

Laboratory Atmy Analytical Labs Pvt. Ltd., I-38, DLF Industrial Area, Phase-1, Faridabad, Haryana

Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 11.09.2015

Certificate Number T-1923 **Valid Until** 10.09.2017

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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. METAL & ALLOYS				
1.	Steel (Carbon Steel & Low Alloy Steel)	Carbon	ASTM E-415: 2014, IS 228 (Part 1): 1997 (RA 2008)	0.01 % to 1.5 % 0.01 % to 1.5 %
		Silicon	ASTM E-415: 2014,	0.01 % to 2.0 %
		Manganese	ASTM E-415: 2014,	0.08 % to 4.0 %
		Sulphur	ASTM E-415: 2014, IS 228 (Part 9): 1997 (RA 2008)	0.005 % to 0.20 % 0.01 % to 0.20 %
		Phosphorus	ASTM E-415: 2014, IS 228 (P-3)1997/ R2008	0.005 % to 0.45 % 0.01 % to 0.45 %
		Chromium	ASTM E-415: 2014	0.02 % to 5.0 %
		Nickel	ASTM E-415: 2014	0.01 % to 5.0 %
		Molybdenum	ASTM E-415: 2014	0.01 % to 4.0 %
		Copper	ASTM E-415: 2014	0.01 % to 5.0 %
		Vanadium	ASTM E-415: 2014	0.01 % to 2.0 %
		Aluminum	ASTM E-415: 2014	0.01 % to 1.0 %
		Titanium	ASTM E-415: 2014	0.01 % to 0.85 %
		Cobalt	ASTM E-415: 2014	0.01 % to 1.0 %
		Tin	ASTM E-415: 2014	0.005 % to 0.15 %
Boron	ASTM E-415: 2014	0.0006 % to 0.10 %		

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	Steel (Carbon Steel & Low Alloy Steel)	Niobium	ASTM E-415: 2014	0.01 % to 1.0 %
		Tungsten	ASTM E-415: 2014	0.01 % to 1.0 %
		Lead	ASTM E-415: 2014	0.001 % to 0.20%
2.	Stainless Steel	Carbon	ASTM E-1086: 2014, IS 228 (Part 1): 1997 (RA 2008)	0.01 % to 1.5 % 0.01 % to 1.5 %
		Silicon	ASTM E-1086: 2014	0.01 % to 2.0 %
		Manganese	ASTM E-1086: 2014	0.08 % to 15.0 %
		Sulphur	ASTM E-1086: 2014 IS 228 (Part 9): 1997 (RA 2008)	0.005 % to 0.20 % 0.01 % to 0.20 %
		Phosphorus	ASTM E-1086: 2014, IS 228 (P-3)1997/ R2008	0.005 % to 0.45 % 0.01 % to 0.45 %
		Chromium	ASTM E-1086: 2014	5.0 % to 30.0 %
		Nickel	ASTM E-1086: 2014	1.0 % to 35.0%
		Molybdenum	ASTM E-1086: 2014	0.01 % to 10.0%
		Copper	ASTM E-1086: 2014	0.01 % to 5.0%
		Vanadium	ASTM E-1086: 2014	0.01 % to 5.0%
		Aluminum	ASTM E-1086: 2014	0.01 % to 1.0%
		Titanium	ASTM E-1086: 2014	0.01 % to 0.85%
	Cobalt	ASTM E-1086: 2014	0.01 % to 1.0%	

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	Stainless Steel	Niobium	ASTM E-1086: 2014	0.01 % to 1.0%
		Tungsten	ASTM E-1086: 2014	0.01 % to 19.0%
		Lead	ASTM E-1086: 2014	0.001 % to 0.20%
3.	Cast Iron	Carbon	ASTM E: (1999-2011) IS 228 (Part 1): 1997 (RA 2008)	2.0 % to 3.2 % 1.0 % to 2.5%
		Silicon	ASTM E: (1999-2011)	1.0 % to 2.6 %
		Manganese	ASTM E: (1999-2011)	0.08 % to 2.5%
		Sulphur	ASTM E: (1999-2011) IS 228 (Part 9): 1997 (RA 2008)	0.1 % to 0.20 % 0.1 % to 0.20%
		Phosphorus	ASTM E: (1999-2011) IS 228 (Part 3):1997 (RA 2008)	0.05 % to 0.45 % 0.05 % to 0.45%
		Chromium	ASTM E: (1999-2011)	0.5 % to 2.0 %
		Nickel	ASTM E: (1999-2011)	0.1 % to 1.0 %
		Molybdenum	ASTM E: (1999-2011)	0.05 % to 0.5 %
		Copper	ASTM E: (1999-2011)	0.01 % to 2.0 %
		Aluminum	ASTM E: (1999-2011)	0.01 % to 0.20 %
		Titanium	ASTM E: (1999-2011)	0.01 % to 0.85 %
		Tin	ASTM E: (1999-2011)	0.05 % to 0.10 %
		Lead	ASTM E: (1999-2011)	0.01 % to 0.20 %

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4.	Aluminum & Its Alloys	Copper	ASTM-E-1251: 2011	0.005 % to 12.0 %
		Magnesium	ASTM-E-1251: 2011	0.005 % to 12.0 %
		Silicon	ASTM-E-1251: 2011	0.005 % to 25.0 %
		Iron	ASTM-E-1251: 2011	0.008 % to 2.7 %
		Nickel	ASTM-E-1251: 2011	0.005 % to 1.7 %
		Manganese	ASTM-E-1251: 2011	0.008 % to 1.0 %
		Zinc	ASTM-E-1251: 2011	0.005 % to 6.0 %
		Lead	ASTM-E-1251: 2011	0.003 % to 0.50 %
		Tin	ASTM-E-1251: 2011	0.008 % to 6.0 %
		Titanium	ASTM-E-1251: 2011	0.005 % to 0.25 %
		Chromium	ASTM-E-1251: 2011	0.005 % to 0.25 %
5.	Copper & Its Alloys	Tin	EN 15079: 2007(By Spectro-OES)	0.008 % to 11.0 %
		Lead	EN 15079: 2007(By Spectro-OES)	0.02 % to 20.0 %
		Iron	EN 15079: 2007(By Spectro-OES)	0.01 % to 5.8 %
		Aluminum	EN 15079: 2007(By Spectro-OES)	0.01 % to 12.5 %
		Nickel	EN 15079: 2007(By Spectro-OES)	0.01 % to 7.0 %
		Manganese	EN 15079: 2007(By Spectro-OES)	0.01 % to 4.5 %
		Phosphorus	EN 15079: 2007(By Spectro-OES)	0.001 % to 0.25 %

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	Copper & Its Alloys	Silicon	EN 15079: 2007(By Spectro-OES)	0.005 % to 1.8 %
		Zinc	EN 15079: 2007(By Spectro-OES)	0.005 % to 45.0 %
6.	Zinc & Its Alloys	Aluminium	ASTM E 1507: 2003 (By Spectro-OES)	0.02 % to 11.0 %
		Copper	ASTM E 1507: 2003 (By Spectro-OES)	0.01 % to 2.5 %
		Magnesium	ASTM E 1507: 2003 (By Spectro-OES)	0.01 % to 0.15 %
		Lead	ASTM E 1507: 2003 (By Spectro-OES)	0.005 % to 1.0 %
		Cadmium	ASTM E 1507: 2003 (By Spectro-OES)	0.005 % to 0.60 %
		Nickel	ASTM E 1507: 2003 (By Spectro-OES)	0.005 % to 0.45 %
		Tin	ASTM E 1507: 2003 (By Spectro-OES)	0.005 % to 1.2 %
		Iron	ASTM E 1507: 2003 (By Spectro-OES)	0.01 % to 2.0 %
		Chromium	ASTM E 1507: 2003 (By Spectro-OES)	0.008 % to 0.1 %

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II. METALLIC COATING & TREATMENT SOLUTIONS

Salt Spray Test (NSS)	ASTM-B-117: 2011	Observation
Zn Coating Thickness	IS 6745: 1976 (RA 2006)	20 g/m ² to 800 g/m ²

III. HARD GOODS (PLASTIC & METALS)

Toxic Elements as per RoHS & ELV Lead	ASTM E 1621: 2013/ IEC 62321: 2013 Based on X ray Screening	50 mg/kg to 2000 mg/kg
Cadmium	ASTM E 1621: 2013/ IEC 62321: 2013 Based on X ray Screening	50 mg/kg to 2000 mg/kg
Total Chromium	ASTM E 1621: 2013/ IEC 62321: 2013 Based on X ray Screening	50 mg/kg to 2000 mg/kg
Mercury	ASTM E 1621: 2013/ IEC 62321: 2013 Based on X ray Screening	50 mg/kg to 2000 mg/kg
Total Bromine	ASTM E 1621: 2013/ IEC 62321: 2013 Based on X ray Screening	50 mg/kg to 2000 mg/kg

IV. MINERAL & ORES

1. Limestone	Silica(as SiO ₂)	IS 1760 (Part 2): 1991 (RA 2006)	0.1 % to 15 %
	Alumina(as Al ₂ O ₃)	IS 1760 (Part 3): 1992 (RA 2006)	0.2 % to 2.0 %

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	Limestone	Lime(as CaO)	IS 1760 (Part 3): 1992 (RA 2006)	0.5 % to 55.0 %
		Magnesia(as MgO)	IS 1760 (Part 3): 1992 (RA 2006)	0.2 % to 25.0 %
		Loss on Ignition	IS 1760 (Part 1): 1991 (RA 2006)	20 % to 50 %
2.	Iron Ore	Silica(as SiO ₂)	IS 1493 (Part 1): 1981 (RA 2001)	0.2 % to 5.0 %
		Alumina(as Al ₂ O ₃)	IS 1493 (Part 1): 1981 (RA 2001) Clause 10	0.2 % to 5.0 %
		Sulphur (asSO ₃)	IS 1493 (Part 1): 1981 (RA 2001) Clause 11	0.01 % to 0.20 %
		Phosphorus (asP ₂ O ₅)	IS 1493 (Part 1): 1981 (RA 2001) Clause 9.0	0.01 % to 0.20 %
		Manganese (as Mn)	IS 1493 (Part 1): 1981 (RA 2001)	0.01 % to 0.50 %
		Total Iron (as Fe)	IS 1493 (Part 1): 1981 (RA 2001) Clause 8.5	50.0 % to 70.0 %

V. RUBBERS AND PLASTICS

1.	Plastics	Density	IS 13360 (Part 3/Sec I): 1995	0.8 g/cc to 2.0 g/cc
		Water absorption	IS 13360 (Part 8/Sec I): 1997	0.01 % to 20%
		Melting Point	IS 13360 (Part 6/Sec X)	40 °C to 300 °C
		Ash Content (Filler)	ASTM-D-5630: 201	0.01 % to 55 %

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	Plastics	Chemical Composition of Filler - SiO ₂ , Al ₂ O ₃ , TiO ₂ , Fe ₂ O ₃ , CaO, MgO, MnO, ZnO, PbO)	ASTM-D-5630: 2013/ ASTM E1621: 13	Minimum 0.01 % for all element
		Plastic Identification	ASTM E 1252: 2013 (By FTIR) / RAPRA	Qualitative
2.	Rubbers	Density	ASTM D297: 13/ IS 3400 (Part 9) (RA 2003)	0.8 g/cc to 2.0 g/cc
		Ash Content (Filler)	ASTM-D-297: 13/	0.01 % to 55 %
		Chemical Composition of Filler (SiO ₂ , Al ₂ O ₃ , TiO ₂ , Fe ₂ O ₃ , CaO, MgO, MnO, ZnO, PbO)	IS 3400 (Part 22) (RA 2003) / ASTM E 1621: 13	Minimum 0.01% for all element
		Polymer content	ASTM D297:13/ IS 3400 (Part 22) (RA 2003)	1 % to 90 %
		Carbon black content	IS 3400 (Part 22) (RA 2003) / ISO 1408: 2011	5 % to 70 %
		Rubber Identification	ASTM D 3677:10e1 (By FTIR) / ISO 4650-2012 ASTM D297:13 / IS 3400 (Part 22) (RA 2003)	Qualitative
		Rubber deterioration (Surface Ozone Cracking)	ASTM D 1149: 2012 / JISK 6301: 1995	Qualitative

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VI. BUILDING MATERIALS				
1.	Cement (OPC&PPC)	Silica (as SiO ₂)	IS 4032: 1985 (RA 2009)	1 % to 25 %
		Alumina (as Al ₂ O ₃)	IS 4032: 1985 (RA 2009) Clause 4.4& Clause 4.6.1	0.1 % to 10 %
		Iron oxide (as Fe ₂ O ₃)	IS 4032: 1985 (RA 2009) Clause 4.5.1	0.01 % to 5 %
		Sulphuric Anhydride (as SO ₃)	IS 4032: 1985 (RA 2009) Clause 4.5.1	0.01 % to 5 %
		Chloride (as Cl)	IS 4032: 1985 (RA 2009)	0.01 % to 1%
		Lime (as CaO)	IS 4032: 1985 (RA 2009) Clause 4.7.1	5.0 % to 70 %
		Magnesia (as MgO)	IS 4032: 1985 (RA 2009) Clause 4.8.1	0.01 % to 10 %
		Insoluble Residue	IS 4032: 1985 (RA 2009) Clause 4.1	2.0 % to 50 %
		Loss On Ignition	IS 4032: 1985 (RA 2009) Clause 4.2	0.5 % to 30 %
2.	Fly Ash (Pozzolanic Material)	Silica(as SiO ₂)	IS 1727: 1967 (RA 2008)	5 % to 50 %
		Alumina (as Al ₂ O ₃)	IS 1727: 1967 (RA 2008)	1 % to 20 %
		Iron oxide (as Fe ₂ O ₃)	IS 1727: 1967 (RA 2008)	0.1 % to 12 %
		Sulphur trioxide (as SO ₃)	IS 1727: 1967 (RA 2008)	0.1 % to 10 %

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	Fly Ash (Pozzolanic Material)	Calcium (as CaO)	IS 1727: 1967 (RA 2008)	0.5 % to 50 %
		Magnesium (as MgO)	IS 1727: 1967 (RA 2008)	0.1 % to 10 %
		Insoluble Residue	IS 1727: 1967 (RA 2008)	1.0 % to 50 %
		Loss On Ignition	IS 1727: 1967 (RA 2008)	1 % to 45 %
3.	Admixture	Dry Material content	IS 9103: 1999(2007) Amd. 2	1 % to 50 %
		Ash Content	IS 9103: 1999(2007) Amd. 2	1 % to 30 %
		pH	IS 9103: 1999(2007) Amd. 2	1 to 14
		Relative density	IS 9103: 1999(2007) Amd. 2	1.0 to 2.0
		Chlorides	IS 6925: 1973 (RA 2008) Clause 5	0.002 % to 2.0 %
4.	Soil	pH	IS 2720 (Part 26): 1987 (RA 2002)	1 to 14
		Moisture(water)	IS 2720 (Part 2): 1973 (RA 2010)	0.2 % to 50 %
		Organic Matter	IS 2720 (Part 22/ Sec I): 1992 (RA 1995)	0.5 % to 50 %
		Cation exchange capacity	IS 2720 (Part 24): 1976 (RA 2005) Clause. 3.1	1 % to 20 %
		Water soluble Sulphate	IS 2720 (Part 27): 1977 (RA 2001)	0.01 % to 10 %
		Water Soluble Chloride	IS 2720 (Part 27): 1977 (RA 1995)	0.01 % to 5 %
	Calcium Carbonate	IS 2720 (Part 23): 1976 (RA 2006)	0.01 % to 30 %	

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VII. WATER				
1.	(Potable & Domestic / Industrial / Cooling Purpose / Bore Well)	Colour	IS 3025 (Part 4): 1984 (RA 2006)	0 to 25 Hazen Units
		Odour	IS 3025 (Part 5): 1984 (RA 2006)	Qualitative
		Taste	IS 3025 (Part 8): 1984 (RA 2006)	Qualitative
		Turbidity	IS 3025 (Part 10): 1984 (RA 2006)	0 NTU to 100 NTU
		Specific conductance at 25°C	IS 3025 (Part 14): 1984/R2006	2 µmhos to 2000 µmhos
		pH Value	IS 3025 (Part 11): 1983 (RA 2006)	1 to 12
		Inorganic Solids	IS 3025 (Part 18): 1984 (RA 2006)	10 mg/l to 5000 mg/l
		Organic Solids	IS 3025 (Part 18): 1984 (RA 2006)	10 mg/l to 1000mg/l
		Total Hardness (as CaCO ₃)	IS 3025 (Part 21): 1983 (RA 2006) Clause 2	10 mg/l to 2000mg/l
		Chloride (as Cl)	IS 3025 (Part 32): 1988 (RA 2009) Clause 2	10 mg/l to 1500 mg/l
		Sulphate	IS 3025 (Part 24): 1986 (RA 2009) Clause 2	10 mg/l to 100 mg/l
		Total Dissolved Solids	IS 3025 (Part 16): 1984 (RA 2009)	10 mg/l to 2000 mg/l
		Dissolved Oxygen	IS 3025 (Part 38): 1989 (RA 2009)	1 mg/l to 12 mg/l
Acidity (as CaCO ₃)	IS 3025 (Part 22): 1986 (RA 2009)	10 mg/l to 1000 mg/l		
Alkalinity (as CaCO ₃)	IS 3025 (Part 23): 1986 (RA 2009)	10 mg/l to 1000 mg/l		

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