Laboratory	**Civil-Aid Technoclinic Private Limited, No. 1030, 13th Cross, Attimabbe Road, Banashankari 2nd Stage, Bangalore, Karnataka**		
Accreditation Standard	**ISO/IEC 17025: 2005**		
Discipline	**Chemical Testing**	**Issue Date**	**30.01.2014**
Certificate Number	**T-0783**	**Valid Until**	**29.01.2016**
Last Amended on	**31.01.2014**	**Page**	**1 of 8**

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 MATERIALS**			
1	**Cement**	Insoluble Residue	IS 4032 – 1985 (RA 2009)	0.1% –35.0 %
		Loss on Ignition	IS 4032 – 1985 (RA 2009)	0.1 %– 8.0 %
	33 Grade	Silica Content (As SiO_2)	IS 4032 – 1985 (RA 2009)	10.0 %– 25.0 % 25.0 %– 40.0 %
	43 Grade	Mixed Oxides i) Fe_2O_3 ii) Al_2O_3	IS 4032 – 1985 (RA 2009)	 1.0 %– 8.0 % 1.0 %– 15.0 %
	53 Grade	Lime as CaO	IS 4032 – 1985 (RA 2005)	30.0 %– 50.0 % 50.0 %– 70.0 %
	PPC	Sulfuric Anhydride (SO3)	IS 4032 – 1985 (RA 2009)	0.1 %– 5.0 %
		Magnesia (MgO)	IS 4032 – 1985 (RA 2009)	0.1 %– 10.0 %
	SRC	Chloride	IS: 8112-2013 IS: 12269-2013	0.005-2.0
	PSC			
		Sulphide sulphur	IS 4032 – 1985 (RA 2009)	0.005 -2.0
		Alkalies i) Sodium oxide (Na_2O) ii) Potassium oxide (K_2O)	IS: 4032-1985 (RA 2009)	 0.005-3.0 0.005-3.0

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**	Loss on Ignition	IS 1727 – 1967 (RA 2008)	0.1 %– 10.0 %
		Silica Content (As SiO_2)	IS 1727 – 1967 (RA 2008)	1.0% – 40.0 % 40.0% – 70.0 %
		Mixed Oxides i) Fe_2O_3	IS 1727 – 1967 (RA 2008)	1.0% – 10.0 %
		ii) Al_2O_3	IS 1727 – 1967 (RA 2008)	5.0% – 20.0 % 20.0 %– 45.0 %
		Lime as CaO	IS 1727 – 1967 (RA 2008)	0.1% – 20.0 %
		Sulpuric Anhydride (SO_3)	IS 1727 – 1967 (RA 2008)	0.1% – 5.0 %
		Magnesia (MgO)	IS 1727 – 1967 (RA 2008)	0.1-15.0 %
		Chloride	IS: 3812-(Part 1&2)-2003 (RA 2008)	0.005-2.0%
		Alkalies i) Sodium oxide (Na_2O) ii) Potassium oxide (K_2O)	 IS: 4032-1985 (RA 2009) IS: 4032-1985 (RA 2009)	 0.005-3.0% 0.005-3.0%
3	**Lime**	Loss on Ignition	IS 6932 – 1973 –Part I (RA 2009)	5.0% – 35.0 %
		Silica Content (As SiO_2)	IS 6932 – 1973 –Part I (RA 2009)	0.5% – 25.0 %
		Mixed Oxides i) Fe_2O_3 ii) Al_2O_3	 IS 6932 – 1973 –Part I (RA 2009)	 0.5 %– 5.0 % 0.1% – 15.0 %
		Lime as CaO	IS 6932 – 1973 –Part I (RA 2009)	10.0% – 50.0 % 50.0% – 70.0 %

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		MgO	IS 6932 – 1973 –Part I (RA 2009)	0.1% – 10.0 %
		Insoluble residue	IS 6932 – 1973 –Part I (RA 2009)	0.1% – 15.0 % 15.0% – 30.0 %
4	**Granulated Slag for the Manufacture of Portland Slag Cement**	Chemical Analysis a) Silica Content (as SiO_2) b) Iron oxide (Fe_2O_3) c) Alumina (Al_2O_3) d) Lime (CaO) e) Magnesia (MgO) f) Insoluble residue g) Sulphide sulphur h) Manganous Oxide	IS: 4032-1985 (RA 2009)	 10.0%-50.0% 0.5% - 10.0 % 0.5% - 35.0 % 8.0% - 50.0 % 2.0% - 20.0 % 0.1% - 35.0 % 0.1% - 4.0 % 0.1%- 5.0 %
5	**Silica Fume (Micro Silica)**	Chemical Analysis a) Loss on ignition b) Silica Content (as SiO_2) c) Moisture content d) Alkalies i) Sodium oxide (Na_2O) ii) Potassium oxide (K_2O) iii) Na_2O Equivalent	IS; 1727-1967 (RA 2008) IS: 4032-1985 (RA 2009)	 0.5% - 20.0 % 50.0% - 99.5 % 0.4 %- 5.0 % 0.005%-3.00% 0.005%-3.0%
6	**Admixture**	Dry Material Content	IS 9103 – 1999 (RA 2008)	0.1% – 30.0 % 30.0% – 60.0 %
		Ash Content	IS 9103 – 1999 (RA 2008)	1.0 %– 25.0 %
		pH	IS 9103 – 1999 (RA 2008)	0.5 – 14.0
		Chloride Content	IS 6925-1973 (RA 2008)	0.005 %– 2.0 %
		Relative density	IS 9103 – 1999 (RA 2008)	0.5 – 3.0

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
7	**Soil / Sand**	Determination of total Soluble Sulphate content	IS 2720 (Part 27) 1977 (RA 2010)	0.005 - 2.0 %
		pH value	IS 2720 (Part 26) 1987 (RA 2002)	0.5 – 14.0
8	**Aggregate- Coarse & Fine**	Alkali aggregate Reactivity i) Reduction in Alkalinity	IS 2386 – Part 7 – 1963 (RA 2007)	10.0 milli moles/lit– 100.0 milli moles/lit 100.0 milli moles/lit – 200.0 milli moles/lit
		ii) Dissolved Silica	IS 2386 – Part 7 – 1963 (RA 2007)	5.0 milli moles – 200.0 milli moles/lit
		Soundness	IS 2386 Part 5- 1963 (RA 2007)	0.10% – 20.0 %
		Organic Impurities	IS 2386 Part 5- 1963 (RA 2007)	Qualitative
		Deleterious Materials	IS 2386 Part 2 – 1963 (RA 2007)	0.01% – 5.0 %
9	**Ceramic Tiles**	Chemical Resistance	IS 13630 Part 7 – 1978 (RA 1998)	Qualitative
10	**Filtration Media (Sand & gravel)**	Acid Solubility	IS 8419 – Part 1 – 1977 (RA 2010)	0.1 %– 20.0 %
		Loss on Ignition	IS 8419 – Part 1 – 1977 (RA 2010)	0.1 %– 50.0 %

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
11	**Gypsum (Mineral and chemical)**	**Determination of** a) Free Water b) Combined Water c) Silica and Acid Insolubles d) Iron and Aluminium Oxides e) Calcium Oxide f) Magnesium Oxide	IS: 1288 – 1982	 0.2 – 25.0% 0.2 – 25.0% 0.05 – 20.0% 0.5 – 10.0% 5.0 – 50.0% 0.5 – 10.0%`
12	**Concrete Sample**	Electrical indication of concrete's ability to resist chloride ion penetration (Rapid Chloride Permeability Test)	ASTM:C-1202 – 2003	50 Coulombs – 25000 Coulombs
13	**High Alumina Cement**	i) Iron Oxide (Fe_2O_3) ii) Aluminium Oxide (Al_2O_3)	IS 4032 – 1985 (RA 2009)	1.0 % - 8.0% 10.0 %- 50.0 %
14	**Acid Resistant Tiles**	Acid Solubility	IS: 4457 – 2007	0.01 % - 25.0 %
15	**Acid Resistant Bricks**	Acid Solubility	IS: 4860 – 1968 (RA 2011)	0.01 % - 25.0 %
16	**Cement Clinker**	Insoluble Residue	IS 4032 – 1985 (RA 2009)	0.1% – 35.0 %
		Loss on Ignition	IS 4032 – 1985 (RA 2009)	0.1 %– 8.0 %
		Silica Content **(**As SiO_2)	IS 4032 – 1985 (RA 2009)	10.0 %– 25.0 % 25.0 %– 40.0 %
		Mixed Oxides i) Fe_2O_3 ii) Al_2O_3	IS 4032 – 1985 (RA 2009)	 1 %– 8.0 % 1.0 %– 15.0 %

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Lime as CaO	IS 4032 – 1985 (RA 2005)	30.0 %– 50.0 % 50.0 %– 70.0 %
		Sulphuric Anhydride (SO_3)	IS 4032 – 1985 (RA 2009)	0.1 %– 5.0 %
		Magnesia (MgO)	IS 4032 – 1985 (RA 2009)	0.1 %– 10.0 %
		Chloride	IS: 8112-2013 IS: 12269-2013	0.005-2.0
		Sulphide sulphur	IS 4032 – 1985 (RA 2009)	0.005 -2.0
		Alkalies i) Sodium oxide (Na_2O) ii) Potassium oxide (K_2O)	IS: 4032-1985 (RA 2009)	 0.005-3.0 0.005-3.0
17	**Tar & Bituminous materials**	Specific gravity	IS: 1202-1978 (RA 2008) A2	0.5 – 1.50
		Loss on heating	IS: 1212-1978 (RA 2009)	0% - 2%
		Matter Soluble in trichloroethylene	IS: 1216-1978 (RA 2009) A2	95% - 100%
II.	**WATER**			
1	**Water for concreting**	Acidity	IS 3025 – 1986 Part 22 (RA 2009)	0.01 ml – 5.0 ml 5.0 ml – 10.0 ml
		Alkalinity	IS 3025 – 1986 Part 23 (RA 2009)	0.5 ml – 25.0 ml 25.0 ml – 75.0 ml 75.0 ml – 150.0 ml

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		pH value	IS 3025 – 1964 Part 11 (RA 2006)	0.5 – 14.0
		Chloride content	IS 3025 – 1964 Part 32 (RA 2009)	5.0 mg/l–500.0 mg/l 500.0 mg/l–2000.0 mg/l
		Sulphate content	IS 3025 – 1986 Part 24 (RA 2009)	1.0 mg/l – 500.0 mg/l 500.0 mg/l – 2000.0 mg/l
		Inorganic Solids	IS 3025 – 1984 Part 18 (RA 2006)	10.0 mg/l – 500.0 mg/l 500.0 mg/l – 3000.0 mg/l 3000.0 mg/l -10000.0 mg/l
		Organic Solids	IS 3025 – 1984 Part 15 (RA 2009)	1.0 mg/l – 500.0 mg/l 500.0 mg/l – 1000.0 mg/l
		Suspended Matter	IS 3025 – 1984 Part 17 (RA 2006)	1.0 mg/l – 500.0 mg/l 500.0 mg/l – 3000.0 mg/l
III.	**METALLIC COATINGS & TREATMENT SOLUTIONS**			
1.	**Aluminum**	Coating Thickness	IS: 5523 – 1983 (RA 2006)	5.0 µ – 500 µ
IV.	**METAL & METAL ALLOYS**			
1	**Ferrous Materials Base – Stainless Steel**	C Si Mn P S	Optical Emission Spectrometric Method as per IS: 9879 – 1998	0.065 - 0.098 0.416- 0.624 0.632 - 0.948 0.014 - 0.022 0.014 - 0.022

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Cr		14.4 - 21.60
		Ni		7.2 - 10.8
		Nb		0.80 - 1.2
2	**Ferrous Materials Base – Low Alloy**	C	Optical Emission Spectrometric Method as per IS: 8811-1998	0.035 -1.56
		Si		0.189 - 1.140
		Mn		0.355- 1.080
		P		0.0076 - 0.067
		S		0.024 - 0.069
		Cr		0.088- 2.40
		Mo		0.020 - 1.20
		Ni		0.080- 4.96
		Al		0.010 - 0.39
		Cu		0.018 - 0.83
		V		0.008- 0.49