

Laboratory	Radhey Testing & Consultants Pvt. Ltd., B-363, Kalindi Vihar, Agra, Uttar Pradesh		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Testing	Issue Date	24.05.2014
Certificate Number	T-2971	Valid Until	23.05.2016
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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 MATERIALS				
1.	Aggregates (Coarse & Fine)	Sieve Analysis	IS 2386 (Part 1) 1963 (RA 2002)	4.75 mm to 100 mm 0.150 to 4.75
		Specific Gravity	IS 2386 (Part 3) 1963 (RA 2002)	1.0 to 3.00
		Water Absorption	IS 2386 (Part 3) 1963 (RA 2002)	0.1% to 30 %
		Aggregate Impact Value	IS 2386 (Part 1) 1963 (RA 2002)	5% to 60 %
		Flakiness Index	IS 2386 (Part 1) 1963 (RA 2002)	5% to 60 %
		Elongation Index	IS 2386 (Part 1) 1963 (RA 2002)	5% to 60 %
		Crushing Value	IS 2386 (Part-4)-1997	5% to 60%
		Los Angle Abrasion Value	IS 2386 (Part-4)-1963	5% to 60%
		10% fine value	IS 2386 (Part- 4)-1963 (RA 2002)	5 Tone to 50 Tone
		Bulk Density	IS 2386 (Part-3)-1963	1000 kg/m ³ to 2000 kg/m ³
		Polished stone value	IS 2386 (Part-4)-1963, (RA 2007) BS: 812 (Part-114), 1989	10% to 80%
		Sand equivalent Test	IS 2720 (Part-37)-1976 (RA 2002)	1% to 85%
		Stripping Value of aggregate	IS 6241-1971 (RA 1998)	0% to 98%

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	Aggregates (Coarse & Fine)	Soundness	IS 2386 (Part-5)-1997	0% to 30%
		Deleterious Material	IS 2386 (Part-2)-1997	0% to 5.0%
2.	Admixture	Water content	IS 2386 (Part-3) (RA 2007)	Max. 80%
		Time of setting	IS 8142-1976 (RA 2007)	0 to 5 hrs
		Flexural strength	IS 516-1959 (RA 2004)	0 to 100 kN
		Length change	IS 1199-1959 (RA 2004)	0.02 mm to 150 mm
		Bleeding	IS 9103 (RA 2007)	0% to 5%
		Air content	IS 1199-1959 (RA 2004)	0.1% to 5%
		3.	Thermoplastic Road Marking Material	Binder Content
Glass Beads Content	BS 3262 Part 1-1989			0.5% to 80%
Titanium Dioxide (TiO ₂)	ASTMD 4797-88 (2007)			0.5% to 80%
CaCO ₃ & Inert Fillers	BS 3262 Part-1-1989			0.5% to 80%
Drying Time	As Per MORTH Spec. 2001			1 min to 300 min
Cracking Resistance	As Per AASHTO T-250-1997			Qualitative
Softening Point- R&B	ASTMD 36-09			30°C to 400°C

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	Thermoplastic Road Marking Material	Flow Resistance	AASHTO T-250-1997	1% to 50%
		Gradation of Glass Beads	4.3 MORTH Spec. 2001	1% to 100%
		Roundness-Microscopic	BS 6088-1981	1% to 100%
		Free Flow Test	As Per MORTH Spec. 2001	Qualitative
		Colour	As Per MORTH Clause: 803.4.2	Visual
		Luminance	As Per MORTH Clause: 803.4.2	10% to 98%
		Skid Content	As Per MORTH Clause: 803.4.2	10% to 70%
		Yellowness Index	As Per MORTH Clause: 803.4.2	0.02% to 0.13%
		Refractive Index	As Per MORTH Clause: 803.4.3	0.02 to 1.6
4.	Hardened Concrete, Fresh Concrete	Compressive Strength of Concrete cube/Cylinder	IS 516: 1956 (RA 2004)	0.1 MPa to 80 MPa
		Compressive Strength of accelerated cured concrete specimen	IS 9103-1978, (RA 2004)	0.1 MPa to 80 MPa
		Water absorption	IS 2185 (Part-2)-1983, (RA 2005)	0.10% to 15%
		Flexural Strength	IS 516-1959, (RA 2008)	0.5 MPa to 20 MPa
		Slump	IS 1199-1959, (RA 2008)	1.0 mm to 300 mm

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5.	Bituminous Products (Bitumen PMB, CRMB, NRMB)	Thermal Stability	IS 14982-2001 Annex-B	Qualitative
		Bitumen Content (Bituminous mix)	ASTMD- 2172	0.1% to 9%
		Specific Gravity	IS 1202-1978 (First Revision)	0.5 to 1.5
		Softening Point	IS 1205-1978 (First revision) (RA 2004)	15°C to 80°C
		Penetration	IS 1203-1978 (First revision)	30 mm to 225 mm
		Flash point	IS 1209-1978 (First revision)	15°C to 275°C
		Ductility	IS 1208-1978 (First revision)	0.05 m to 1 m
		Viscosity	IS 1206-1978 (First revision)	5 sec to 1200 sec
		Kinematics Viscosity	IS 1206 (Part-3)-1978 (First Revision) (RA 2004)	30 cSt to 100000 cSt
		Absolute Viscosity	IS 1203-1978 (First Revision)	360 to 24000 poise
		Elastic Recovery	IS 1209-1978 (First Revision)	1% to 100%
		Frass Breaking Point	IS 1208-1978 (First Revision)	0°C to -40°C
Separation	IS 15462-2004	0.1 to 100%		

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	Bituminous Products (Bitumen PMB, CRMB, NRMB)	Loss on heating	IS 212-1978, (RA 1988)	0.05% to 10%
		Loss in weight	IS 9382-1979	0.01% to 10%
		Water content	IS 1211-1978 (RA 1988)	0.1% to 10%
		Mineral Matter (Ash)	IS 1217 – 1978	0.1% to 10%
		Marshal Stability & Flow	ASTM D-6927-2004	Upto 2500 kg, Upto 25 mm
		Thin Film oven Test		
		i) Increase in softening point	IS 1205-1978	5% to 10%
		ii) Reduction in Penetration of residue	IS 1203-1978	30% to 45%
		iii) Elastic recovery of half thread in ductilometer at 25°C	Appendix – I	72% to 90%
		iv) Viscosity ratio at 60°C	IS 1206 (Part-2)-1978	3 to 5
		v) Ductility at 25°C	IS 1208-1978	0.4 m to 1 m
		Boiling Water Test	ASTM D 3625-1996(2005)	Qualitative
		Pour Point	IS 1448 (Part-10)-1970, (RA 2008)	0° to 50°C
		Solubility in HDO	IS 14982-2001, Annex A (RA 2009)	0.1% to 100%

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	Bituminous Products (Bitumen PMB, CRMB, NRMB)	Solubility in LDO	IS 14982-2001,Annex A (RA 2009)	0.1% to 100%
		Retained Marshall Stability	IS 14982-2001,Annex A (RA 2009)	0.5% to 100%
		Mastic Hardness	IS 1195-2002	0% to 100%
6.	Bitumen, Emulsion	Solubility in trichloroethylene	IS 1216-78, (RA 2004)	20% to 100%
		Distillation in % by volume	ASTM D-244	0% to 100%
		Residue on 600 Micron sieve	IS 8887-2004	0% to 10%
		Viscosity by sayblot furol viscometer	IS 3117-2004	5 sec to 500 sec
		Coagulation of emulsion at low temperature	IS 8887-2004	0% to 1%
		Storage stability after 24 hours	IS 8887-2004	0% to 5%
		Particle charge	IS 8887-2004	Negative to Positive
		Miscibility with water	IS 8887-2004	Qualitative
		Residue by evaporation	IS 8887-2004	10% to 95%
		Ductility	IS 1208-1978 (First Revision)	0.05 m to 1 m
		Penetration	IS 1203-1978 (First Revision)	0.003 m to 0.225 m

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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
	Bitumen/ Emulsion	Determination of coating ability & water resistance	IS 8887-2004	Qualitative
		Determination of mixing with cement	IS 8887-2004	0% to 10%
7.	High Strength Deformed Bars	Mass per meter	IS 1786-2008	0.008 m to 0.04 m Dia & 0.395 kg/m to 9.86 kg/m
		Tensile Strength	IS 1608-2005	Upto 400 kN
		Yield Stress	IS 1608-2005	Upto 400 kN
		Elongation	IS 1608-2005	0.5% to 60%
		Bend Test	IS 1599-1985, (RA 2006) IS 1786-2008	Upto 400 kN 8 mm to 240 mm Mandrel Dia
		Re-Bend Test	IS 1786-2008	Upto 400 kN 16 mm to 320 mm Mandrel Dia
8.	Clay Burnt Bricks/Fly Ash	Water Absorption	IS 3495-1992 (Part-2) 2002	1% to 30%
		Compressive Strength	IS 3495-1992 (Part-2) 2002	3.5 Mpa to 50 Mpa
		Efflorescence	IS 3495-1992 (Part-3) 2002	Visual

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	Clay Burnt Bricks/Fly Ash	Dimension	IS 1077-1992, RA 2002	L: 4000 mm to 5000 mm W: 2000 mm to 3000 mm H: 1000 mm to 2000 mm
9.	Bituminous Section*	Dry Density- Core Cutting Method	IS 2720 (Part 29)-1974, RA 2010	500 kg/m ³ to 3000 kg/m ³
		Dry Density- Sand Replacement Method	IS 2720 (Part 28)-1974, RA 2005	500 kg/m ³ to 3000 kg/m ³
		Benkelman Beam Deflection Test	IRC: 81-1981-1997 Ministry of Road Transport & Highway-Manual for Construction and Supervision of Bituminous Works, IRC, Year 2001	0 to 15 mm
		Surface evenness of Highway Pavements	IRCSP: 16-2004	1200 to 3000 mm/km
		Bridge Load Test	IRCSP: 51 Ministry of Road Transport & Highway-Manual for Construction and Supervision of Bituminous Works, IRC, Year 2001	50 Tone to 500 Tone
10.	Concrete Road*	Surface evenness of Highway Pavements	IRCSP: 16-2004	1200 to 3000 mm/km

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11.	Concrete*	Bridge Load Test	IRCSP: 51 Ministry of Road Transport & Highway-Manual for Construction and Supervision of Bituminous Works, IRC, Year 2001	50 Tone to 500 Tone
12.	Concrete Structure*	Pile Load Test	IS 2911 (Part 4)-1985, RA 2011	100 Tone to 1000 Tone
II. SOIL & ROCK				
1.	Soil (Sub Grade)	Liquid Limit	IS 2720 (Part 5)-1985 Clause 7 Second Revision, RA 2001	10% to 300 %
		Plastic Limit	IS 2720 (Part 5)-1985 Clause 7 Second Revision, RA 2001	0% to 300 %
		Shrinkage Limit	IS 2720 (Part 6)-1972, RA 2007	0.5% to 100%
		Heavy Compaction	IS 2720 (Part 8)-1983 Second Revision, RA 2002	OMC: 1.5 to 2.5 gm/cc MDD: 1% to 18%
		Light Compaction	IS 2720 (Part 7)-1983 Second Revision, RA 2002	OMC: 1.0 to 2.5 gm/cc MDD: 1% to 18%
		Moisture content	IS 2720 (Part 2), RA 1997	0.1% to 30%

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	Soil (Sub Grade)	Tri axial shear Test	IS 2720 (Part-11)-1981	Φ : 0° to 60° 0.1 kg/cm ² to 10 kg/cm ²
		Consolidation Test	IS 2720 (Part-15)-1976	0.05 kg/cm ² to 16.0 kg/cm ² 0.5 mm to 5 mm
		Free Swell Index	IS-2720 (Part -40)-1977	1% to 200%
		Relative Density	IS 2720 (Part 14)-1983, RA 2010	500 kg/m ³ to 3000 kg/m ³
		Grain size Analysis	IS 2720 (Part-4)-1985, RA 2006	75 mm to 19 mm
		California Bearing Ratio (C.B.R.)	IS 2720 (Part 16) 1983 Second Revision, RA 2002	3% to 60%
		Direct Shear Test	IS 2720 (Part-13) 1986	5° to 50° 0.1 kg/cm ² to 10 kg/cm ²
	Soil (Sub Grade) *	Standard Penetration Test	IS 2131-1981	N.value (0 to 100)
		Dry Density- Core Cutting Method	IS 2720 (Part 29)-1974, RA 2010	500 kg/m ³ to 3000 kg/m ³
		Dry Density- Sand Replacement Method	IS 2720 (Part 28)-1974, RA 2005	500 kg/m ³ to 3000 kg/m ³
		Plate Load Test	IS 1888-1982, RA 2001	5 Tonne to 50 Tonne

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*Only for Site Testing