

**Laboratory** Raicon Labs Pvt. Ltd., Plot No. 140, HSIIDC, Rai Industrial Area, Sonapat, Haryana

**Accreditation Standard** ISO/IEC 17025: 2005

**Discipline** Chemical Testing **Issue Date** 07.08.2015

**Certificate Number** T-2602 **Valid Until** 06.08.2017

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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
<b>I. BUILDING MATERIAL</b>				
<b>1.</b>	<b>Cement (OPC, PSC)</b>	Silica	IS 4032: 1985 (RA 2009) Clause 4.3	10 % to 40 %
		Loss on ignition	IS 4032: 1985 (RA 2009) Clause 4.2	0.5 % to 10 %
		Insoluble residue	IS 4032: 1985 (RA 2009) Clause 4.10	0.5 % to 40 %
		Sulphuric anhydride	IS 40932: 1985 (RA 2009) Clause 4.9	0.5 % to 5 %
		Calcium oxide	IS 4032: 1985 (RA 2009) Clause 4.7.2	10 % to 65 %
		Magnesia	IS 4032: 1985 (RA 2009) Clause 4.8.2	1.0 % to 15 %
		Alumina	IS 4032: 1985 (RA 2009) Clause 4.6.1 & 4.4.3	2 % to 15 %
		Iron oxide	IS 4032: 1985 (RA 2009) Clause 4.5.2	2 % to 15 %
		Chloride	IS 4032: 1985 (RA 2009) Clause 4.13	0.01 % to 1 %
	Sulphide sulphur	IS 4032: 1985 (RA 2009) Clause 6.12	0.1 % to 1 %	

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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
2.	Fly Ash	Silica	IS 1727: 1967 (RA 2008) Clause 5.4	10 % to 70 %
		Alumina	IS 1727: 1967 (RA 2008) Clause 5.5 & 5.7	10 % to 45 %
		Iron Oxide	IS 1727: 1967 (RA 2008) Clause 5.5 & 5.6	0.1 % to 5 %
		Magnesia	IS 1727: 1967 (RA 2008) Clause 5.9	0.5 % to 10 %
		Total sulphur	IS 1727: 1967 (RA 2008) Clause 5.10	0.05 % to 3.0 %
		Loss on ignition	IS 1727: 1967 (RA 2008) Clause 5.3	0.3 % to 10 %
		Available alkali as equivalent to sodium oxide	IS 3812 (Part 1): 2013 Annexure C	0.05 % to 1 %
		Chloride	IS 4032: 1985 (RA 2005) Clause 4.13	0.002 % to 1 %
3.	Admixture	Dry material	IS 9103: 1999 (RA 2008) Clause 10.1 E-1	10 % to 60 %
		Ash	IS 9103: 1999 (RA 2008) Clause E-2	1.0 % to 20 %
		Relative density	IS 9103: 1999 (RA 2008) Clause E-3	1.00 to 1.5

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	<b>Admixture</b>	Chloride	IS 6925: 1973 (RA 2008) Clause 5.0	0.005 % to 1 %
		pH value	IS 9103: 1999 (RA 2008) Clause E-5	2 to 14
<b>4.</b>	<b>Aggregate</b>	Reduction in Alkalinity	IS 2386 (Part 7): 1963 (RA 2011) Clause 3.7 & 3.9	20 Mili moles/l to 500 Mili moles/l
		Dissolved- Silica	IS 2386 (Part 7): 1963 (RA 2011) Clause 3.7 & 3.9	2 Mili moles/l to 70 Mili moles/l
		Organic impurities	IS 2386 (Part 2): 1963-2007	Qualitative
		Chloride	DIN EN-1744 (Part 1) 1998 Clause 9.0	0.005 % to 1 %
		Sulphate	DIN EN-1744 (Part 1): 1998 Clause 10.5, 12.0	0.1 % to 1.0 %
<b>5.</b>	<b>Cement Concrete and Mortar</b>	Chloride	IS 14559 (Part 1): 2001 (RA 2011)	0.005 % to 1 %
		Sulphate	BS 1881 (Part 124): 1988	0.01 % to 2.0 %
<b>6.</b>	<b>Ceramic Tiles</b>	Resistance to staining of glazed tiles	IS 13630 (Part 8): 2006	Qualitative
		Resistance to household chemicals and swimming pool water cleaners	IS 13630 (Part 8): 2006	Qualitative

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7.	Soil	pH Value	IS 2720 (Part 26): 1987 (RA 2011)	2 to 12.0
8.	Silica fume	Silica	IS 1727: 1967 (RA 2003) Clause 5.4	50 % to 98.0 %
		Loss on Ignition	IS 1727: 1967 (RA 2003) Clause 5.4	0.5 % to 10 %
		Moisture	IS 15388: 2003	0.10 % to 5 %
		Available alkalis	IS 4032: 1985 (RA 2005) Clause 4.11	0.05 % to 1 %
9.	Bentonite	pH Value	IS 6186: 1986 (RA 2003) Clause A.3	2 to 12.0
<b>II. WATER</b>				
1.	Construction Water	pH	IS 3025 (Part 2): 2002 (RA 2012)	2 to 12
		Acidity	IS 3025 (Part 22): 2003 (RA 2009)	0.1 ml to 10 ml
		Alkalinity	IS 3025 (Part 23): 2003 (RA 2009)	2 ml to 50 ml
		Chloride	IS 3025 (Part 32): 2003 (RA 2009)	5 mg/l to 5000 mg/l
		Total Suspended solids	IS 3025 (Part 17): 1984 (RA 2012)	10 mg/l to 1000 mg/l
		Organic Solids	IS 3025 (Part 18): 1984 (RA 2003)	10 mg/l to 1000 mg/l
		Inorganic Solids	IS 3025 (Part 18): 1984 (RA 2003)	10 mg/l to 5000 mg/l
		Sulphate	IS 3025 (Part 24): 2003 (RA 2009)	2 mg/l to 1000 mg/l

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2.	Drinking Water	Colour	IS 3025(Part 4): 1983 (RA 2006) Visual Comparison	10 Hazen to 50 Hazen
		Odour	IS 3025(Part 5): 1983 (RA 1996)	Qualitative
		Turbidity	IS 3025(Part 10): 1984 (RA 1996)	0.5 NTU to 100 NTU
		Total Dissolved solids	IS 3025 (Part 16): 1984 (RA 2002)	10 mg/l to 8000 mg/l
		pH Value	IS 3025 (Part 11): 1983 (RA 2002) Clause 2.0	2 to 12
		Copper	IS 3025 (Part 42): 1992 (RA 2009) Clause 6.0	0.02 mg/l to 2.0 mg/l
		Iron	IS 3025 (Part 53): 1992 (RA 2003) Clause 6.0	0.02 mg/l to 1.0 mg/l
		Manganese	APHA (22 <sup>nd</sup> Edition) 3500-Mn B: 2012	0.1 mg/l to 0.5 mg/l
		Nitrate	IS 3025 (Part 34): 1988 (RA 2003) Clause 3.3	0.5 mg/l to 60 mg/l
		Nitrite	IS 3025 (Part 34): 1988 (RA 2003) Clause 4.0	0.01 mg/l to 1.0 mg/l
		Fluoride	APHA (22 <sup>nd</sup> Edition) 4500 F D: 2012	0.1 mg/l to 2.0 mg/l
Zinc	IS 3025 (Part 49): 1994 (RA 2009) Clause 5.0	0.01 mg/l to 1 mg/l		

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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
	<b>Drinking Water</b>	Total Hardness	IS 3025 (Part 21): 2009	2 mg/l to 1000 mg/l
		Ammonical Nitrogen	IS 3025 (Part 34): 1988 (RA 2003) Clause 2.5	0.1 mg/l to 10 mg/l
		Aluminium	IS 3025 (Part 55): 2003 Clause 5.0	0.02 mg/l to 1 mg/l
		Chloride	IS 3025 (Part 32): 1988 (RA 2007) Clause 2.0	5 mg/l to 2000 mg/l
		Sulphate	IS 3025 (Part 24): 1986 (RA 2009) Clause 4.0	2 mg/l to 1000 mg/l
		Total Alkalinity	IS 3025 (Part 23): 1986 (RA 2003)	2 mg/l to 500 mg/l
		Calcium	IS 3025 (Part 40): 1991 (RA 2003) Clause 5.0	2 mg/l to 500 mg/l
		Magnesium	IS 3025 (Part 46): 1994 (RA 2003) Clause 6.0	2 mg/l to 200 mg/l
		Sodium	IS 3025 (Part 45): 1993 (RA 2003) Clause 5.0	1 mg/l to 1000 mg/l
		Free Residual Chlorine	IS 3025 (Part 26): 1986 (RA 2003) Clause 3.0	0.1 mg/l to 2.0 mg/l
		Anionic detergents (Anionic Surfactants) (MBAS)	APHA (22 <sup>nd</sup> Edition) 5540 C: 2012	0.05 mg/l to 5.0 mg/l
		Sulphide	IS 3025 (Part 29): 1986 (RA 2003)	0.05 mg/l to 5.0 mg/l

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	<b>Drinking Water</b>	Total Arsenic	IS 3025 (Part 37): 1988 (RA 2003) Clause 3.0	0.03 mg/l to 10 mg/l
		Total Chromium	IS 3025 (Part 52): 2003 Clause 6.0	0.02 mg/l to 1.0 mg/l
		Nickel	IS 3025 (Part 54): 2003 Clause 7.0	0.02 mg/l to 0.5 mg/l
		Barium	IS 15302: 2003	0.2 mg/l to 4 mg/l
		Silver	IS 13428: 2005 (Annexure J)	0.1 mg/l to 25 mg/l
		Selenium	IS 3025 (Part 56): 2003 Clause 7.0	0.01 mg/l to 0.1 mg/l
		Phenolic Compound	IS 3025 (Part 43): 1992 (RA 2003)	0.1 mg/l to 10 mg/l
		Borate	IS 13428: 2005 (Annexure H)	0.1 mg/l to 5 mg/l
		Mercury	IS 3025 (Part 48): 1994 (RA 2003) Clause 5.0	0.001 mg/l to 1.0 mg/l
		Cadmium	IS 3025 (Part 41): 1992 (RA 2003) Clause 5.0	0.05 mg/l to 1.0 mg/l
		Lead	IS 3025 (Part 47): 1994 (RA 2009) Clause 7.0	0.5 mg/l to 10 mg/l
		Cyanide	APHA (22 <sup>nd</sup> Edition) 4500 CN D: 2012	0.05 mg/l to 5 mg/l

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3.	Raw/Waste Water	pH Value	IS 3025 (Part 11): 1983 (RA 2002) Clause 2.0	2 to 12
		Colour	IS 3025 (Part 4): 1983 (RA 2006)	10 Hazen to 50 Hazen
		Odour	IS 3025 (Part 5): 1983 (RA 1996)	Qualitative
		Chemical Oxygen Demand (COD)	IS 3025 (Part 58): 2006	10 mg/l to 6000 mg/l
		Bio Chemical Oxygen Demand (BOD)	IS 3025 (Part 44): 1993 (RA 2013)	2 mg/l to 2000 mg/l
		Total Suspended Solids	IS 3025 (Part 17): 1984 (RA 2006)	10 mg/l to 1000 mg/l
		Oil & Grease	IS 3025 (Part 39): 1991 (RA 2003) Clause 5.0	2 mg/l to 100 mg/l
		Ammonical Nitrogen	IS 3025 (Part 34): 1988 (RA 2003) Clause 2.5	0.5 mg/l to 50 mg/l
	Dissolved Oxygen	IS 3025 (Part 38): 1989 (RA 2003)	1 mg/l to 10 mg/l	

### III. METALS & ALLOYS

1.	TMT	Carbon	IS 228 (Part 1): 1987 (RA 2008)	0.10 % to 0.50 %
		Sulphur	IS 228 (Part 9): 1989 (RA 2009)	0.01 % to 0.50 %
		Phosphorous	IS 228 (Part 3): 1987 (RA 2008)	0.01 % to 0.5 %
		Manganese	IS 228 (Part 2): 1987 (RA 2008)	0.10 % to 1.0 %

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2.	Mild Steel	Carbon	IS 228 (Part 1): 1987 (RA 2008)	0.10 % to 1.0 %
		Sulphur	IS 228 (Part 9): 1989 (RA 2009)	0.01 % to 0.50 %
		Phosphorous	IS 228 (Part 3): 1987 (RA 2008)	0.01 % to 0.5 %
		Manganese	IS 228 (Part 2): 1987 (RA 2008)	0.10 % to 2.0 %
		Silicon	IS 228 (Part 8): 1989 (RA 2009)	0.1 % to 1.0 %
3.	Stainless Steel	Carbon	IS 228 (Part 1): 1987 (RA 2008)	0.05 % to 0.30 %
		Sulphur	IS 228 (Part 9): 1989 (RA 2009)	0.01 % to 0.50 %
		Phosphorous	IS 228 (Part 3): 1987 (RA 2008)	0.01 % to 0.50 %
		Nickel	IS 228 (Part 5): 1987 (RA 2009)	1.0 % to 10 %
		Manganese	IS 228 (Part 2): 1987 (RA 2008)	0.50 % to 2 %
		Silicon	IS 228 (Part 8): 1989 (RA 2009)	0.1 % to 1.0 %
		Chromium	IS 228 (Part 6): 1997 (RA 2009)	5.0 % to 25 %

**IV. METALLIC COATING AND TREATMENT SOLUTIONS**

1. G.I. Metal Mass of Zinc coating IS 6745: 1972 (RA 2006) 10 g/m<sup>2</sup> to 1000 g/m<sup>2</sup>

**-X-X-X-X-X-X-X-X-X-X-X-X-**

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