

Laboratory RITES Lab, Western Region, 210, Amit Industrial Estate, 61, Dr. S.S. Rao Road, Parel, Mumbai, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6564 Page 1 of 4

Validity 15.11.2017 to 14.11.2019 Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
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CHEMICAL TESTING

I.	METALS & ALLOYS			
1.	Ferrous: Iron Base Low-Alloy Steel, (By Spectro)	Carbon	ASTM E 415/ IS 8811	0.044% to 1.0%
		Manganese	ASTM E 415/ IS 8811	0.43% to 1.67%
		Silicon	ASTM E 415/ IS 8811	0.20% to 1.12%
		Sulphur	ASTM E 415/ IS 8811	0.01% to 0.075%
		Phosphorous	ASTM E 415/ IS 8811	0.008% to 0.06%
		Chromium	ASTM E 415/ IS 8811	0.15% to 1.40%
		Nickel	ASTM E 415/ IS 8811	0.01% to 1.50%
		Molybdenum	ASTM E 415/ IS 8811	0.02% to 0.50%
		Copper	ASTM E 415/ IS 8811	0.01% to 0.43%
2.	Ferrous: Iron Base Stainless Steel, (By Spectro)	Manganese	ASTM E-1086/ IS 9879	0.50% to 2.0%
		Silicon	ASTM E-1086/ IS 9879	0.20% to 0.65%
		Sulphur	ASTM E-1086/ IS 9879	0.005% to 0.035%
		Phosphorous	ASTM E-1086/ IS 9879	0.005% to 0.04%
		Chromium	ASTM E-1086/ IS 9879	14.0% to 25.5%
		Nickel	ASTM E-1086/ IS 9879	5.5% to 20.0%
		Molybdenum	ASTM E-1086/ IS 9879	0.01% to 2.11%
		Vanadium	ASTM E-1086/ IS 9879	0.1% to 0.12%
		Copper	ASTM E-1086/ IS 9879	0.01% to 2.0%
3.	Ferrous: Iron Base High Speed Tool Steel, (By Spectro)	Manganese	WRLWI-003 DT.25/07/2014	0.25% to 0.50%
		Silicon	WRLWI-003 DT.25/07/2014	0.20% to 0.50%
		Sulphur	WRLWI-003 DT.25/07/2014	0.01% to 0.050%
		Phosphorous	WRLWI-003 DT.25/07/2014	0.01% to 0.050%
		Chromium	WRLWI-003 DT.25/07/2014	3.5% to 4.50%
		Molybdenum	WRLWI-003 DT.25/07/2014	0.5% to 5.50%
		Vanadium	WRLWI-003 DT.25/07/2014	0.9% to 2.0%
		Tungsten	WRLWI-003 DT.25/07/2014	5.50% to 18.0%
		Cobalt	WRLWI-003 DT.25/07/2014	0.05% to 5.50%

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4.	Ferrous: Iron Base Manganese Steel, (By Spectro)	Carbon	ASTM E 2209	0.3% to 1.20%
		Manganese	ASTM E 2209	8.0% to 12.5%
		Silicon	ASTM E 2209	0.3% to 1.25%
		Phosphorous	ASTM E 2209	0.025% to 0.055%
		Chromium	ASTM E 2209	0.25% to 1.5%
		Nickel	ASTM E 2209	0.8% to 1.30%
		Molybdenum	ASTM E 2209	0.2% to 0.75%
5.	Non Ferrous: Nickel Base, (By Spectro)	Carbon	WRLWI-004 dt.25/07/214	0.04% to 0.06%
		Manganese	WRLWI-004 dt.25/07/214	0.08% to 0.11%
		Silicon	WRLWI-004 dt.25/07/214	0.12% to 0.16%
		Phosphorous	WRLWI-004 dt.25/07/214	0.004% to 0.008%
		Chromium	WRLWI-004 dt.25/07/214	14.5% to 16.5%
		Titanium	WRLWI-004 dt.25/07/214	2.3% to 2.8%
		Niobium	WRLWI-004 dt.25/07/214	0.8% to 1.2%
		Iron	WRLWI-004 dt.25/07/214	6.5% to 8.0%
		Vanadium	WRLWI-004 dt.25/07/214	0.03% to 0.08%
		Copper	WRLWI-004 dt.25/07/214	0.03% to 0.07%
6.	Non Ferrous Base Aluminum Al-pure/low alloys, Al/si(mg) alloy, (by spectro)	Copper	ASTM E 1251	0.01% to 4.60%
		Zinc	ASTM E 1251	0.01% to 0.06%
		Iron	ASTM E 1251	0.1% to 0.31%
		Nickel	ASTM E 1251	0.005% to 0.035%
		Manganese	ASTM E 1251	0.02% to 1.0%
		Titanium	ASTM E 1251	0.02% to 0.06%
		Chromium	ASTM E 1251	0.005% to 0.1%
		Silicon	ASTM E 1251	0.07% to 12.00%
		Magnesium	ASTM E 1251	0.03% to 1.0%
Vanadium	ASTM E 1251	0.005% to 0.022%		
7.	Non Ferrous Copper Base Pure copper,Cu/zn alloy, Cu/sn/pb alloy, Cu/al alloy (by spectro)	Tin	BS-EN15079	0.05% to 7.5%
		Zinc	BS-EN15079	0.15% to 40.0%
		Lead	BS-EN15079	0.10% to 15.0%
		Iron	BS-EN15079	0.05% to 5.0%
		Nickel	BS-EN15079	0.05% to 5.0%
		Aluminum	BS-EN15079	0.05% to 11.0%

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		Manganese	BS-EN15079	0.001% to 0.40%
		Arsenic	BS-EN15079	0.003% to 0.03%
		Silver	BS-EN15079	0.01% to 0.05%
		Silicon	BS-EN15079	0.01% to 0.30%
		Chromium	BS-EN15079	0.01% to 0.10%
		Phosphorous	BS-EN15079	0.005% to 0.06%

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MECHANICAL TESTING

I.	TEXTILE METERIALS			
1.	Textile & Related Products: Fabric/Garments/ Made-up	Threads Per Unit Length in Woven Fabrics	IS 1963	50 dm to 1000 dm
		Width and Length of the Fabric	IS 1954	10 cm to 195 cm
		Mass per unit length and Mass per unit area of fabric	IS 1964	10 GSM to 600 GSM 10 g/m to 500 g/m
		Breaking Strength/Force of Textile Fabrics	IS 1969 (Part1)	250 N to 5000 N
		Pilling Resistance	IS 10971 (Part 1)	Qualitative (Grade 1 to 5)