

Laboratory Quality Control Laboratory of Midhani, Mishra Dhatu Nigam Ltd.,
P.O. Kanchanbagh, Hyderabad, Andhra Pradesh

Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 28.03.2014

Certificate Number T-2100 **Valid Until** 27.03.2016

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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 & ALLOYS				
1.	Fe-base Alloy	C	ASTM E415-08	0.0015-1.7%
		S		0.002-0.075%
		P	ASTM E1086-08	0.001-0.10%
		Si		0.002-4.15%
		Mn		0.004-20.00%
		Cr		0.002-28.00%
		Ni		0.002-48.30%
		Mo		0.002-6.25%
		Co		0.002-21.00%
		Cu		0.001-4.00%
		V		0.002-3.40%
		Nb		0.001-3.0%
		Ti		0.002-2.50%
		Al		0.001-1.20%
		W		0.01-18.00%
		B		0.001-1.20%
		Sn		0.001-0.05%
Pb		0.0001-0.03%		
As		0.001-0.10%		
N		0.001-0.350%		
Sb		0.0007-0.0025%		
2.	Ni-base Alloy	C	Validated In-House Method OES (QC(SCL)/WI/4) (Issue No. 2, Issue Date: 03-04-2003)	0.002-0.25%
		P		0.0025-0.025%
		Si		0.01-1.00%
		Mn		0.01-1.70%
		Cr		0.03-31.00%
		Mo		0.002-18.00%
		Co		0.01-21.00%
Cu	0.01-1.90%			

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	Ni-base Alloy	V Nb Ti Al W Fe B Ta Mg	Validated In-House Method OES (QC(SCL)/WI/4) (Issue No. 2, Issue Date: 03-04-2003)	0.002-1.20% 0.02-5.70% 0.005-5.00% 0.004-8.50% 0.04-4.70% 0.04-38.00% 0.001-0.025% 0.45-3.70% 0.002-0.22%
3.	Ti-base Alloy	C Si Mn Cr Ni Mo Cu V Al W Fe Sn	Validated In-House Method OES (QC(SCL)/WI/4) (Issue No. 2, Issue Date: 03-04-2003)	0.001-0.015% 0.005-0.05% 0.001-11.80% 0.002-4.00% 0.001-0.025% 0.001-3.95% 0.002-0.05% 0.002-15.30% 0.001-8.00% 0.25-1.00% 0.040-2.50% 0.01-3.60%
4.	Co-base Alloy	C Si Mn Cr Ni Mo Cu Nb	Validated In-House Method OES (QC(SCL)/WI/4) (Issue No. 2, Issue Date: 03-04-2003)	0.05-1.5% 0.25-1.00% 0.60-1.60% 18.00-32.00% 2.00-25.00% 0.10-4.50% 0.01-0.035% 0.02-3.50%

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		Al		0.05-0.30%
		W		3.50-16.00%
		Fe		0.40-3.50%
	Fe, Co, Ti & Ni Alloys	C	ASTM E1019-08	0.0004-2.50%
		S		0.0007-0.30%
		O	ASTM E1447-09	0.0004-0.25%
		N	ASTM E1409-08	0.0005-0.40%
		H	ASTM E1019-08	0.00005-0.025%
5.	Fe-base Alloy	P	Validated In-House Method	0.002-0.05%
		Si	ICP-AES QC(RMIC)/WI/41C)	0.001-5.0%
		Mn	(Issue No. 1,	0.001-20.00%
		Cr	Issue Date: 13-06-11)	0.001-28.00%
		Ni		0.001-25%
		Mo		0.001-6.25%
		Co		0.001-21.00%
		Cu		0.001-4.00%
		V		0.0005-5.0%
		Nb		0.0003-3.0%
		Ti		0.0004-2.50%
		Al		0.001-10.0%
		W		0.0005-25.00%
		Zr		0.001-0.50%
		B		0.0005-1.20%

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	Fe-base Alloy	Ta Mg Ca Ce La Hf Y	Validated In-House Method ICP-AES QC(RMIC)/WI/41C) (Issue No. 1, Issue Date: 13-06-11)	0.001-5.0% 0.0001-0.1% 0.001-0.1% 0.0001-0.1% 0.0002-0.001% 0.0005-2% 0.0005-0.1%
		As, Sb, Sn, Pb, Bi, Te, Se, Tl	ASTM E1852-08	As, Sb, Sn, pb= 0.0005-0.01% Bi, Te, Se, Tl= 0.00002-0.05%
		Ag, Co, Ca, Mg, Ni, Cr, Zn, Cd, Cu	IS 12308 Validated In-House Method QC(RMIC)/WI/39C) (Issue No. 1, Issue Date: 04-09-1995)	0.0005-0.05%
6.	Ni-base Alloy	P Si Mn Cr Mo Co Cu V Nb Ti Al W	ASTM E2594-09	0.002-0.025% 0.001-1.0% 0.001-1.70% 0.001-45.00% 0.0008-18.00% 0.001-21.00% 0.0005-1.90% 0.001-1.20% 0.0003-5.70% 0.0004-5.00% 0.001-8.50% 0.0005-4.70%

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	Ni-base Alloy	Zr	ASTM E2594-09	0.001-0.50%
		Fe	Cr by Wet Chemical as per	0.001-38.00%
		B	ASTM method	0.0005-0.025%
		Ta	E353-93(2006)	0.001-3.70%
		Mg		0.0001-0.22%
		Y		0.0005-0.1%
		La		0.0002-0.001%
		Ce		0.0001-0.1%
		Ca		0.001-0.01%
		As, Sb, Sn, Pb, Bi, Te, Se, Tl	ASTM E1834-09(2002)	As, Sb, Sn, Pb= 0.0005-0.01% Bi, Te, Se, Tl= 0.00002-0.05%
		Ag, Co, Ca, Mg, Ni, Cr, Zn, Cd, Cu	ASTM E1835-09(2002)	0.0005-0.05%
7.	Ti-base Alloy		ASTM E2371-04	0.001-0.05% 0.001-11.80% 0.001-4.00% 0.001-0.025% 0.001-3.95% 0.002-0.05% 0.001-15.30% 0.001-8.00% 0.0005-1.00%

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	Ti-base Alloy	Zr Fe Sn Y B	ASTM E2371-04	0.001-2.00% 0.001-2.50% 0.0005-5.00% 0.0002-0.001% 0.0005-0.1%
8.	Co-base Alloy	P Si Mn Cr Ni Mo Cu V Nb Al W Fe Ta La	Validated In-House Method ICP-AES QC(RMIC)/WI/41C) (Issue No. 1, Issue Date: 13-06-11)	0.002-0.05% 0.001-1.00% 0.001-1.60% 0.001-32.00% 0.001-25.00% 0.001-4.50% 0.001-0.035% 0.001-0.01% 0.0003-3.50% 0.001-0.30% 0.0005-16.00% 0.001-3.50% 0.001-1.30% 0.0002-0.06%
9.	Ferro Alloys Fe- Mn	Mn, P	Mn: IS 1559-1961 P: QC(RMIC)/WI/41C/RM/P) (Issue No. 1, Issue Date: 13-06-11)	Mn: 65- 75 % P: 0.005 – 0.15%
	Fe- Cr	Cr, P, C, S	Cr: IS 13452 Part 7,2008 P: QC(RMIC)/WI/41C/RM/P) (Issue No. 1, Issue Date: 13-06-11)	Cr: 60 – 70% P: 0.005 -0.03% C: 0.002-7.12% S: 0.002-0.027%

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	Fe- Mo	Mo, P	Mo: QC(RMIC)/WI/17B (Issue No. 1, Issue Date: 04-09-1995) P: QC(RMIC)/WI/41C/RM/P (Issue No. 1, Issue Date: 13-06-11)	Mo: 60- 65%, P: 0.005- 0.05%
	Fe- V	V, P	V: IS 1559-1961 P: QC(RMIC)/WI/41C/RM/P (Issue No. 1, Issue Date: 13-06-11)	V: 50- 65%, P: 0.005- 0.15%
	Fe- B	B	B: QC(RMIC)/WI/41C/RM/B (Issue No. 1, Issue Date: 13-06-11)	B: 15- 20%
	Fe- W	W, P	W: QC(RMIC)/WI/41C/RM/W) (Issue No. 1, Issue Date: 13-06-11) P: QC(RMIC)/WI/41C/RM/P (Issue No. 1, Issue Date: 13-06-11)	W: 70- 75%, P: 0.005- 0.04%
	Fe- Ti	Ti	Ti: IS 1559-1961	Ti: 25- 70%,
	Fe- Si	Si, P	Si: IS 1559 Part- 1988 P: QC(RMIC)/WI/41C/RM/P (Issue No. 1, Issue Date: 13-06-11)	Si: 70- 75%, P: 0.005- 0.05%,

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	Fe- Nb	Nb, P	Nb: QC(RMIC)/WI/41C/RM/Nb) (Issue No. 1, Issue Date: 13-06-11) P: QC(RMIC)/WI/41C/RM/P) (Issue No. 1, Issue Date: 13-06-11)	Nb: 60-70%, P : 0.005- 0.1%

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