

**Laboratory**                      **Ordnance Factory, Muradnagar, Ghaziabad, Uttar Pradesh**

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

**Discipline**                      **Chemical Testing**                      **Issue Date**    **13.12.2014**

**Certificate Number**         **T-0170**                                      **Valid Until**    **12.12.2016**

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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
<b>I.</b>	<b>METALS &amp; ALLOYS</b>			
1.	<b>Ferrous Metals and Alloys (Carbon &amp; Alloy Steel)</b>	C Si Mn S P Ni Cr Mo V Cu Ti	IS 8811: 1998	0.05 % to 1.30 % 0.05 % to 1.50 % 0.01 % to 1.70 % 0.005 % to 0.060 % 0.005 % to 0.060 % 0.10 % to 2.20 % 0.10 % to 1.80 % 0.05 % to 1.50 % 0.01 % to 1.20 % 0.01 % to 0.10 % 0.01 % to 0.10 %
2.	<b>Ferrous Metals and Alloys (Stainless Steel )</b>	C Si Mn S P Ni Cr Mo	IS 9879: 1998	0.005 % to 0.30 % 0.10 % to 2.0 % 0.10 % to 10.0 % 0.002 % to 0.030 % 0.002 % to 0.030 % 0.10 % to 15.0 % 5.0 % to 25.0 % 0.05 % to 2.50 %
3.	<b>Ferrous Metals and Alloys (Cast Iron)</b>	C Si Mn S P Ni Cr Mo Cu	IS 15338: 2003	0.10 % to 4.0 % 0.10 % to 2.5 % 0.10 % to 2.0 % 0.005 % to 0.15 % 0.005 % to 0.30 % 0.05 % to 1.0 % 0.005 % to 1.5 % 0.01 % to 0.40 % 0.01 % to 0.50 %

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4.	Steel	Carbon ( C )	IS 228 (Part 1): 1987 (RA 2007)	0.05 % to 2.5 %
		Manganese (Mn)	IS 228 (Part 2): 1987 (RA 2008)	0.1 % to 1.5 %
		Phosphorous ( P )	IS 228 (Part 3): 1987 (RA 2008)	0.005 % to 0.1%
		Chromium (Cr )	IS 228 (Part 6): 1987 (RA 2002)	0.1 % to 5.0 %
		Molybdenum ( Mo)	IS 228 (Part 7): 1990 (RA 2012)	0.5 % to 1.5 %
		Silicon ( Si )	IS 228 (Part 8): 1989 (RA 2009)	0.05 % to 5.0 %
		Sulphur ( S )	IS 228 (Part 9): 1989 (RA 2009)	0.01 % to 0.25 %
5.	Cast Iron	Phosphorous ( P )	IS 12308 (Part 5): 1991 (RA 2006)	0.01 % to 0.50 %
		Silicon ( Si )	IS 12308 (Part 6): 1991 (RA 2006)	0.1 % to 6.0 %
		Chromium (Cr )	IS 12308 (Part 8): 1997 (RA 2007)	0.1 % to 5.0 %
		Manganese (Mn)	IS 12308 (Part 10): 1991 (RA 2006)	0.1 % to 7.0 %
		Carbon ( C )	IS 12308 (Part 11): 1991 (RA 2006)	1.5 % to 4.5 0 %

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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
6.	Ferro Alloys	Manganese (Ferro –Manganese)	IS 1559: 1961 (RA 2007)	40.0 % to 85.0 %
		Chromium ( Ferro-Chromium)	IS 1559: 1961 (RA 2007)	40.0 % to 80.0 %
		Silicon (Ferro-Silicon)	IS 1559: 1961 (RA 2007)	40.0 % to 80.0 %
		Vanadium (Ferro-Vanadium)	IS 1559: 1961 (RA 2007)	40.0 % to 60.0 %
<b>II. ORES &amp; MINERALS</b>				
1.	Iron Ore	Iron	IS 1493 (Part 1): 1981 (RA 2006)	60.0 % to 70.0 %
		Iron Oxide	IS 1493 (Part 1): 1981 (RA 2006)	60 % to 99.0 %
2.	Lime Stone	Calcium Oxide	IS 1760 (Part 3 ): 1992 (RA 2006)	2.0 % to 55.0 %
		Calcium Carbonate	IS 1760 (Part 3 ): 1992 (RA 2006)	2.0 % to 99.0 %
3.	Flourspar	Calcium Fluoride	IS 2411: 1963 (RA 2006)	80.0 % to 95.0 %
<b>III. BUILDING MATERIALS</b>				
1.	Magnesite Brick /Cement	Magnesium Oxide	IS 1760 ( Part 3 ): 1992 (RA 2006)	2.0 % to 95.0 %

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