

Laboratory Inspectorate Griffith India Pvt. Ltd., Visakhapatnam Laboratory, D. No. 24-1-17, 1st Floor, Fatima Building, Thompson Street, Visakhapatnam

Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 14.10.2013

Certificate Number T-2632 **Valid Until** 13.10.2015

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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
			IS	ASTM D	ISO	TPM	
I. COAL, COKE & OTHER SOLID FUELS							
1.	Coal	IM (Moisture in analysis sample)	1350 (Part 1) - 1984	-	-	-	0.1%-19.00%
		VM	1350 (Part 1) - 1984	-	562-2010	-	0.1%-48.00%
		GCV	-	5865-2012	1928-2009	-	150 Cal/gm-7800Cal/gm
		Ash	1350 (Part 1) - 1984	-	1171-2010	-	0.1%-35.00%
		FC	1350 (Part 1) - 1984	-	-	-	45.00%-70.00%
		P	1350 (Part V)- 1979	-	-	IGI/ VSP/ TPM- 7.1	0.003%-0.100%
		S	-	4239-2012	-	-	0.1%-3.0%
2.	Coke	TM	-	3173-2011	579-2013	-	0.1%-5.00%
		IM (Moisture in analysis sample)	1350 (Part 1) - 1984	-	-	-	0.1%-1%
		VM	1350 (Part 1)- 1984	-	562-2010	-	0.1%-5.00%

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	Coke	Ash	1350 (Part 1)- 1984	-	1171- 2010	-	0.1%-18.00%
		FC	1350 (Part 1)- 1984	-	-	-	75.00%-85.00%
		P	1350 (Part V)- 1979	-	-	IGI/ VSP/ TPM - 7.1	0.003%-0.100%
		S	-	4239- 2012	-	-	0.30%-0.85%
II. ORES & MINERALS							
1.	Iron ore	Total Fe	1493 (Part-I)- 1981	-	-	-	29.00%-69.00%
		FeO	1493:1959	-	-	-	0.050%-2.00%
		Al ₂ O ₃	1493 (Part-4) 1988	-	-	-	0.20%-6.00%
		SiO ₂	1493 (Part-I) 1981	-	-	-	0.50%-12.00%
		S	1493 -1959	-	-	-	0.005%-0.020%
		LOI	1493 -1960	-	-	-	30.0%-44.0%
		Moisture	1493 -1959	-	-	-	1%-25.00%
		P	1493 (Part-I) 1981	-	-	IGI/ VSP/ TPM - 7.2	0.020%-.090%

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	Iron ore	TML	IS	ASTM D	ISO	TPM	5.00%-15.00%
			-	-	12742 -2007	IMSBC CODE MSC 85/26/A dd.2	
2.	Manganese ore	Mn	1473 - 2004	-	-	-	12.00%-52.00%
		MnO ₂	1473 - 2004	-	-	-	60.00%-66.00%
		SiO ₂	1473 - 2004	-	-	-	0.10%-55.0%
		Fe	1473 - 2004	-	-	-	0.20%-25.00%
		Al ₂ O ₃	1473 - 2004	-	-	-	0.20%-8.50%
		Cao	1473 - 2004	-	-	-	0.028%-20.00%
		P	1473 - 2004	-	-	IGI/ VSP/ TPM - 7.2	0.020%-0.450%
		Moisture	1473 - 2004	-	-	-	0.20%-12.00%
		S	1473 - 2004	-	-	-	0.005%-0.020%
3.	Chromite ore	Cr ₂ O ₃	4737-1982	-	-	-	22.00%-56.00%
		SiO ₂	4737-1982	-	-	-	0.10%-55.0%
		Moisture	4737-1982	-	-	-	0.03%-5.00%
		Fe ₂ O ₃	4737-1982	-	-	-	10.90%-17.00%
		Al ₂ O ₃	4737-1982	-	-	-	9.00%-20.00%

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			IS	ASTM D	ISO	TPM	
	Chromite ore	Cao	4737-1982	-	-	-	0.10%-2.00%
		Mgo	4737-1982	-	-	-	10.00%-26.00%
4.	Bauxite	LOI	2000 (Part 1) 1985	-	-	-	10%-28%
		SiO ₂	2000 (Part 2) 1985	-	-	-	0.2%-30%
		Al ₂ O ₃	2000 (Part 3) 1985	-	-	-	2.00%-60.00%
		R. Silica	2000 (Part 2) 1985	-	-	-	0.2%-30.0%
		Non R. Silica	2000 (Part 2) 1985	-	-	-	0.10%-1.00%
5.	Limestone	LOI	1760 (Part1) – 1991	-	-	-	30.0%-44.0%
		SiO ₂	1760 (Part2) – 1991	-	-	-	0.10%-5.0%
		Fe ₂ O ₃	1760 (Part3) – 1991	-	-	-	0.05%-3.00%
		Al ₂ O ₃	1760 (Part3) – 1991	-	-	-	0.05%-5.00%
		Cao	1760 (Part3) – 1991	-	-	-	35.00%-56.00%
		Mgo	1760 (Part3) - 1991	-	-	-	0.02%-5.00%

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			IS	ASTM D	ISO		TPM
	Limestone	P	-	C 25 : 2006	-	-	0.01%-0.06%
		S	-	C 25 : 2006	-	-	0.005%-0.015%
6.	Dolomite	LOI	1760 (Part1) – 1991	-	-	-	30.0%-44.0%
		SiO ₂	1760 (Part2) – 1991	-	-	-	0.10%-5.0%
		Fe ₂ O ₃	1760(Part 3) 1991	-	-	-	0.05%-3.00%
		Al ₂ O ₃	1760 (Part3) – 1991	-	-	-	0.05%-5.00%
		Cao	1760 (Part3) – 1991	-	-	-	28.00%-38.00%
		Mgo	1760 (Part3) – 1991	-	-	-	18.00%-24.00%
7.	Quartz	Cao	1917 (part 6) – 1991	-	-	-	28.00%-38.00%
		Mgo	1917 (part 6) – 1991	-	-	-	18.00%-24.00%
		LOI	1917 (part 1) – 1991	-	-	-	0.05%-2.00%
		SiO ₂	1917 (part 3) – 1991	-	-	-	98.00%-99.90%

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	Quartz	Al ₂ O ₃	IS 1917 (part 4) – 1991	ASTM D -	ISO -	TPM -	0.008%-1.00%
		Fe ₂ O ₃	1917 (part 5) – 1991	-	-	-	0.010%-1.00%
8.	Gypsum	Cao	1288-1982	C471M-2001	-	-	30.00%-34.00%
		SO ₃	1288-1982	C471M-2001	-	-	38.00%-44.00%
		Purity	1288-1982	C471M-2001	-	-	82.00%-98.00%
		Combined water	1288-1982	C471M-2001	-	-	10.00%-20.00%
		Free water	1288-1982	C471M-2001	-	-	0.10%-5.00%
		chlorides	1288-1982	C471M-2001	-	-	0.001-0.1%
9.	Ferro manganese	C	-	-	-	IGI/VSP/TPM-6.1 (LECO CS 230)	6.00%-8.00%
		S	-	-	-	IGI/VSP/TPM-6.1 (LECO CS 230)	0.005%-0.020%

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	Ferro manganese	Silicon	13938 (Part 1) 1994	-	-	-	0.10%-2.00%
		P	13938 (Part 3) 1994	-	-	IGI/ VSP/ TPM - 7.2	0.005%-1.00%
		Mn	1559-1961	-	-	-	70.00-85.00%
10.	Silico manganese	C	1559-1961	-	-	-	0.20%-3.00%
		S	1559-1961	-	-	-	0.005%-.10%
		Silicon	1559-1961	-	-	-	0.005%-1.00%
		P	1559-1961	-	-	IGI/ VSP/ TPM - 7.2	0.010%-1.00%
		Mn	1559-1961	-	-	-	52.00%-70.00%
11.	Pig Iron	C	-	-	-	IGI/ VSP/ TPM- 6.1 (LECO CS 230)	3.0%-4.5%
		S	-	-	-	IGI/ VSP/ TPM- 6.1 (LECO CS 230)	0.005%-0.25%

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	Pig Iron	Mn	12308 (p-10)-1991	-	-	-	01%-3.00%
		Silicon	12308 (p-6)-1991	-	-	-	0.5%-5.00%
		P	12308 (p-5)-1991	-	-	IGI/ VSP/ TPM - 7.2	0.01%-0.50%
12.	Mill Scale	FeO	1493:1959	-	-	-	40.00%-50.00%
		T. Fe	1493 (Part-I)-1981	-	-	-	58.00-75.00%
		SiO ₂	1493 (Part-I)-1981	-	-	-	0.10%-5.00%
		Al ₂ O ₃	1493 (Part-4)1981	-	-	-	0.10%-5.00%
		P	1493 (Part-I)-1981	-	-	IGI/ VSP/ TPM - 7.2	0.020%-1.00%
		Cao	1493 (Part-I)-1981	-	-	-	0.002%-0.01%
		S	1493:1959	-	-	-	0.005%-0.10%

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