

Laboratory Deep Metallurgical Services, 73, New Modella Industrial Estate, Padwal Nagar, Thane, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 15.07.2014

Certificate Number T-1335 **Valid Until** 14.07.2016

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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. METAL AND ALLOYS				
1. Ferrous Alloys	Carbon		IS228-PT1-87(08)	0.05% to 4.50%
	Manganese		IS228-PT2-87(08)	0.10% to 2.50%
	Chromium		IS228-PT6-87(02)	0.10% to 30.0%
	Nickel		IS228-PT5-87(02)	0.10% to 20.0%
	Molybdenum		IS228-PT7-90(06)	0.10% to 2.50%
	Silicon		IS228-PT8-89(09)	0.1% to 5.0%
	Sulphur		IS228-(PT9)-89(09)	0.005% to 0.40%
	Phosphorus		IS228-PT3-87(08)	0.005% to 0.25%
	Tungsten		ASTM E352-06/E30	0.10% to 20.0%
	Vanadium		IS 1599-1961(07)	0.10% to 2.00%
2. Copper and Copper Alloys	Copper		IS440-64 (06) IS3685-66(06) IS4027-PT1/87(91)	0.10% to 99.99%
	Tin		IS4027-(PT5)-87(06)	0.10% to 10.0%
	Lead		IS4027(PT1)-87(06)	0.10% to 5.0%
	Nickel		IS 3685-66 (06) IS 440 -64-(06) IS 4027(PT8)-91(06)	0.10% to 5.0%

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	Copper and Copper Alloys	Phosphorus	IS 440-64(06) IS 3685-66 (06) IS 4027(PT4)-87(06)	0.005% to 1.0%
		Iron	IS 440-64(06) IS 3685-66(06) IS 4027-PT8-87(07)	0.10% to 1.0%
		Copper	IS 504 PT3-03(07)	0.10% to 5.0%
3.	Aluminum Alloy	Iron	IS 504-PT2-00(07)	0.10% to 2.0%
		Magnesium	IS 504-PT6-02(07)	0.10% to 12.0%
		Manganese	IS 504-PT5-02(07)	0.10% to 0.50%
		Silicon	IS 504-PT1-02(07)	0.10% to 20.0%
4.	Non ferrous (Nickel Base Alloys)	Aluminum	DMS/Method/OES/2 (Issue date 2012; Rev 00 (2014)	0.013% to 3.90%
		Boron		0.003% to 0.007%
		Carbon		0.004% to 0.10%
		Copper		0.05% to 31.0%
		Cobalt		0.020% to 1.80%
		Chromium		0.05% to 21.0%
		Iron		1.00% to 4.10%

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	Non ferrous (Nickel Base Alloys)	Molybdenum	DMS/Method/OES/2 (Issue date 2012; Rev 00 (2014))	0.020% to 20.00%
		Niobium		0.10% to 2.10%
		Silicon		0.20% to 4.10%
		Titanium		0.010% to 1.60%
5.	Non ferrous (Copper Alloys)	Aluminum	DMS/Method/OES/1 (Issue date 2012; Rev 01 (2014))	0.006% to 10.00%
		Arsenic		0.01% to 0.20%
		Bismuth		0.02% to 0.04%
		Cadmium		0.05% to 0.50%
		Cobalt		0.003% to 0.015%
		Iron		0.10% to 4.70%
		Manganese		0.01% to 0.35%
		Nickel		0.020% to 4.90%
		Phosphorus		0.02% to 0.90%
		Lead		0.10% to 1.30%
		Antimony		0.03% to 0.50%
		Tin		0.02% to 4.0%
	Zinc	0.15% to 35.50%		

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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
6.	Ferrous Alloys	Carbon	ASTM E1086 & ASTM E415-08	0.005% to 0.25% & 0.08% to 0.1%
		Manganese	ASTM E1086& ASTM E415-08	0.01% to 2.0% & 0.10% to 2.0%
		Chromium	ASTM E1086& ASTM E415-08	17.0% to 23.0% & 0.2 to 2.25%
		Nickel	ASTM E1086& ASTM E415-08	7.5% to 13.0% & 0.02% to 5.0%
		Molybdenum	ASTM E1086& ASTM E415-08	0.01% to 3.0% & 0.03% to 0.6%
		Silicon	ASTM E1086& ASTM E415-08	0.01% to 0.90%& 0.07% to 1.15%
		Sulphur	ASTM E1086& ASTM E415-08	0.003% to 0.065%& 0.01% to 0.055
		Phosphorus	ASTM E1086& ASTM E415-08	0.003% to 0.15% & 0.02% to 0.085%
		Vanadium	ASTM E415-08	0.004% to 0.30%
		Aluminum	ASTM E415-08	0.02% to 0.075%
	Copper	ASTM E1086& ASTM E415-08	0.1% to 0.30% & 0.04 to 0.50%	

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		Cobalt	ASTM E415-08	0.008% to 0.18%
		Niobium	ASTM E1086& ASTM E415-08	0.02% to 0.085%
		Nitrogen	ASTM E1086& ASTM E415-08	0.004% to 0.015%
7.	Ferrous Alloys	Carbon	DMS/Method/OES/3 Issue date 2014; Rev 00(2014)	0.013% to 2.14%
		Manganese		0.24% to 9.50%
		Phosphorus		0.0183% to 0.043%
		Sulphur		0.0086% to .0476%
		Silicon		0.216% to 1.03%
		Chromium		2.09% to 26.93%
		Nickel		0.190% to 31.32%
		Molybdenum		0.0939% to 6.75%
		Copper		0.039% to 4.42%
		Aluminum		0.003% to 1.20%
		Vanadium		0.15% to 4.06%
		Tungsten		0.011% to 18.09%
		Niobium		0.011% to 2.43%
		Nitrogen		0.02% to 0.19%
		Cobalt	0.04% to 0.50%	

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8.	Non Ferrous (Aluminum Alloys)	Chromium	ASTM E1251-11	0.001% to 0.23%
		Copper		0.001% to 5.50%
		Iron		0.10% to 0.50%
		Magnesium		0.03% to 5.4%
		Manganese		0.001% to 1.20%
		Nickel		0.005% to 0.60%
		Lead		0.04% to 0.60%
		Silicon		0.07% to 16.0%
		Titanium		0.01% to 0.12%
		Vanadium		0.002% to 0.022%
	Zinc	0.002% to 5.70%		

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