

Laboratory Mitra S. K. Private Limited, Plot No. 97, Sector-1/A, Gandhidham, Kutch, Gujarat

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6070 (In lieu of T-2672)

Page 1 of 6

Validity 14.10.2017 to 13.10.2019

Last Amended on 14.12.2018

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.	ORES & MINERALS			
1.	Iron Ore	Silica	IS 1493:Part 1:1981, (RA 2016)	0.50 % to 20.00 %
		Total Iron (Fe)	IS 1493:Part 1:1981, (RA 2016)	45.00 % to 70.00 %
		Alumina	IS 1493:Part 1:1981, (RA 2016)	0.50 % to 10.00 %
		Phosphorus	IS 1493:Part 1:1981, (RA 2016)	0.01 % to 1.00 %
			TPM/MSK/GDM/2/D Dated-02.02.2017 Based on IS 5305:1969 (RA 2015)	0.010 % to 1.00 %
		Sulphur	IS 1493:Part 1:1981, (RA 2016)	0.008 % to 0.50 %
		Moisture	IS 11690:1986, (RA 2014) IS 1493:1959, (RA 2016)	1.00 % to 15.00 %
2.	Mill Scale	Silica	SOP:TPM/MSK/GDM/2/A Dated-01.03.2012 Based on IS 1493 (Part-1):1981 (RA 2016)	0.20 % to 10.00 %
		Total Iron	SOP:TPM/MSK/GDM/2/B Dated-01.03.2012 Based on IS 1493 (Part-1):1981 (RA 2016)	45.00 % to 75.00 %
		Alumina	SOP:TPM/MSK/GDM/2/C Dated-01.03.2012 Based on IS 1493 (Part-1):1981 (RA 2016)	0.20 % to 5.00 %
		Phosphorus	SOP:TPM/MSK/GDM/2/D Dated-02.02.2017 Based on IS 5305:1969 (RA 2015)	0.010 % to 0.500 %

Mitali Gupta
Convenor

Jitendra B. Vispute
Program Manager

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Page 2 of 6

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		Moisture	SOP:TPM/MSK/GDM/2/E Dated-01.03.2012 Based on IS 1493 (Part-1):1981 (RA 2016)	2.00 % to 15.00 %
3.	Bauxite	LOI	IS 2000:Part 1:1985, (RA 2017)	0.50 % to 30.00 %
		Silica	IS 2000:Part 2:1985, (RA 2017)	0.50 % to 20.00 %
		Alumina	IS 2000:Part 3:1985, (RA 2017)	5.00 % to 80.00 %
		Ferric Oxide	IS 2000:Part 4:1985, (RA 2017)	0.50 % to 35.00 %
		Titania	IS 2000:Part 5:1985, (RA 2017)	0.20 % to 10.00 %
		Moisture	SOP:TPM/MSK/GDM/5/A Dated:21.08.2015 Based on IS 1999:1987 & IS 1493 (Part-1)1981	0.20 % to 15.00 %
4.	Rock Phosphate	Moisture	IS 11224:1985, (RA 2015)	0.50 % to 3.00 %
		Total P2O5	IS 11224:1985, (RA 2015)	20.00 % to 40.00 %
		Silica	IS 11224:1985, (RA 2015)	3.00 % to 12.00 %
		LOI	IS 11224:1985, (RA 2015)	4.00 % to 8.00 %
II.	SOLID FUEL			
1.	Coal & Coke	Total Moisture in Coal	IS 1350 (Part 1):1984, (RA 2013)	0.10 % to 55.00 %
			ASTM D3302/D3302M-17	1.60 % to 31.20 %
			ISO 589:2008	0.10 % to 55.00 %
		Total Moisture in Coke	IS 1350 (Part 1):1984, (RA 2013)	0.10 % to 32.00 %
			ASTM D3302/D3302M-17	1.60 % to 31.20 %
			ISO 579:2013	0.10 % to 32.00 %
		Moisture in Coal	IS 1350 (Part 1):1984, (RA 2013)	0.10 % to 25.00 %

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Page 3 of 6

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			ASTM D 3173/D3173M-17	1.00 % to 21.90 %
			ISO 11722:2013	0.10 % to 25.00 %
		Moisture in Coke	IS 1350 (Part 1):1984, (RA 2013)	0.10 % to 25.00 %
			ASTM D3173/D3173M-17	0.18 % to 1.87 %
			ISO 687:2010	0.10 % to 25.00 %
		Volatile Matter	IS 1350 (Part 1):1984, (RA 2013)	0.50 % to 50.00 %
			ASTM D3175-17	0.50 % to 50.00 %
			ISO 562:2010	0.50 % to 50.00 %
		Ash	IS 1350 (Part 1):1984, (RA 2013)	0.10 % to 60.00 %
			ASTM D3174-12	0.10 % to 60.00 %
			ISO 1171:2010	0.10 % to 60.00 %
		Fixed Carbon	IS 1350 (Part 1):1984, (RA 2013)	10.00 % to 90.00 %
			ASTM D3172-13	10.00 % to 90.00 %
			ISO 17246:2010	10.00 % to 90.00 %
		Gross Calorific Value	ASTM D5865-13	3300 kcal/kg to 8300 kcal/kg
			ISO 1928:2009	
		Total Sulphur	IS 1350 (Part 3):1984 (RA 2015)	0.05 % to 5.00 %
			ASTM D 4239-17	0.05 % to 5.00 %
			ISO 334:2013	0.05 % to 5.00 %
		Phosphorus	IS 1350 (Part 5):1979, (RA 2013)	0.005 % to 1.00 %
			SOP:TPM/MSK/GDM/3/I Dated-02.02.2017 Based on IS 5305:1969 (RA 2015)	0.005 % to 1.00 %

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Page 4 of 6

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III.	ATMOSPHERIC POLLUTION			
1.	Ambient Air	PM ₁₀ (particulate Matter <10µm)/Respirable suspended particulate matter	IS 5182 (Part 23):2006 (RA 2012)	5 µg/m ³ to 1000 µg/m ³
		PM _{2.5} (Particulate matter <2.5 µm)	Based on US EPA CFR 40, Part 50 Appendix L,2006/CPCB Vol. 1 TPM/MSK/GDM/13/00 issue date 19.03.2018	10 µg/m ³ to 200 µg/m ³
		Sulphur Dioxide	IS 5182 (Part 2):2001 (RA 2012)	6 µg/m ³ to 200 µg/m ³
		Nitrogen Dioxide	IS 5182 (Part 6):2006 (RA 2012)	6 µg/m ³ to 750 µg/m ³
2.	Stack Emission	Flow Rate of the Flue Gas	IS 11255 (part 3):2008 (RA 2013) (Calculation)/ USEPA Part 2-5/09/1996 (Calculation)	50 Nm ³ /Hr to 5000000 Nm ³ /Hr
		Velocity	IS 11255 (part 3):2008 (RA 2013)/Based on USEPA Part 2-5/09/1996, TPM/MSK/GDM/8/00 issue date 19.03.2018	2 m/Sec to 100 m/Sec
		Oxygen	IS 13270:1992 (RA 2014)	0.2 % to 100 %
		Carbon Dioxide	IS 13270:1992 (RA 2014)	0.2 % to 100 %
		Carbon Monoxide	IS 13270:1992 (RA 2014)	0.2 % to 100 %
		Particulate Matter	IS 11255 (Part 1):1985 (RA 2014)/Based on USEPA (Part 5 & 17)-16/08/1996 TPM/MSK/GDM/08/00 issue date 19.03.2018	5 mg/Nm ³ to 1000 mg/Nm ³

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Page 5 of 6

Validity 14.10.2017 to 13.10.2019

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		Sulphur Dioxide	IS 11255(Part 2):1985 (RA 2014)/Based on USEPA Part 6-25/09/1996 TPM/MSK/GDM/10/00 issue date 19.03.2018	5 mg/Nm ³ to 80000 mg/Nm ³
		Nitrogen Oxides	IS 11255(Part 7):2005 (RA 2012)/Based on USEPA part 7 Issue date 12/03/1996 TPM/MSK/GDM/11/00 issue date 19.03.2018	10 mg/Nm ³ to 1000 mg/Nm ³
		Moisture Content	IS 11255 (part 3):2008 (RA 2013)/Based on USEPA Part 4-25/09/1996, TPM/MSK/GDM/8/00 issue date 19.03.2018	2 % to 20 %
		Temperature	IS 11255 (part 3):2008 (RA 2013)/Based on USEPA Part 2-5/09/1996, TPM/MSK/GDM/8/00 issue date 19.03.2018	1 °C to 1200 °C
IV.	POLLUTION & ENVIRONMENT			
1.	Waste Water (Effluents/Sewage)	pH	IS 3025(P 11):1983 (RA 2017)/APHA 23 rd Edition 4500 H-B 2017	4 to 10
		Total Suspended Solids (TSS)	IS 3025(P 17):1984 (RA 2017)/APHA 23 rd Edition 2540D 2017	2.5 mg/L to 1000 mg/L
		Oil & Grease	IS 3025 (Part 39):1991 (RA 2014)/APHA 23 rd Edition 5520B 2017	3 mg/L to 50 mg/L

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Page 6 of 6

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		Total Dissolved solid	IS 3025 (Part 16):1984 (RA 2017)/APHA 23 rd Edition 2540C 2017	2 mg/L to 2000 mg/L 2000 mg/L to 20000 mg/L
		Conductivity	IS 3025 (Part 14):1984 (RA 2013)/APHA 23 rd Edition 2510B 2017	1 µs/cm to 3000 µs/cm
		Turbidity	IS 3025(Part 10):1984 (RA 2017)/APHA 23 rd Edition 2130B 2017	1 NTU to 400 NTU
		Chemical Oxygen Demand (COD)	IS 3025 (Part 58):2006 (RA 2017)/APHA 23 rd Edition 5220 B 2017	4 mg/L to 7500 mg/L
		Biochemical Oxygen Demand (BOD)	IS 3025 (Part 44):1993 (RA 2014)/APHA 23 rd Edition 5210 B 2017	2 mg/L to 4000 mg/L