

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanachak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	1 of 48

S.No.	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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Location 1

I. ORES & MINERALS

1.	Iron Ore	Silica	IS: 1493(Part 1)-1981, RA 2006 ISO 2598-1:1992	0.5 % to 10 % 1.0 % to 15 %
		Total Iron	IS: 1493(Part 1)-1981, RA 2006 ISO 2597-1:2006 (Reconfirmed 2009) ISO 2597-2:2008 SOP:TPM/MSK/1/B1 (Issue No. 02 dated 01.04.2011)	45% to 72%
		Ferrous Iron	SOP:TPM/MSK/1/C (Issue No. 02 dated 01.04.2011) ISO 9035:1989 (Reconfirmed 2012)	0.1 % to 15 % 0.5 % to 10 %
		Alumina	IS: 1493(Part 1)-1981, RA 2006 SOP: TPM/MSK/1/D1 (Issue No.02 dated 01.04.2011) ISO 6830:1986	0.5 % to 6.5 %
		Combined Water	SOP:TPM/MSK/1/E (Issue No. 02 dated 01.04.2011)	0.5 % to 5 %
		Titania	IS: 1493-1959, RA 2006 ISO 11535:2006	2 % to 20 % 0.03% to 2%

Laboratory **Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal**
Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal

Accreditation Standard **ISO/IEC 17025: 2005**

Discipline **Chemical Testing** **Issue Date** **11.08.2014**

Certificate Number **T-0148** **Valid Until** **10.08.2016**

Last Amended on **-** **Page** **2 of 48**

S.No.	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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Location 1

Iron Ore

Manganese	IS: 1493-1959, RA 2006 SOP: TPM/MSK/1/G1 (Issue No. 02 dated 01.04.2011) ISO 11535:2006	0.1 % to 1 % 0.012% to 1.70 %
Calcium Oxide	ISO 11535:2006	0.0168% to 9.52 %
Magnesium Oxide	ISO 11535:2006	0.013% to 3 %
Sodium Oxide	SOP: TPM/MSK/1/J1(ICP-OES) (Issue No. 02 dated 01.04.2011)	0.000005% to 3 %
Potassium Oxide	SOP: TPM/MSK/1/K1(ICP-OES) (Issue No. 02 dated 01.04.2011)	0.000005% to 3 %
Phosphorus	IS: 1493-1959, RA 2006 ISO 2599:2003 (Reconfirmed 2009) ISO 11535:2006	0.01 % to 0.5 % 0.10 % to 5.0 % 0.011% to 1.6%
Sulphur	ISO 4689-3:2004 (Reconfirmed 2009)	0.002% to 0.25 %
Arsenic	SOP: TPM/MSK/1/N1 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.000005% to 0.01%

Laboratory **Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal**
Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
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Accreditation Standard **ISO/IEC 17025: 2005**

Discipline **Chemical Testing** **Issue Date** **11.08.2014**

Certificate Number **T-0148** **Valid Until** **10.08.2016**

Last Amended on **-** **Page** **3 of 48**

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>Location 1</u>				
	Iron Ore	Nickel	SOP:TPM/MSK/1/O1 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.0000025% to 0.1 %
		Copper	SOP:TPM/MSK/1/P1 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.0000025% to 0.01%
		Lead	SOP:TPM/MSK/1/Q1 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.00001% to 0.01%
		Zinc	SOP:TPM/MSK/1/R1 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.0000025% to 0.01%
		Vanadium	SOP:TPM/MSK/1/S1 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.0000025% to 0.1 %
		Total Moisture	IS 11690:1986, RA 2008	4 % to 13 %
		Loss on ignition	SOP:TPM/MSK/1/V (Issue No. 01 dated 01.04.2011)	0.1 % to 10 %
		FMP/TML	IMSBC Code, Appendix 2 (By Flow Table Method) TPM/MSK/1/U (Issue No. 02 dated 01.04.2011)	6 % to 15 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	4 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
--------------	-----------------------------------	--------------------------------	--	---

Location 1

2.	Manganese Ore	Silica	IS 1473 : 2004, RA 2008 ISO 5890:1981 (Reconfirmed 2008)	1 % to 15 % 1 % to 15 %
		Barium Oxide	IS 1473 : 2004, RA 2008 TPM/MSK/2/B1 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.1 % to 5 % 0.0000025% to 3 %
		Manganese	IS 1473 : 2004, RA 2008 ISO 4298 :1984 (Reconfirmed 2008) (By Potentiometric method)	10 % to 60 %
		Manganese dioxide	IS 1473 : 2004, RA 2008	50 % to 95 %
		Iron	IS 1473 : 2004, RA 2008	1 % to 30 %
		Alumina	IS 1473 : 2004, RA 2008 SOP: TPM/MSK/2/F1 (Issue No. 02 dated 01.04.2011) SOP: TPM/MSK/2/F2 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.5 % to 10 % 0.0000025% to 7 %
		Titania	SOP: TPM/MSK/2/G1 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.000005% to 2.0 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	5 of 48

S.No.	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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Location 1

Manganese Ore	Calcium Oxide	SOP: TPM/MSK/2/H1 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.000005% to 18 %
	Magnesium Oxide	SOP: TPM/MSK/2/I1 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.000005% to 10 %
	Sulphur	IS 1473 : 2004, RA 2008	0.01 % to 0.2 %
		SOP: TPM/MSK/2/J1 (Combustion Infra red absorption Method) (Issue No. 02 dated 01.04.2011)	0.001% to 0.2 %
	Phosphorus	SOP: TPM/MSK/2/K1 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.000005% to 1.0 %
	Arsenic	SOP: TPM/MSK/2/L1 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.000005% to 0.5 %
	Nickel	TPM/MSK/2/M1 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.0000025% to 0.008%
	Copper	SOP: TPM/MSK/2/N1 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.0000025% to 0.05 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	6 of 48

S.No.	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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Location 1

	Manganese Ore	Lead	SOP: TPM/MSK/2/O1 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.00001% to 0.01%
		Zinc	SOP: TPM/MSK/2/P1 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.0000025% to 0.01%
		Sodium Oxide	SOP:TPM/MSK/2/Q1 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.000005% to 1 %
		Potassium Oxide	SOP:TPM/MSK/2/R1 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.000005% to 5 %
		Combined Water	SOP:TPM/MSK/2/S (Issue No. 02 dated 01.04.2011)	1 % to 10 %
		Total Moisture	IS 1449 :2010 & IS 1473 : 2004, RA 2008	4 % to 13 %
		TML /FMP	Flow Table Method as per IMSBC Code ,Appendix 2 SOP: TPM/MSK/1/U (Issue No. 02 dated 01.04.2011)	6 % to 15 %
3.	Chromite Ore	Silica	IS 4737 : 1982, RA 2010 SOP:TPM/MSK/3/A/1 (Issue No. 01 dated 01.08.2012)	0.1 % to 25 % 0.1 % to 25 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	7 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>Location 1</u>				
	Chromite Ore	Chromic Oxide	IS 4737 : 1982, RA 2010 SOP:TPM/MSK/3/B/1 (Issue No. 01 dated 01.08.2012)	20 % to 60 % 20 % to 60 %
		Total Iron	IS 4737 : 1982, RA 2010 SOP:TPM/MSK/3/C/1 (Issue No. 01 dated 01.08.2012)	5 % to 15 % 5 % to 15 %
		Alumina	IS 4737 : 1982, RA 2010 SOP:TPM/MSK/3/D/1 (Issue No. 01 dated 01.08.2012)	3 % to 20 % 3 % to 20 %
		Calcium Oxide	IS 4737 : 1982, RA 2010 SOP: TPM/MSK/3/E/1 (Issue No. 01 dated 01.08.2012)	0.1 % to 3 % 0.1 % to 3 %
		Magnesium Oxide	IS 4737: 1982, RA. 2010 SOP : TPM/MSK/3/F/1 (Issue No. 01 dated 01.08.2012)	10 % to 30 % 10 % to 30 %
		Phosphorus	SOP : TPM/MSK/3/G (Issue No. 02 dated 01.04.2011)	0.0030% to 0.015%
		Total Moisture	IS 8562:1977, RA1989 & IS 4737 : 1982, RA 2010	4 % to 13 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	8 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	<u>Location 1</u> Chromite Ore	TML /FMP	Flow Table Method as per IMSBC Code , Appendix 2 SOP: TPM/MSK/1/U Issue No.02 dated 01.04.2011)	6 % to 15 %
4.	Graphite	Moisture	IS 11321:1985, RA 2008	0.05% to 2 %
		Volatile Matter	IS 11321:1985, RA 2008	0.1% to 10 %
		Ash	IS 11321:1985, RA 2008	0.1% to 90 %
		Fixed Carbon	IS 11321:1985, RA 2008	5 % to 99 %
		Sulphur	ISO 19579 :2006 (Reconfirmed 2011) ASTM D 4239-14, Method B	0.01% to 0.5% 0.001% to 5%
		Petroleum Ether soluble Matter	IS 495:1967, RA 2007	0.01% to 1 %
		Loss on Heating	IS 495:1967, RA 2007	0.01% to 2 %
		Water soluble matter	IS 495:1967, RA 2007	0.01% to 1 %
		Non Graphitic Carbon	IS 495:1967, RA 2007	0.05% to 5 %
5.	Ferro Chrome	Silicon in HCFC	IS 13452 (Part 1):1992, RA 2007	1 % to 6 %
		Silicon in LCFC	IS 13452 (Part 2):1992, RA 2007	0.2 % to 6 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanachak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	9 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>Location 1</u>				
	Ferro Chrome	Chromium in HCFC	IS 13452 (Part 5) : 2003, RA 2009	50 % to 70 %
		Chromium in LCFC	IS 13452 (Part 6):1997, RA 2007 (For Si less than 4%)	60 % to 70 %
			IS 13452 (Part 6):1997, RA 2007 (For Si more than 4%)	60 % to 70 %
		Phosphorus in HCFC	IS 13452 (Part 7) :2003:RA 2009 SOP: TPM/MSK/8/C (Issue No.02 dated 01.04.2011)	0.01 % to 0.06 %
			SOP:TPM/MSK/8/C/1 (ICP-OES) (Issue No.01 dated 01.01.2013)	0.000005% to 0.06 %
		Phosphorus in LCFC	IS 13452 (Part 7) 2003:RA 2009 SOP: TPM/MSK/8/C (Issue No.02 dated 01.04.2011) SOP:TPM/MSK/8/C/1 (ICP-OES) (Issue No.01 dated 01.01.2013)	0.01 % to 0.06 % 0.000005% to 0.06 %
		Sulphur in HCFC	ISO 15350:2000 (Reconfirmed 2012)	0.001% to 0.5 %

Laboratory **Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal**
 Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
 Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal

Accreditation Standard **ISO/IEC 17025: 2005**

Discipline **Chemical Testing** **Issue Date** **11.08.2014**

Certificate Number **T-0148** **Valid Until** **10.08.2016**

Last Amended on **-** **Page** **10 of 48**

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>Location 1</u>				
	Ferro Chrome	Sulphur in LCFC	ISO 15350:2000 (Reconfirmed 2012)	0.001% to 0.5 %
		Carbon in HCFC	ISO 15350:2000 (Reconfirmed 2012)	0.001% to 10 %
		Carbon in LCFC	ISO 15350:2000 (Reconfirmed 2012)	0.005% to 0.2 %
		Manganese	IS 228 :Part 2:1987, RA 2008 SOP: TPM/MSK/8/E1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.10 % to 1.5 % 0.0000025% to 1.5 %
		Titanium	IS 2000:Part 5:1985, RA 2006 SOP:TPM/MSK/8/F1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.05 % to 1 % 0.000005% to 1 %
		Nickel	IS 228 :Part 5:1987, RA 2009 SOP:TPM/MSK/8/G1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.1 % to 1 % 0.0000025% to 1 %
6.	Ferro- Manganese	Silicon	IS 1559 : 1961, RA 2007	0.2 % to 4 %
		Manganese	IS 1559 : 1961, RA 2007 ISO 4159:1978 (Reconfirmed 2008)	55 % to 85 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	11 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
--------------	-----------------------------------	--------------------------------	--	---

Location 1

	Ferro- Manganese	Phosphorus	IS 1559 : 1961, RA 2007 SOP:TPM/MSK/9/C1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.1 % to 0.5 % 0.000005% to 0.5 %
		Sulphur	ISO 15350:2000 (Reconfirmed 2012)	0.001% to 0.15 %
		Carbon	ISO 15350:2000 (Reconfirmed 2012)	0.001% to 8.0 %
7.	Ferro- Silicon	Silicon	IS 1559 (Part 1) :1988, RA 2009	15 % to 85 %
		Aluminium	IS 1559 (Part 5) :2003, RA 2009 SOP:TPM/MSK/10/E1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.05% to 2 % 0.0000025% to 2 %
		Phosphorus	IS 1559 (Part 4) :1982, RA 2007 SOP:TPM/MSK/10/B1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.02% to 0.15 % 0.000005% to 0.15 %
		Sulphur	ISO 15350:2000 (Reconfirmed 2012)	0.001% to 0.3 %

Laboratory **Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal**
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Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal

Accreditation Standard **ISO/IEC 17025: 2005**

Discipline **Chemical Testing** **Issue Date** **11.08.2014**

Certificate Number **T-0148** **Valid Until** **10.08.2016**

Last Amended on **-** **Page** **12 of 48**

S.No.	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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Location 1

	Ferro- Silicon	Carbon	ISO 15350:2000 (Reconfirmed 2012)	0.005% to 1 %
		Calcium	IS 1559 (Part 6):1982, RA 2007 SOP:TPM/MSK/10/D1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.1% to 3 % 0.000005% to 3 %
8.	Silico Manganese	Silicon	IS 1559 : 1961, RA 2007 ISO 4158:1978 (Reconfirmed 2008) SOP: TPM/MSK/11/A1 (Issue No.02 dated 01.04.2011)	10 % to 30 %
		Manganese	IS 1559 : 1961, RA 2007 ISO 4159:1978 (Reconfirmed 2008) SOP: TPM/MSK/11/B2 (Issue No.02 dated 01.04.2011)	50 % to 70 %
		Phosphorus	IS 1559 : 1961, RA 2007 SOP: TPM/MSK/11/C1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.05% to 5 % 0.000005% to 3 %
		Sulphur	ISO 15350:2000 (Reconfirmed 2012)	0.001% to 0.25 %

Laboratory **Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal**
 Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
 Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal

Accreditation Standard **ISO/IEC 17025: 2005**

Discipline **Chemical Testing** **Issue Date** **11.08.2014**

Certificate Number **T-0148** **Valid Until** **10.08.2016**

Last Amended on **-** **Page** **13 of 48**

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
Location 1				
	Silico Manganese	Carbon	ISO 15350:2000 (Reconfirmed 2012)	0.005% to 4 %
		Boron	SOP: TPM/MSK/11/E (ICP-OES) (Issue No.02 dated 01.04.2011)	0.0015% to 0.02%
9.	Ferro Titanium	Titanium	IS 1559 : 1961, RA 2007 SOP:TPM/MSK/12/A1 (Issue No.02 dated 01.04.2011)	15 % to 40 %
		Silicon	IS 1559 : 1961, RA 2007	0.5 % to 5 %
10.	Ferro Vanadium	Vanadium	IS 1559 : 1961, RA 2007	40 % to 60 %
		Silicon	IS 1559 : 1961, RA 2007	0.5 % to 5 %
11.	Ferro Molybdenum	Molybdenum	IS1559:1961:RA 2007 SOP :TPM/MSK/14/A1 (Issue No.02 dated 01.04.2011)	50 % to 70 %
		Silicon	IS 1559 : 1961, RA 2007	0.1 % to 5 %
		Sulphur	ISO 15350:2000 (Reconfirmed 2012)	0.0005% to 0.05 %
		Carbon	ISO 15350:2000 (Reconfirmed 2012)	0.0004% to 0.05 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	14 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
--------------	-----------------------------------	--------------------------------	--	---

Location 1

12. Ferro Phosphorus	Phosphorus		IS 1559 : 1961, RA 2007	15 % to 25 %
	Silicon		IS 1559 : 1961, RA 2007	0.1 % to 5 %
	Sulphur		ISO 15350:2000 (Reconfirmed 2012)	0.001% to 0.09%
	Carbon		ISO 15350:2000 (Reconfirmed 2012)	0.001% to 0.35%
13. Sillimanite	Silica		IS 1527 :1972, RA 2006 SOP: TPM/MSK/18/A1 (Issue No.02 dated 01.04.2011)	30 % to 45 %
	Alumina		IS 1527 :1972, RA 2006	30 % to 65 %
	Ferric Oxide		IS 1527 :1972, RA 2006 SOP: TPM/MSK/18/C1 (Issue No.02 dated 01.04.2011)	1 % to 10 %
	Calcium Oxide		IS 1527 :1972, RA 2006	0.05 % to 2 %
	Magnesium Oxide		IS 1527 :1972, RA 2006	0.05 % to 2 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanachak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	15 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
Location 1				
	Sillimanite	Titanium Dioxide	IS 2000:Part 5:1985,RA 2006 SOP: TPM/MSK/18/E (Issue No.02 dated 01.04.2011)	0.5 % to 5 %
14.	Silicon Carbide	Silicon Total Carbon	IS 1559:1961, RA 2007 SOP:TPM/MSK/19/B (Combustion Infra red absorption Method) (Issue No.02 dated 01.04.2011)	35 % to 80 % 20 % to 50 %
		Aluminium	IS 1559 (Part 5) :2003, RA 2009	0.05 % to 5 %
15.	Magnesite	Silica	IS 1760 (Part 2) :1991, RA 2006	0.5 % to 12 %
		Alumina	IS 1760 (Part 3) :1992, RA 2006	0.2 % to 5 %
		Ferric Oxide	IS 1760 (Part 3) :1992, RA 2006	0.2 % to 10 %
		Calcium Oxide	IS 1760 (Part 3) :1992, RA 2006	0.5 % to 5 %
		Magnesium Oxide	IS 1760 (Part 3) :1992, RA 2006	75 % to 98 %
16.	Quartz	Silica	IS 1917 (Part 3):1992, RA 2005	90 % to 99.80 %
		Alumina	IS 1917 (Part 4):1991 , RA 2006 SOP :TPM/MSK/25/B1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.01 % to 4 % 0.0000025% to 1 %

Laboratory **Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal**
 Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
 Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal

Accreditation Standard **ISO/IEC 17025: 2005**

Discipline **Chemical Testing** **Issue Date** **11.08.2014**

Certificate Number **T-0148** **Valid Until** **10.08.2016**

Last Amended on **-** **Page** **16 of 48**

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
Location 1				
	Quartz	Ferric Oxide	SOP :TPM/MSK/25/C1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.0000025% to 5 %
		Sodium Oxide	SOP :TPM/MSK/25/D1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.000005% to 0.05 %
		Potassium Oxide	SOP: TPM/MSK/25/D1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.000005% to 0.05 %
		Titanium Dioxide	SOP: TPM/MSK/25/E1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.000005% to 1 %
			IS 2000(Part 5):1985 RA 2006	0.01 % to 1 %
17.	Rock Phosphate	Total P ₂ O ₅	IS 11224 : 1985, RA 2010	20 % to 40 %
		Silica	IS 11224 : 1985, RA 2010	3 % to 10 %
		Alumina	SOP:TPM/MSK/26/C1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.0000025% to 2 %
			IS 11224 : 1985, RA 2010	0.03 % to 2 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanachak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	17 of 48

S.No.	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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Location 1

Rock Phosphate	Ferric Oxide	SOP:TPM/MSK/26/D1 (ICP-OES) (Issue No.02 dated 01.04.2011) IS 11224 : 1985, RA 2010	0.0000025% to 2 % 0.1 % to 2 %
	Moisture	IS 11224 : 1985, RA 2010	0.5 % to 3 %
	Loss On Ignition	IS 11224 : 1985, RA 2010	4% to 8 %
	Fluoride	IS 11224 : 1985, RA 2010	0.1 % to 3.5 %
	Carbon Dioxide	SOP :TPM/MSK/26/H (Issue No.02 dated 01.04.2011)	0.1 % to 3 %
	Organic Matter	IS 11224 : 1985, RA 2010	0.1 % to 3 %
	Chloride	IS 11224 : 1985, RA 2010	0.01 % to 2 %
	Calcium Oxide	IS 9386:1979 , RA 2006 Chemical & Instrumental Analysis of Ores, IBM	40 % to 55 %
	Magnesium Oxide	IS 11224 : 1985, RA 2010 SOP :TPM/MSK/26/L1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.1 % to 4 % 0.000005% to 4 %

Laboratory **Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal**
Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
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Accreditation Standard **ISO/IEC 17025: 2005**

Discipline **Chemical Testing** **Issue Date** **11.08.2014**

Certificate Number **T-0148** **Valid Until** **10.08.2016**

Last Amended on **-** **Page** **18 of 48**

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
Location 1				
18.	Gypsum	Free Water	IS 1288: 1982, RA 2010 /	0.10 % to 1 %
		Combined Water	ASTM C471-01	10 % to 22 %
		Silica	(Reapproved 2012)	0.5 % to 10 %
		Mixed Oxide		0.05 % to 2 %
		(Ferric Oxide + Alumina)		
		Calcium Oxide		25 % to 35 %
		Magnesium Oxide		0.20 % to 3 %
		Sulfur trioxide		25 % to 46 %
		Calcium Sulfate di hydrate		48 % to 99 %
		Ferric Oxide	SOP:TPM/MSK/31A/I (ICP-OES) (Issue No.02 dated 01.04.2011)	0.0000025% to 2 %
Alumina	SOP:TPM/MSK/31/A/1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.0000025% to 2 %		
19.	Pyroxenite	CaO	SOP: TPM/MSK/43/A (Issue No.01 dated 01.04.2011)	0.1 % to 2 %
		MgO	SOP: TPM/MSK/43/B (Issue No.01 dated 01.04.2011)	25 % to 40 %
		SiO ₂	SOP: TPM/MSK/43/C (Issue No.01 dated 01.04.2011)	25 % to 45 %

Laboratory **Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal**
 Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
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Accreditation Standard **ISO/IEC 17025: 2005**

Discipline **Chemical Testing** **Issue Date** **11.08.2014**

Certificate Number **T-0148** **Valid Until** **10.08.2016**

Last Amended on **-** **Page** **19 of 48**

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
Location 1				
	Pyroxenite	Fe ₂ O ₃	SOP: TPM/MSK/43/D (Issue No.01 dated 01.04.2011)	5 % to 15 %
		Al ₂ O ₃	SOP: TPM/MSK/43/E (Issue No.01 dated 01.04.2011)	0.05 % to 10 %
		LOI	SOP: TPM/MSK/43/F (Issue No.01 dated 01.04.2011)	8 % to 14 %
		Cr ₂ O ₃	SOP: TPM/MSK/43/G (Issue No.01 dated 01.04.2011)	0.1 % to 2 %
		Na ₂ O	SOP: TPM/MSK/43/H (ICP-OES) (Issue No.01 dated 01.04.2011)	0.000005% to 0.1%
		K ₂ O	SOP: TPM/MSK/43/I (ICP-OES) (Issue No.01 dated 01.04.2011)	0.000005% to 0.1%
20.	Slag	CaO	SOP: TPM/MSK/44/A (Issue No.01 dated 01.04.2011)	0.1% to 40%
		MgO	SOP: TPM/MSK/44/B (Issue No.01 dated 01.04.2011)	0.1% to 30%
		SiO ₂	SOP: TPM/MSK/44/C (Issue No.01 dated 01.04.2011)	0.1% to 60%

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	20 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>Location 1</u>				
	Slag	Al ₂ O ₃	SOP: TPM/MSK/44/D (Issue No.01 dated 01.04.2011)	0.1% to 30%
		Fe ₂ O ₃	SOP: TPM/MSK/44/E (Issue No.01 dated 01.04.2011)	0.1% to 15%
		TiO ₂	SOP: TPM/MSK/44/F (Issue No.01 dated 01.04.2011)	0.1% to 10%
		Cr ₂ O ₃	SOP: TPM/MSK/44/G (Issue No.01 dated 01.04.2011)	0.1% to 20%
21.	Lead Ores / Concentrates/ Sulfide Concentrates	Pb	SOP: TPM/MSK/46/A (Issue No.01 dated 01.01.2013)	5 % to 90 %
			SOP: TPM/MSK/46/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.00001% to 5 %
		SiO ₂	SOP: TPM/MSK/46/B (Issue No.01 dated 01.01.2013)	0.1% to 60 %
		Cu	SOP: TPM/MSK/46/C (Issue No.01 dated 01.01.2013)	0.05% to 10 %
			SOP: TPM/MSK/46/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.0000025% to 5.0%

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	21 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
--------------	-----------------------------------	--------------------------------	--	---

Location 1

Lead Ores / Concentrates/ Sulfide Concentrates	Zn		SOP: TPM/MSK/46/D (Issue No.01 dated 01.01.2013)	0.05% to 10%
			SOP: TPM/MSK/46/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.0000025% to 5 %
	Fe		SOP: TPM/MSK/46/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.0000025% to 8 %
			SOP: TPM/MSK/46/E (Issue No.01 dated 01.01.2013)	0.05% to 10 %
	As		SOP: TPM/MSK/46/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.00001% to 5 %
	S		SOP:TPM/MSK/46/F (Issue No.01 dated 01.01.2013)	0.001% to 30 %
	Ag		SOP: TPM/MSK/46/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.0000025% to 5 %
	P		SOP: TPM/MSK/46/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.000005% to 1 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	22 of 48

S.No.	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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Location 1

22.	Copper Ore/ Concentrates/ Sulfide Concentrates	Hg	SOP: TPM/MSK/46/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.00001% to 1 %
		Cu	SOP:TPM/MSK/47/A (Issue No.01 dated 01.01.2013)	5.0% to 90 %
			SOP: TPM/MSK/47/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.0000025% to 5 %
		SiO ₂	SOP: TPM/MSK/47/B (Issue No.01 dated 01.01.2013)	0.1% to 60 %
		Pb	SOP: TPM/MSK/47/C (Issue No.01 dated 01.01.2013) SOP: TPM/MSK/47/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.05% to 10 % 0.00001% to 5 %
		Zn	SOP: TPM/MSK/47/D (Issue No.01 dated 01.01.2013) SOP: TPM/MSK/47/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.05% to 10 % 0.0000025% to 5.0%

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	23 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
--------------	-----------------------------------	--------------------------------	--	---

Location 1

	Copper Ore/ Concentrates/ Sulfide Concentrates	Fe	SOP: TPM/MSK/47/E (Issue No.01 dated 01.01.2013)	0.05% to 10 %
			SOP: TPM/MSK/47/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.0000025% to 5 %
		As	SOP: TPM/MSK/47/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.00001% to 5 %
		S	SOP: TPM/MSK/47/F (Issue No.01 dated 01.01.2013)	0.001% to 40 %
		Ag	SOP: TPM/MSK/47/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.000002% to 5 %
		P	SOP: TPM/MSK/47/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.000005% to 1 %
23.	Zinc Ore/ Concentrate/ Sulfide Concentrates	Zn	SOP: TPM/MSK/48/A (Issue No.01 dated 01.01.2013)	5 % to 90 %
			SOP: TPM/MSK/48/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.0000025% to 5 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	24 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>Location 1</u>				
	Zinc Ore/ Concentrate/ Sulfide Concentrates	SiO ₂	SOP: TPM/MSK/48/B (Issue No.01 dated 01.01.2013)	0.1 % to 60 %
		Pb	SOP:TPM/MSK/48/C (Issue No.01 dated 01.01.2013) SOP: TPM/MSK/48/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.05 % to 10 % 0.00001% to 5 %
		Fe	SOP:TPM/MSK/48/D (Issue No.01 dated 01.01.2013) SOP: TPM/MSK/48/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.05% to 10 % 0.000025% to 5 %
		Cu	SOP:TPM/MSK/48/E (Issue No.01 dated 01.01.2013) SOP: TPM/MSK/48/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.05% to 10 % 0.0000025% to 5 %
		As	SOP: TPM/MSK/48/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.00001% to 5 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	25 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>Location 1</u>				
	Zinc Ore/ Concentrate/ Sulfide Concentrates	Ag	SOP: TPM/MSK/48/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.000002% to 5 %
		S	SOP:TPM/MSK/48/F (Issue No.01 dated 01.01.2013)	0.001% to 40 %
		P	SOP: TPM/MSK/48/G (ICP-OES) (Issue No.01 dated 01.01.2013)	0.000005% to 1 %
24.	Nickel Ores/ Concentrates/ Sulfide Concentrates	Ni	SOP: TPM/MSK/49/A (Issue No.01 dated 01.01.2013) SOP: TPM/MSK/49/H (ICP-OES) (Issue No.01 dated 01.01.2013)	0.1% to 7 % 0.0000025% to 7 %
		SiO ₂	SOP: TPM/MSK/49/B (Issue No.01 dated 01.01.2013)	10 % to 60 %
		Fe	SOP: TPM/MSK/49/C (Issue No.01 dated 01.01.2013)	10 % to 60 %
		CaO	SOP: TPM/MSK/49/D (Issue No.01 dated 01.01.2013)	0.1 % to 10 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanachak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	26 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
--------------	-----------------------------------	--------------------------------	--	---

Location 1

Nickel Ores/ Concentrates/ Sulfide Concentrates	MgO		SOP: TPM/MSK/49/E (Issue No.01 dated 01.01.2013)	0.1 % to 35 %
	Al ₂ O ₃		SOP: TPM/MSK/49/F (Issue No.01 dated 01.01.2013)	1 % to 25 %
	Co		SOP: TPM/MSK/49/H (ICP-OES) (Issue No.01 dated 01.01.2013)	0.0000025% to 1 %
	S		SOP: TPM/MSK/49/G (Issue No.01 dated 01.01.2013)	0.1% to 10 %
	P		SOP: TPM/MSK/49/H (ICP-OES) (Issue No.01 dated 01.01.2013)	0.000005% to 1 %

II. METALS & ALLOYS

1. Bauxite	Loss on Ignition		IS 2000 :Part1:1985, RA 2006	15 % to 30 %
	Silica		IS 2000 :Part 2:1985, RA 2006	0.5 % to 10 %
	Alumina		IS 2000 :Part 3:1985, RA 2006	30 % to 90 %

Laboratory Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal

Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 11.08.2014

Certificate Number T-0148 **Valid Until** 10.08.2016

Last Amended on - **Page** 27 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
Location 1				
	Bauxite	Ferric Oxide	IS 2000 : Part 4:1985, RA 2006	5 % to 20 %
		Titania	IS 2000 : Part 5:1985, RA 2006 SOP: TPM/MSK/4/E2 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.5 % to 12 % 0.000005% to 3 %
		Calcium Oxide	SOP:TPM/MSK/4/F1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.000005% to 3%
		Magnesium Oxide	SOP:TPM/MSK/4/G1 (ICP-OES) (Issue No. 02 dated 01.04.2011)	0.000005% to 3 %
		THA	SOP:TPM/MSK/4/I (Thermo Gravimetric Analysis) (Issue No.01 dated 01.04.2011)	0.1% to 34%
		MHA	SOP:TPM/MSK/4/I (Thermo Gravimetric Analysis) (Issue No.01 dated 01.04.2011)	0.1% to 15%
		Reactive Silica	SOP:TPM/MSK/4/J (Issue No. 02 dated 01.04.2011)	0.1 % to 5 %
		Phosphorus	IS 2000 :Part 7:2001, RA 2006 SOP:TPM/MSK/4/H1 (Issue No.02 dated 01.04.2011) SOP:TPM/MSK/4/H2 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.05 % to 1 % 0.000005% to 1 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	28 of 48

S.No.	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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Location 1

2.	Limestone/ Dolomite/ Hydrated Lime	Loss on Ignition in Limestone	IS 1760 (Part 1):1991, RA 2006	25 % to 47 %
		Loss on Ignition in Dolomite	IS 1760 (Part 1):1991, RA 2006	25 % to 47 %
		Silica in Limestone	IS 1760 (Part 2):1991, RA 2006	0.1 % to 10 %
		Silica in Dolomite	IS 1760 (Part 2):1991, RA 2006	0.1 % to 10 %
		Ferric Oxide in Limestone	IS 1760 (Part 3):1992, RA 2006 SOP: TPM/MSK/5/C2 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.2 % to 5 % 0.0000025% to 3 %
		Ferric Oxide in Dolomite	IS 1760 (Part 3):1992, RA 2006 SOP: TPM/MSK/5/C2 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.03 % to 5 % 0.0000025% to 3 %
		Alumina in Limestone	IS 1760 (Part 3):1992, RA 2006 SOP: TPM/MSK/5/D1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.2 % to 4 % 0.0000025% to 4 %
		Alumina in Dolomite	IS 1760 (Part 3):1992, RA 2006 SOP: TPM/MSK/5/D1 (Issue No.02 dated 01.04.2011)	0.05 % to 4 % 0.0000025% to 4 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	29 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
--------------	-----------------------------------	--------------------------------	--	---

Location 1

Limestone/ Dolomite/ Hydrated Lime	Titania in Limestone	SOP :TPM/MSK/5/E1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.000005% to 2 %
	Titania in Dolomite	SOP:TPM/MSK/5/E1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.000005% to 2 %
	Calcium Oxide in Limestone	IS 1760 (Part 3):1992, RA 2006	20 % to 56 %
	Calcium Oxide in Dolomite	IS 1760 (Part 3):1992, RA 2006	20 % to 56 %
	Magnesium Oxide in Limestone	IS 1760 (Part 3):1992, RA 2006	0.2% to 32 %
	Magnesium Oxide in Dolomite	IS 1760 (Part 3):1992, RA 2006	0.2% to 32 %
	Sodium Oxide in Limestone	SOP:TPM/MSK/5/H1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.000005% to 1 %
	Sodium Oxide in Dolomite	SOP:TPM/MSK/5/H1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.000005% to 1 %
	Potassium Oxide in Limestone	SOP:TPM/MSK/5/I1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.000005% to 1 %
	Potassium Oxide in Dolomite	SOP:TPM/MSK/5/I1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.000005% to 1 %
Free Silica in Hydrated Lime	IS 1760 (Part 6): 2001, RA 2006	0.25 % to 5 %	
Ca(OH) ₂ in Hydrated Lime	IS 1540 (Part 2): 1990, RA 2010	50 % to 90 %	

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	30 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
--------------	-----------------------------------	--------------------------------	--	---

Location 1

3. Pig Iron / Cast Iron	Carbon		ISO 15350:2000 (Reconfirmed 2012)	0.005% to 4.5 %
	Sulphur		ISO 15350:2000 (Reconfirmed 2012)	0.0005% to 0.25%
	Chromium		IS 12308(Part 8):1997, RA 2007 SOP :TPM/MSK/16/B1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.1% to 28% 0.0000025% to 0.5 %
	Manganese		IS 12308(Part 10):1991, RA 2006 SOP:TPM/MSK/16/C/1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.1 % to 7 % 0.0000025% to 2 %
	Silicon		IS 12308 (Part 6):1991, RA 2006	0.1 % to 6%
	Phosphorus		IS 12308 (Part 5):1991, RA 2006 SOP:TPM/MSK/16/E1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.01 % to 0.5 % 0.000005% to 0.5 %
	Nickel		IS 12308 (Part 7):1991, RA 2006 SOP:TPM/MSK/16/F1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.5 % to 36 % 0.0000025% to 1 %

Laboratory **Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal**
Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal

Accreditation Standard **ISO/IEC 17025: 2005**

Discipline **Chemical Testing** **Issue Date** **11.08.2014**

Certificate Number **T-0148** **Valid Until** **10.08.2016**

Last Amended on **-** **Page** **31 of 48**

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
-------	----------------------------	-------------------------	---	--

Location 1

4.	Steel	Carbon	ISO 15350:2000 (Reconfirmed 2012)	0.005% to 2.5 %
		Sulphur	ISO 15350:2000 (Reconfirmed 2012)	0.0005% to 0.25 %
		Manganese	IS 228 (Part 2):1987, RA 2008	0.1% to 2.5 %
			SOP:TPM/MSK/17/C1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.0000025% to 2.5%
		Silicon	IS 228 (Part 8):1989, RA 2009	0.05 % to 1 %
		Phosphorus	IS 228 (Part 3):1987, RA 2008 SOP: TPM/MSK/17/E1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.01 % to 0.25 % 0.000005% to 0.25 %
		Nickel	IS 228 (Part 5):1987, RA 2009 SOP: TPM/MSK/17/F1 (ICP-OES) (Issue No.02 dated 01.04.2011)	1 % to 10 % 0.0000025% to 10 %
		Chromium	IS 228 (Part 6):1987, RA 2009 SOP:TPM/MSK/17/G1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.1 % to 20 % 0.0000025% to 20 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	32 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>Location 1</u>				
	Steel	Copper	SOP: TPM/MSK/17/H1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.0000025% to 0.5 %
5.	Magnesite Chrome	Silica	SOP: TPM/MSK/21/A (Issue No.02 dated 01.04.2011)	1 % to 10 %
		Alumina	SOP: TPM/MSK/21/B (Issue No.02 dated 01.04.2011)	5 % to 15 %
		Ferric Oxide	SOP: TPM/MSK/21/C (Issue No.02 dated 01.04.2011)	1 % to 15 %
		Calcium Oxide	SOP: TPM/MSK/21/D (Issue No.02 dated 01.04.2011)	0.5 % to 2 %
		Magnesium Oxide	SOP: TPM/MSK/21/D (Issue No.02 dated 01.04.2011)	35 % to 65 %
		Titanium Dioxide	SOP: TPM/MSK/21/E (Issue No.02 dated 01.04.2011) IS 2000: Part 5:1985, RA 2006	0.05 % to 1 %
		Chromium Oxide	SOP :TPM/MSK/21/F (Issue No.02 dated 01.04.2011)	10 % to 30 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanachak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	33 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
--------------	-----------------------------------	--------------------------------	--	---

Location 1

6.	Copper Base Alloy (Brass)	Copper (Cu)	IS 3685 : 1966, RA 2006	55 % to 80 %
		Lead (Pb)	IS 3685 :1966, RA 2006	1 % to 3 %
			SOP:TPM/MSK/32/A1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.00001% to 3 %
		Zinc (Zn)	IS 3685 : 1966, RA 2006	20 % to 45 %
		Tin (Sn)	IS 3685 : 1966, RA 2006 SOP:TPM/MSK/32/C1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.1 % to 0.4 % 0.0000025% to 0.4 %
7.	Bronze	Copper (Cu)	IS 4027 (Part 1):1987, RA 2006	75 % to 96 %
		Lead (Pb)	IS 4027 (Part 1):1987, RA 2006	3 % to 5.5 %
		Zinc (Zn)	IS 4027 (Part 6):1987, RA 2006	4 % to 25 %

Laboratory **Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal**
Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal

Accreditation Standard **ISO/IEC 17025: 2005**

Discipline **Chemical Testing** **Issue Date** **11.08.2014**

Certificate Number **T-0148** **Valid Until** **10.08.2016**

Last Amended on **-** **Page** **34 of 48**

S.No.	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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Location 1

	Bronze	Tin (Sn)	IS 4027 (Part 5):1987, RA 2006 SOP: TPM/MSK/33/C1 (ICP-OES) (Issue No.02 dated 01.04.2011)	3 % to 5.5% 0.00002% to 5.5 %
8.	Tin Base White Metal	Copper (Cu)	IS 1409 :1959, RA 2010	1 % to 10 %
		Lead (Pb)	IS 1409 :1959, RA 2010	1 % to 10 %
		Tin (Sn)	IS 1409 :1959, RA 2010	60 % to 95 %
		Antimony (Sb)	IS 1409 :1959, RA 2010	4 % to 20 %
9.	Lead Base White Metal	Copper (Cu)	IS 1409 :1959, RA 2010 SOP:TPM/MSK/35/A1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.1% to 10 % 0.0000025% to 10 %
		Lead (Pb)	IS 1409 :1959, RA 2010	40 % to 85 %
		Tin (Sn)	IS 1409 :1959, RA 2010 SOP:TPM/MSK/35/B1 (ICP-OES) (Issue No.02 dated 01.04.2011)	4.5 % to 10.5 % 0.00002% to 10.5 %

Laboratory **Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal**
Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal

Accreditation Standard **ISO/IEC 17025: 2005**

Discipline **Chemical Testing** **Issue Date** **11.08.2014**

Certificate Number **T-0148** **Valid Until** **10.08.2016**

Last Amended on **-** **Page** **35 of 48**

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>Location 1</u>				
	Lead Base White Metal	Antimony (Sb)	IS 1409 :1959, RA 2010	7 % to 16 %
10.	High Grade Primary Aluminium	Silicon Iron Zinc Gallium Vanadium Lithium Copper Sodium Chromium Manganese Magnesium Titanium Thallium	SOP:TPM/MSK/36 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.01 % to 1% 0.0000025% to 2 % 0.0000025% to 0.35% 0.000003% to 0.4 % 0.0000025% to 0.3 % 0.000005% to 0.01% 0.0000025% to 0.5% 0.000005% to 0.02% 0.0000025% to 0.05% 0.0000025% to 0.05% 0.000005% to 0.05% 0.000005% to 0.05% 0.000003% to 0.05%
11.	Tin	Aluminium Arsenic Bismuth Cadmium Copper Iron Lead Antimony Zinc	SOP:TPM/MSK/37 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.0000025% to 0.01% 0.000005% to 0.3% 0.000004% to 0.3% 0.000002% to 0.03% 0.0000025% to 0.5% 0.0000025% to 2% 0.0001% to 0.5% 0.000015% to 0.5% 0.0000025% to 0.31%

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal		
	Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal		
	Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	36 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>Location 1</u>				
12.	Special High Grade Zinc	Lead Cadmium Iron Tin Copper Aluminium	SOP :TPM/MSK/38 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.00001% to 0.5% 0.0000025% to 0.03% 0.0000025% to 2% 0.000015% to 0.05% 0.0000025% to 0.5% 0.0000025% to 0.01%
13.	Standard Lead	Silver Arsenic Bismuth Cadmium Copper Nickel Antimony Tin Zinc	SOP :TPM/MSK/39 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.0000025% to 0.05% 0.00001% to 0.3% 0.000004% to 0.3% 0.000002% to 0.03% 0.0000025% to 0.5% 0.0000025% to 0.01% 0.000015% to 0.05% 0.000015% to 0.05% 0.0000025% to 0.3%
14.	Primary Nickel	Cobalt Copper Carbon Iron Sulphur Phosphorus Manganese Silicon Arsenic Lead	SOP:TPM/MSK/40 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.000005% to 1.5% 0.0000025% to 0.5% 0.001% to 0.1% 0.0000025% to 2% 0.001% to 0.10% 0.000005% to 0.05% 0.0000025% to 0.05% 0.000005% to 0.05% 0.000015% to 0.35% 0.00001% to 0.5%

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	37 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>Location 1</u>				
15.	Primary Nickel	Antimony Bismuth Tin Zinc	SOP:TPM/MSK/40 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.000015% to 0.5% 0.000004% to 0.3% 0.000015% to 0.05% 0.0000025% to 0.35%
16.	Copper	Silver Arsenic Bismuth Cadmium Cobalt Chromium Iron Manganese Nickel Phosphorus Lead Sulphur Antimony Selenium Silicon Tin Tellurium Zinc	SOP:TPM/MSK/41 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.0000025% to 0.05% 0.00001% to 0.3% 0.000004% to 0.3% 0.000002% to 0.03% 0.000005% to 1.5% 0.0000025% to 0.05% 0.0000025% to 2% 0.0000025% to 0.05% 0.0000025% to 0.01% 0.000005% to 0.05% 0.00001% to 0.5% 0.001% to 0.10% 0.000015% to 0.5% 0.000015% to 0.002% 0.001% to 0.05% 0.000015% to 0.05% 0.000015% to 0.002% 0.0000025% to 0.03%

Laboratory **Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal**
Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal

Accreditation Standard **ISO/IEC 17025: 2005**

Discipline **Chemical Testing** **Issue Date** **11.08.2014**

Certificate Number **T-0148** **Valid Until** **10.08.2016**

Last Amended on **-** **Page** **38 of 48**

S.No.	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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Location 1

17.	Cobalt	Beryllium	SOP:TPM/MSK/42 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.0000025% to 0.5 %
		Magnesium		0.000005% to 0.5 %
		Aluminium		0.0000025% to 0.05%
		Titanium		0.000005% to 0.05%
		Vanadium		0.000005% to 0.3 %
		Chromium		0.0000025% to 0.05%
		Manganese		0.0000025% to 0.05%
		Iron		0.0000025% to 2%
		Nickel		0.0000025% to 0.1%
		Copper		0.0000025% to 0.5%
		Zinc		0.0000025% to 0.03%
		Gallium		0.000005% to 0.05 %
		Germanium		0.000003% to 0.05%
		Arsenic		0.00001% to 0.05%
		Selenium		0.000015% to 0.002%
		Molybdenum		0.00001% to 0.05 %
		Silver		0.0000025% to 0.05%
		Cadmium	0.000002% to 0.03%	
		Tin	0.00002% to 0.05%	
		Antimony	0.00002% to 0.05%	
		Barium	0.000002% to 0.05%	
		Platinum	0.000002% to 0.005%	
		Gold	0.000002% to 0.005%	
		Lead	0.00001% to 0.5%	

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	39 of 48

S.No.	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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Location 1

III. COAL & COKE & OTHER SOLID FUEL

1.	Coal & Coke	Total Moisture in Coal	IS 1350 (Part 1): 1984, RA 2007 ASTM D3302 / D 3302M-12 ISO 589:2008	0.1% to 32 %
		Total Moisture in Coke	ISO 579:2013 IS 1350 (Part 1) :1984, RA 2007	0.1% to 32 %
		Moisture in Coal	IS 1350 (Part I) :1984, RA 2007 ASTM D 3173-11 ISO 11722:2013	0.1% to 25 % 0.1% to 25 % 0.1% to 25 %
		Moisture in Coke	IS 1350 (Part I) :1984, RA 2007 ASTM D 3173-11 ISO 687:2010	0.1% to 25 % 0.1% to 25 % 0.1% to 25 %
		Volatile Matter	IS 1350 (Part 1) :1984, RA 2007 ASTM D3175-11 ISO 562:2010	0.5 % to 50 %
		Ash	IS 1350 (Part 1):1984, RA 2007 ASTM D3174-12 ISO 1171:2010	0.1% to 60 %
		Fixed Carbon	IS 1350 (Part I):1984, RA 2007 ASTM D3172-13	25 % to 98.5 %

Laboratory **Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal**
Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal

Accreditation Standard **ISO/IEC 17025: 2005**

Discipline **Chemical Testing** **Issue Date** **11.08.2014**

Certificate Number **T-0148** **Valid Until** **10.08.2016**

Last Amended on **-** **Page** **40 of 48**

S.No.	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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Location 1

Coal & Coke	Gross Calorific Value	IS 1350 (Part 2):1975, RA 2010 ASTM D5865-13 ISO 1928:2009	3333 to 8333 kcal/kg
	Total Sulphur	ASTM D 4239-14, Method B ISO 334:2013 ISO 19579:2006 (Reconfirmed 2011)	0.001% to 5 % 0.05 % to 5.0 % 0.001% to 5 %
	Forms of Sulphur	IS 1350 (Part 3): 1969, RA 2010	0.005 % to 5 %
	Chlorine	IS 1350 (Part 5): 1979, RA 2009	0.05 % to 2 %
	Phosphorus	IS 1350 (Part 5) :1979, RA 2009 SOP:TPM/MSK/6/M/6 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.005 % to1 % 0.000005% to 1 %
	Crucible Swelling Number	IS 1353 : 1993, RA 2010 ASTM D720-91(2010)	0 to 9
	Hardgrove Grindability Index	ISO 5074:1994 IS 4433 - 1979, RA 2010 ASTM D409/D 409M-12	40 to 75

Laboratory Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
 Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
 Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanachak, Haldia, Dist. Midnapore (East), West Bengal

Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 11.08.2014

Certificate Number T-0148 **Valid Until** 10.08.2016

Last Amended on - **Page** 41 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
Location 1				
2.	Coal & Coke (Ash Analysis)	Silica	IS 1355 : 1984, RA 2007 ASTM D 6349-13	20% to 60%
		Ferric Oxide	IS 1355 : 1984, RA 2007 ASTM D 6349-13	0.5 % to 15 %
		Alumina	IS 1355 : 1984, RA 2007 ASTM D 6349-13	15.0 % to 35 % 15 % to 29%
		Titania	IS 1355 : 1984, RA 2007 ASTM D 6349-13	0.21% to 3 % 0.2 % to 1.4 %
		Calcium Oxide	IS 1355 : 1984, RA 2007 ASTM D 6349-13	1 % to 15 %
		Magnesium Oxide	IS 1355 :1984, RA 2007 ASTM D 6349-13	1 % to 7 %
		Manganous Oxide	IS 1355 : 1984, RA 2007 ASTM D 6349-13	0.1 % to 0.5 % 0.01% to 0.08%
		Phosphorus Pentoxide	IS 1355 : 1984, RA 2007 ASTM D 6349-13	0.05 % to 1.5 % 0.05 % to 1.5 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanachak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	42 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
Location 1				
	Coal & Coke (Ash Analysis)	Sulphur Trioxide	IS 1355 : 1984, RA 2007	0.5 % to 8 %
		Sodium Oxide	IS 1355 : 1984, RA 2007 ASTM D 6349-13	0.05 % to 5 % 0.1 % to 5 %
		Potassium Oxide	IS 1355 : 1984, RA 2007 ASTM D 6349-13	0.05 % to 5 % 0.1% to 2.5 %
3.	Coal & Coke (Ultimate Analysis)	Carbon	ASTM D5373-14 / ISO 29541:2010	0.005 % to 95 %
		Hydrogen		0.02% to 10 %
		Nitrogen		0.008 % to 5 %
		Sulphur	IS 1350 (Part 3): 1969, RA 2010 ASTM D 4239-14, Method B ISO 19579:2006 (Reconfirmed 2011)	0.05% to 5 % 0.001% to 5 % 0.001% to 5 %
		Oxygen	ISO 1170:2008 ASTM D3176-09	0.05% to 40 % 0.05% to 40 %
4.	Reactivity of Coke	CRI	IS 4023:1991, RA 2007 ASTM D 5341-99 (2010) ISO 18894:2006 (Reconfirmed 2009)	15 to 30
		CSR	IS 4023:1991, RA 2007 ASTM D 5341-99 (2010) ISO 18894:2006 (Reconfirmed 2009)	45 to 80

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	43 of 48

S.No.	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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Location 1

5.	Coal & Coke Ash (Fusibility Test)	IT ST HT FT	ASTM D1857/D1857M-04(2010) (Oxidizing & Reducing)	400°C to 1500°C
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IV. FERTILIZER

1.	Urea	Moisture	IS 6092 (Part 6) :1985, RA 2007	0.1 % to 2 %
		Total Nitrogen	IS 6092 (Part 2) Sec-IV:2004 , RA 2008	40 % to 48 %
		Biuret	IS 6092(Part 6)1985, RA 2007 SOP:TPM/MSK/27/C1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.1 % to 1.5%
2.	MOP	Moisture	IS 6092 (Part 6) :1985, RA 2007	0.1 % to 2 %
		Potassium Oxide	SOP:TPM/MSK/28/B1 (ICP-OES) (Issue No.02 dated 01.04.2011)	1% to 62 %
		Sodium Chloride	IS 6092 (Part 4) :1985, RA 2007 SOP:TPM/MSK/28/B1 (ICP-OES) (Issue No.02 dated 01.04.2011)	0.1% to 4.5%
			IS 6092 (Part 4) :1985, RA 2007	1 % to 4.5 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	44 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
--------------	-----------------------------------	--------------------------------	--	---

Location 1

3.	Ammonium Sulphate	Moisture	IS 6092 (Part 6) :1985, RA 2007	0.05 % to 2 %
		Ammoniacal Nitrogen	IS 6092 (Part 2):Sec IV: 2004 , RA 2008	19 % to 26 %
		Free Acidity as H ₂ SO ₄	IS 6092 (Part 6):1985, RA 2007	0.05 % to 0.5 %
4.	Mono Ammonium Phosphate	Moisture	IS 6092 (Part 6):1985, RA 2007	0.1 % to 2 %
		Total P ₂ O ₅	IS 6092 (Part 3): Sec5: 2004, RA 2006	45 % to 61.5 %
		Water Soluble P ₂ O ₅	IS 6092 (Part 3): Sec 5 : 2004, RA 2006	45 % to 60 %
		Citrate Soluble P ₂ O ₅	IS 6092 (Part 3): Sec 5 : 2004 , RA 2006	2 % to 60 %
		Total Nitrogen	IS 6092 (Part 2) : Sec 5 : 2004 , RA 2008	8 % to 12 %
		Ammoniacal Nitrogen	IS 6092 (Part 2) Sec 4 : 2004, RA 2008	8 % to 12 %

Laboratory	Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	11.08.2014
Certificate Number	T-0148	Valid Until	10.08.2016
Last Amended on	-	Page	45 of 48

S.No.	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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Location 1

5. Di-Ammonium Phosphate	Moisture		IS 6092 (Part 6): 1985, RA 2007	0.1 % to 2 %
	Total phosphate (as P ₂ O ₅)		IS 6092 (Part 3): 1985, RA 2001	50 % to 55 %
	Water Soluble phosphate (as P ₂ O ₅)		IS 6092 (Part 3) Sec 5 : 2004 , RA 2010	40 % to 52 %
	Neutral Ammonium Citrate Soluble Phosphate (as P ₂ O ₅)		IS 6092 (Part 3) Sec 5 : 2004 , RA 2010	40 % to 50 %
	Total Nitrogen		IS 6092 (Part 2) Sec 4 : 2004, RA 2008	15 % to 22 %
	Ammoniacal Nitrogen		IS 6092 (Part 2) Sec 4 : 2004, RA 2008	15 % to 20 %
	Alumina		IS 1527 : 1972, RA 2006	0.5 % to 15 %
	Ferric Oxide		IS 1527 : 1972, RA 2006	0.1 % to 1 %

V. BUILDING MATERIALS

1. Fire Brick	Silica		IS 1527: 1972, RA 2006 SOP :TPM/MSK/22/A1 (Issue No.02 dated 01.04.2011)	30 % to 65 %
	Alumina		IS 1527: 1972, RA 2006	25 % to 50 %

Laboratory Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanchak, Haldia, Dist. Midnapore (East), West Bengal

Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 11.08.2014

Certificate Number T-0148 **Valid Until** 10.08.2016

Last Amended on - **Page** 46 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
Location 1				
	Fire Brick	Ferric Oxide	IS 1527: 1972, RA 2006 SOP :TPM/MSK/22/C1 (Issue No.02 dated 01.04.2011)	0.5 % to 5 %
		Calcium Oxide	IS 1527 : 1972, RA 2006	0.2 % to 2 %
		Magnesium Oxide	IS 1527 : 1972, RA 2006	0.4 % to 2.0 %
		Titanium Dioxide	IS 2000 :Part 5:1987, RA 2006 SOP :TPM/MSK/22/E (Issue No.02 dated 01.04.2011)	0.5 % to 5 %
2.	Fire Clay	Silica	IS 1527 : 1972, RA 2006 SOP :TPM/MSK/23/A1 (Issue No.02 dated 01.04.2011)	30 % to 65 %
		Alumina	IS 1527 : 1972, RA 2006	20 % to 50 %
		Ferric Oxide	IS 1527 : 1972, RA 2006 SOP : TPM/MSK/23/C1 (Issue No.02 dated 01.04.2011)	0.5 % to 10 %
		Calcium Oxide	IS 1527 : 1972, RA 2006	0.4 % to 2 %
		Magnesium Oxide	IS 1527 : 1972, RA 2006	0.5 % to 2 %

Laboratory Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
Location 1: Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
Location 2: Holding No. 22/107, Durgachak, P.O. Khanjanachak, Haldia, Dist. Midnapore (East), West Bengal

Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 11.08.2014

Certificate Number T-0148 **Valid Until** 10.08.2016

Last Amended on - **Page** 47 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
Location 1				
	Fire Clay	Titanium Dioxide	IS 2000: Part 5:1987, RA 2006 SOP : TPM/MSK/23/E (Issue No.02 dated 01.04.2011)	0.5 % to 1 %
3.	Insulating Brick	Silica	IS 1527 : 1972, RA 2006 SOP : TPM/MSK/24/A1 (Issue No.02 dated 01.04.2011)	60 % to 90 %
		Calcium Oxide	IS 1527 : 1972, RA 2006	0.10 % to 5 %
		Magnesium Oxide	IS 1527: 1972, RA 2006	0.1 % to 5 %
		Alumina	IS 1527: 1972, RA 2006	20 % to 30 %
		Ferric Oxide	IS 1527: 1972, RA 2006 SOP : TPM/MSK/24/D1 (Issue No.02 dated 01.04.2011)	0.5% to 6%
		Titanium Oxide	IS 2000 Part 5:1987, RA 2006 SOP :TPM/MSK/24/E (Issue No.02 dated 01.04.2011)	0.5% to 1.5 %

Laboratory Mitra S. K. Private Limited, Kolkata, Holding No. E-5-138/157, Banerjee Para, Maheshtala, P.O. & Village Raipur, Dist. 24 Parganas (South), Kolkata, West Bengal
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Accreditation Standard ISO/IEC 17025: 2005

Discipline Chemical Testing **Issue Date** 11.08.2014

Certificate Number T-0148 **Valid Until** 10.08.2016

Last Amended on - **Page** 48 of 48

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>Location 2</u>				
1.	Iron Ore	Total Moisture	IS 11690 :1986 , RA 2008	4 % to 13 %

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