 0.1 % to 10 % 2 % to 6 % 1 % to 4 % 0.2 % to 5 % 4 % to 8 % 2 % to 5 % 3 % to 15 %

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III.	WATER			
1.	Potable and Domestic/ Drinking Water / Bore water	Sulphate (as SO ₃)	IS 3025 (Part 24): 1986 (RA 1998)	1 mg/l to 400 mg/l
		Chlorides (as Cl)	IS 3025 (Part 32): 1988 (RA 1999)	1 mg/l to 2000 mg/l
		Suspended Matter	IS 3025 (Part 17): 1984 (RA 1996)	1 mg/l to 2000 mg/l
		pH	IS 3025 (Part 11): 1983 (RA 2002)	1 to 14
		Turbidity	IS 3025 (Part 10): 1984 (RA 2002)	0.1 NTU to 25 NTU
		Total Hardness	IS 3025 (Part 21): 1983 (RA 2002)	1 mg/l to 1600 mg/l
		Iron	IS 3025 (Part 32): 1988 (RA 1999)	0.1 mg/l to 25 mg/l
		Residual Free Chlorine	IS 3025 (Part 26): 1986 (RA 2003)	0.1 mg/l to 100 mg/l
		Fluoride	IS 3025 (Part 60): 1986 (RA 2003)	0.1 mg/l to 50 mg/l
		Dissolve Solids	IS 3025 (Part 16): 1984 (RA 2002)	1 mg/l to 3000 mg/l
	Magnesium	IS 3025 (Part 46): 1994	1 mg/l to 500 mg/l	

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	Potable and Domestic/ Drinking Water / Bore water	Sulphate	IS 3025 (Part 24): 1986 (RA 1998)	1 mg/l to 1000 mg/l
		Nitrate	IS 3025 (Part 34): 1988 (RA 2003)	1 mg/l to 2000 mg/l
		Arsenic	IS 3025 (Part 37): 1988 (RA 2003)	0.01 mg/l to 10 mg/l
		Hexavalent Chromium	IS 3025: 1964	0.05 mg/l to 10 mg/l
		Alkalinity	IS 3025 (Part 23): 1986 (RA 1998)	1 mg/l to 600 mg/l
		Acidity	IS 3025 (Part 22): 1986 (RA 1998)	1 mg/l to 1000 mg/l
		Calcium	IS 3025 (Part 40): 1991	1 mg/l to 500 mg/l
		Conductivity	IS 3025 (Part 14): 1984 (RA 1989)	5 μ mhos/cm to 50 m. mhos/cm
		Colour	IS 3025 (Part 4): 1983	5 Hazen Units to 50 Hazen Units
2.	Water for Construction	Alkalinity	IS 3025 (Part 23): 1986 (RA 1998)	1 mg/l to 600 mg/l
		Acidity	IS 3025 (Part 22): 1986 (RA 1998)	1 mg/l to 1000 mg/l
		Organic (Volatile)	IS 3025 (Part 18): 1984	1 mg/l to 5000 mg/l

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	Water for Construction	Inorganic	IS 3025 (Part 18): 1984	1 mg/l to 3000 mg/l
		Sulphates as SO ₃	IS 3025 (Part 24):1986 (RA 1998)	1 mg/l to 400 mg/l
		Chlorides (as Cl)	IS 3025 (Part 32): 1988 (RA 1999)	1 mg/l to 2000 mg/l
		Suspended Matter	IS 3025 (Part 17): 1984 (RA 1996)	1 mg/l to 2000 mg/l
		pH	IS 3025 (Part 11): 1983 (RA 2002)	1 to 14
3.	Waste Water	Sulphate (as SO ₃)	IS 3025 (Part 24): 1986 (RA 1998)	1 mg/l to 400 mg/l
		Chlorides (as Cl)	IS 3025 (Part 32): 1988 (RA 1999)	1 mg/l to 2000 mg/l
		Suspended Matter	IS 3025 (Part 17): 1984 (RA 1996)	1 mg/l to 2000 mg/l
		pH	IS 3025 (Part 11): 1983 (RA 2002)	1 to 14
		Turbidity	IS 3025 (Part 10): 1984 (RA 2002)	0.1 NTU to 25 NTU
		Total Hardness	IS 3025 (Part 21): 1983 (RA 2002)	1 mg/l to 1600 mg/l

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	Waste Water	Iron	IS 3025 (Part 32): 1988 (RA 1999)	0.1 mg/l to 25 mg/l
		Residual Free Chlorine	IS 3025 (Part 26): 1986 (RA 2003)	0.1 mg/l to 100 mg/l
		Fluoride	IS 3025 (Part 60): 1986 (RA 2003)	0.1 mg/l to 50 mg/l
		Dissolve Solids	IS 3025 (Part 16): 1984 (RA 2002)	1 mg/l to 3000 mg/l
		Magnesium	IS 3025 (Part 46): 1994	1 mg/l to 500 mg/l
		Sulphate	IS 3025 (Part 24): 1986 (RA 1998)	1 mg/l to 1000 mg/l
		Nitrate	IS 3025 (Part 34): 1988 (RA 2003)	1 mg/l to 2000 mg/l
		Arsenic	IS 3025 (Part 37): 1988 (RA 2003)	0.01 mg/l to 10 mg/l
		Hexavalent Chromium	IS 3025: 1964	0.10 mg/l to 10 mg/l
		Alkalinity	IS 3025 (Part 23): 1986 (RA 1998)	1 mg/l to 600 mg/l
		Acidity	IS 3025 (Part 22): 1986 (RA 1998)	1 mg/l to 1000 mg/l
		Calcium	IS 3025 (Part 40): 1991	1 mg/l to 500 mg/l

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	Waste Water	Conductivity	IS 3025 (Part 14): 1984 (RA 1989)	5 μ .mhos/cm to 50 m.mhos/cm
		Colour	IS 3025 (Part 4): 1983	5 Hazen Units to 50 Hazen Units
IV. SOAP DETERGENTS AND TOILETRIES				
1.	Soap Stone/Talc	pH	IS 1462: 1985 (RA 1991)	0.2 to 8
		Matter Soluble in water	IS 1462: 1985 (RA 1991)	0.1 % to 2 %
		LOI	IS 1462: 1985 (RA 1991)	0.1 % to 5 %
		SiO ₂	IS 1462: 1985 (RA 1991)	0.1 % to 70 %
		CaO	IS 1462: 1985 (RA 1991)	0.1 % to 5 %
		MgO	IS 1462: 1985 (RA 1991)	0.1 % to 32 %
		Al ₂ O ₃	IS 1462: 1985 (RA 1991)	0.1 % to 4 %
		Fe ₂ O ₃	IS 1462: 1985 (RA 1991)	0.1 % to 3 %

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