

Laboratory United Solutions Private Limited, Testing Division, C-245,
Village-Allour, Tehsil-Khanna, Dist.- Ludhiana, Punjab

Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 08.07.2014

Certificate Number T-2208 **Valid Until** 11.04.2016

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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. METALS & ALLOYS				
1.	Carbon Steel	Carbon (C)	ASTM E – 415-08 ASTM E-1009-95 (RA-2006) IS 8811 : 1998 IS 228 Part-1:1987(RA-2002)	0.06-0.90% 0.06-0.90%
		Silicon (Si)	ASTM E – 415-08 ASTM E-1009-95 (RA-2006) IS 8811 : 1998 IS 228 Part-8:1989(RA-1999)	0.02-0.50% 0.05-0.50%
		Manganese (Mn)	ASTM E – 415-08 ASTM E-1009-95 (RA-2006) IS 8811 : 1998 IS 228 Part-2:1987(RA-2002)	0.05-2.0% 0.10-1.5%
		Phosphorus(P)	ASTM E – 415-08 ASTM E-1009-95 (RA-2006) IS 8811 : 1998 IS 228 Part-3:1987(RA-2002)	0.005-0.04% 0.005-0.07%
		Sulphur(S)	ASTM E – 415-08 ASTM E-1009-95 (RA-2006) IS 8811 : 1998 IS 228 Part-9:1989(RA-1999)	0.005-0.06% 0.005-0.07%
		Chromium(Cr)	ASTM E – 415-08	0.04-0.80%
		Molybdenum(Mo)	ASTM E-1009-95 (RA-2006)	0.03-0.30%
		Nickel(Ni)	IS 8811 : 1998	0.03-1.60%
		Copper(Cu)		0.02-0.50%
		Aluminium(Al)		0.006-0.07%
		Boron(B)		0.001-0.07%
		Niobium(Nb)		0.02-0.07%
		Vanadium(V)		0.01-0.25%

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		Nitrogen(N)	IS 228(Pt-23) : 2003 IS 228 Part-19:1998(RA-2005)	0.002-0.05%
2.	Low Alloy Steel	Carbon (C)	ASTM E – 415-08 ASTM E-1009-95 (RA-2006) IS 8811 : 1998 IS 228 Part-1:1987(RA-2002)	0.06-0.90% 0.06-0.90%
		Silicon (Si)	ASTM E – 415-08 ASTM E-1009-95 (RA-2006) IS 8811 : 1998 IS 228 Part-8:1989(RA-1999)	0.02-0.50% 0.05-0.50%
		Manganese (Mn)	ASTM E – 415-08 ASTM E-1009-95 (RA-2006) IS 8811 : 1998 IS 228 Part-2:1987(RA-2002)	0.05-2.0% 0.10-1.5%
		Phosphorus(P)	ASTM E – 415-08 ASTM E-1009-95 (RA-2006) IS 8811 : 1998 IS 228 Part-3:1987(RA-2002)	0.005-0.04% 0.005-0.07%
		Sulphur(S)	ASTM E – 415-08 ASTM E-1009-95 (RA-2006) IS 8811 : 1998 IS 228 Part-9:1989(RA-1999)	0.005-0.06% 0.005-0.07%
		Chromium(Cr)	ASTM E – 415-08	0.04-0.80%
		Molybdenum(Mo)	ASTM E-1009-95 (RA-2006)	0.03-0.30%
		Nickel(Ni)	IS 8811 : 1998	0.03-1.60%
		Copper(Cu)		0.02-0.50%
		Aluminium(Al)		0.006-0.07%
		Boron(B)		0.001-0.07%
		Niobium(Nb)		0.02-0.07%
		Lead(Pb)		0.001-0.05%
		Tin(Sn)		0.005-0.05%
		Vanadium(V)		0.01-0.25%

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		Nitrogen(N)	IS 228(Pt-23) : 2003 IS 228 Part-19:1998(RA-2005)	0.002-0.05%
3.	Stainless Steel	Carbon (C)	ASTM E-1086-08 IS 9879 : 1998 IS 228 Part-1:1987(RA-2002)	0.005-0.25% 0.05-1.0%
		Silicon (Si)	ASTM E-1086-08 IS 9879 : 1998 IS 228 Part-8:1989(RA-1999)	0.01-0.90% 0.05-0.90%
		Manganese (Mn)	ASTM E-1086-08 IS 9879 : 1998 IS 228 Part-2:1987(RA-2002)	0.05-2.0% 0.05-2.0%
		Phosphorus(P)	ASTM E-1086-08 IS 9879 : 1998 IS 228 Part-3:1987(RA-2002)	0.003-0.15% 0.005-0.06%
		Sulphur(S)	ASTM E-1086-08 IS 9879 : 1998 IS 228 Part-9:1989(RA-1999)	0.003-0.065% 0.005-0.06%
		Chromium(Cr)	ASTM E-1086-08	1.0-25.00%
		Molybdenum(Mo)	IS 9879 : 1998	0.01-3.0%
		Nickel(Ni)		0.05-15.00%
		Copper(Cu)		0.01-0.30%
		Niobium(Nb)		0.001-1.00%
		Nitrogen(N)	IS 228(Pt-23) : 2003 IS 228 Part-19:1998(RA-2005)	0.002-0.05%
4.	Aluminium & Its Alloys	Silicon(Si)	ASTM E-1251-11	0.07-16.00%
		Iron (Fe)		0. 2-0.50%
		Copper(Cu)		0.001-5.0%
		Manganese(Mn)		0.002-1.30%
		Zinc(Zn)		0.002-6.0%
		Titanium(Ti)		0.001-0.20%
		Gallium(Ga)		0.002-0.01%

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		Vanadium(V)		0.002-0.022%
5.	Zinc & its Alloys	Lead(Pb) Cadmium(Cd) Tin(Sn) Copper(Cu)	ASTM E-634-12	0.001-1.6% 0.001-0.5% 0.001-0.1% 0.001-1.3%
6.	Copper & its Alloys	Zinc(Zn) Lead(Pb) Tin (Sn) Phosphorus(P) Manganese(Mn) Iron(Fe) Nickel(Ni) Silicon(Si) Magnesium(Mg) Aluminium(Al) Sulphur(S)	BS EN 15079 : 2007	0.003-50.0% 0.10-8.50% 0.001-8.50% 0.005-0.50% 0.10-1.00% 0.005-1.00% 0.005-1.50% 0.005-1.00% 0.005-0.20% 0.005-4.0% 0.005-0.6%
7.	Ferro Silicon	Carbon Sulphur Phosphorus Silicon	IS:1559:1961(RA-2002)	0.05-1.5% 0.005-0.15% 0.005-0.15% 10.0-95.00%
8.	Ferro Chromium	Carbon Silicon Chromium	IS:1559:1961(RA-2002)	0.05-1.5% 0.5-6.0% 1.0-75.00%
9.	Ferro Manganese	Carbon Manganese Sulphur Phosphorus Silicon	IS:1559:1961(RA-2002)	0.05-1.5% 1.0-85.00% 0.005-0.5% 0.005-0.5% 0.05-2.0%
10.	Silico Manganese	Carbon	IS:1559:1961(RA-2002)	0.05-1.5%

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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
		Manganese		1.0-75.00%
		Sulphur		0.005-0.5%
		Phosphorus		0.005-0.5%
		Silicon		1.0-28.00%
11.	Ferro Molybdenum	Carbon	IS:1559:1961(RA-2002)	0.05-1.5%
		Sulphur		0.005-0.5%
		Silicon		0.05-1.5%
		Molybdenum		1.0-74.00%
		Phosphorus		0.005-1.50%
12.	Sponge Iron	Carbon	IS: 228(Pt-1): 1987(RA-2002)	0.05– 1.5%
		Sulphur	IS: 228(Pt-9):1989(RA-1999)	0.01-0.050%
		Phosphorus	IS: 228(Pt-3):1987(RA-2002)	0.01-0.050%
		Total Iron	IS:1493(Pt-1):1959(RA-2006)	50-95%
		Metallic Iron	IS: 15774:2007	50-85%
II. BUILDING MATERIALS				
1.	Cement	Loss of Ignition	IS 4032:1985(RA-2005)	1.00 – 10.00%
		Silica(SiO ₂)		10.00– 40.00%
		Alumina(Al ₂ O ₃)		1.00- 15.00%
		Iron Oxide (Fe ₂ O ₃)		1.00- 15.00%
		Calcium Oxide(CaO)		1.00-70.00%
		Magnesia(MgO)		0.10-10.00%
		Sulphuric Anhydride (SO ₃)		0.10 -5.00%
		Insoluble Residue		0.10-50.00%
		Sulphide Sulphur (S)		0.10-10.00%
		Chloride (Cl)	IS 4032:1985(RA-2005)	0.01-1.00%
			IS 6925 : 1973(RA-2004)	
2.	Aggregate	Alkali Reactivity	IS 2386(Pt.-7):1963 (RA-2007) Cl.3	Qualitative
		Organic Impurities	IS 2386(Pt-2):1963(RA-2007)	Qualitative
		Chloride (Cl)	EN 1744 (Pt-1) : 2013	0.005-1.00%
		Sulphate (SO ₃)		0.10-5.00%
III. METALLIC COATING & TREATMENT SOLUTIONS				
1.	Metallic Coating	Mass of Zinc Coating	IS 6745:1972 (RA-2008)	100-2000g/m ²

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		Uniformity	IS 2633:1986(RA-2006)	Qualitative

-X-X-X-X-X-X-X-X-X-X-X-X-