

**Laboratory** Deep Testing Laboratories, Plot No.- 338, Sector-58, Ballabhgarh, Faridabad, Haryana

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

**Discipline** Chemical Testing **Issue Date** 05.12.2013

**Certificate Number** T-1647 **Valid Until** 04.12.2015

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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
<b>I. METALS &amp; ALLOYS</b>				
<b>1.</b>	<b>Plain Carbon &amp; Low Alloy Steels</b>	Carbon	IS 228 (Part-1) 1987, RA 2007	0.05% to 2.5%
		Mn	IS 228 (Part-2) 1987, RA 2002	0.1% to 2.5%
		Si	IS 228 (Part-8) 1989, RA 2004	0.05% to 5.0%
		S	IS 228 (Part-9) 1989, RA 2004	0.01% to 0.25%
		P	IS 228 (Part-3) 1987, RA 2002	0.01% to 0.25%
		Cr	IS 228 (Part-6) 1987, RA 2002	0.1% to 2.25%
		Ni	IS 228 (Part-5) 1987, RA 2002	0.1% to 2.10%
		Mo	IS 228 (Part-7) 1990, RA 2006	1.0% to 5%
<b>2.</b>	<b>Ferrous Metal &amp; Alloy (Spectro Analysis), (Emission Spectrol), Min. Sample Size 18 mm Dia Flat Surface</b>	Al	ASTM 415-1999, RA 2005	0.01% to 0.5%
		B	ASTM 1086-1994, RA 2005	0.001% to 0.009%
		C		0.020% to 1.20%
		Co		0.005% to 0.5%
		Cr		0.01% to 21.0%
		Cu		0.1% to 2.5%
		Mn		0.1% to 2.0%
		Mo		0.001% to 5.50%
		Ni		0.01% to 9.50%
		P		0.003% to 1.0%
		S		0.009% to 1.0%
		Sn		0.004% to 1.0%

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		Si	ASTM 415-1999, RA 2005	0.1% to 2.0 %
		Ti	ASTM 1086-1994, RA 2005	0.002% to 0.60%
		W		0.001% to 6.00%
		Nb		0.001% to 0.50%
		V		0.001% to 2.00%

## **II. BUILDING MATERIALS**

<b>1. Cement OPC</b>	Loss on Ignition	IS 4032, RA 2005	0.1% to 10%
	Insoluble residue		0.1% to 35%
	Na <sub>2</sub> O		0.01% to 5.0%
	K <sub>2</sub> O		0.01% to 5.0%
	Alumina		3.0% to 7.0%
	Iron Oxide		2.0% to 5.0%
	Silica		15.0% to 25.0%
	Calcium Oxide		50.0% to 70.0%
	Magnesium Oxide		0.5% to 6.0%
	Sulphuric Anhydride (as SO <sub>3</sub> )		0.5% to 5.0%
	Sulphide (as S)		0.5% to 5.0%
	Chloride	Volhard Method	0.01% to 0.15%

## **III. METALLIC COATINGS AND TREATMENT SOLUTIONS**

<b>1. Coating Thickness</b>	Anodizing Coating	IS 1868-1996, RA 2006	0.01% to 0.15%
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## **IV. CORROSION TESTS**

<b>1. Metals</b>	Corrosion Test	IS 9844-1981, RA 2006	Visible Observation
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#### **V. AIR, GASES & ATMOSPHERE**

<b>1. Stack Emission</b>	Particular matter		IS 11255 (Part-1& 3) 2003	5 mg/Nm <sup>3</sup> to 1000mg/Nm <sup>3</sup>
	Sulphur Dioxide		IS 11255 (Part-2) 2003	2 mg/Nm <sup>3</sup> to 100 mg/Nm <sup>3</sup>
	Nitrogen oxide		IS 11255 (Part-6) 2005	2 mg/Nm <sup>3</sup> to 100 mg/Nm <sup>3</sup>
<b>2. Ambient Air/ Process Emission</b>	Particulate Matter PM <sub>2.5</sub>		ENV/Air:01 based on Gravimetric Analysis/ CPCB Guideline Vol-1	5 µg/m <sup>3</sup> to 2000 µg/m <sup>3</sup>
	Particulate Matter (RPM) PM <sub>10</sub>		IS 5182 (Part-23) 2006	5 µg/m <sup>3</sup> to 2000 µg/m <sup>3</sup>
	Lead		IS 5182 (Part-22) 2004	0.5 µg/m <sup>3</sup> to 1000 µg/m <sup>3</sup>
	Nickel		IS 5182 (Part-22) 2004	0.5 µg/m <sup>3</sup> to 100 µg/m <sup>3</sup>
	Ammonia		ENV/Air:03 based on CPCB Guideline vol-1 Indophenols Method	5 µg/m <sup>3</sup> to 500 µg/m <sup>3</sup>
	Ozone		IS 5182 (Part-9) 1992	5.0 µg/m <sup>3</sup> to 10000 µg/m <sup>3</sup>
	Carbon Monoxide		IS 5182 (Part-10) 1999, RA 2003	5 µg/m <sup>3</sup> to 10000 µg/m <sup>3</sup>
	Sulphur Di Oxide (SO <sub>2</sub> )		IS 5182 (Part-2) 2001, RA 2006	5 µg/m <sup>3</sup> to 500 µg/m <sup>3</sup>
	Oxide of Nitrogen (NO <sub>2</sub> )		IS 5182 (Part-6) 2006	5 µg/m <sup>3</sup> to 500 µg/m <sup>3</sup>

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<b>VI. WATER</b>				
<b>1.</b>	<b>Waste Water/ Effluents</b>	Bio-Chemical Oxygen Demand	IS 3025 (Part-44) 2003, Amds 1	5 mg/l to 10000 mg/l
		Chemical Oxygen Demand	APHA 22 <sup>nd</sup> Edition	5 mg/l to 10000 mg/l
		Oil & Grease	IS 3025 (Part-39) 2003, Amds1 Partion gravimetric method	2 mg/l to 250 mg/l
		Dissolved Oxygen	IS 3025 (Part-38) 2003, Winkler Method with Azide Modication	0.1 mg/l to 10 mg/l
		Total Suspended Solid	IS 3025 (Part-17) 2002 Amds1	1.0 mg/l to 10000 mg/l
		pH value at 25 <sup>0</sup> C	IS 3025 (Part-11) 2002, Electrometric Method	2 to 12
<b>2.</b>	<b>Water (Drinking Swimming Pool/ DM Surface/ Bore well)</b>	Alkalinity	IS 3025 (Part-23) 2003, Amds1	1 mg/l to 1000 mg/l
		Calcium	IS 3025 (Part-40) 2003, Amds1	2 mg/l to 1000 mg/l
		Chlorides	EDTA Titremetric Method IS 3025 (Part-32) 2003 Argentometric Method	2 mg/l to 3000 mg/l
		Residual Free Chlorines	IS 3025 (Part-26) 2003, Amds1 Titrimetric Method Colour Companson Method	0.1 mg/l to 25 mg/l
		Flourides	APHA 22 <sup>nd</sup> edition SM (APHA)/2005, 4500 F (4-82) SPADNS Method	0.01 mg/l to 10 mg/l

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3.	Water (Drinking Swimming Pool/ DM Surface/ Bore well)	Odour	IS 3025 (Part-5) 2002	Qualitative
		Total Hardness	IS 3025 (Part-21) 2002 Amds1 EDTA Titrimetric Method	2 mg/l to 1000 mg/l
		Magnesium	IS 3025 (Part-46) 2003 Amds1 EDTA Titrimetric Method	2 mg/l to 500 mg/l
		Hexavalent Chromium	APHA 22 <sup>nd</sup> Edition 3111B	0.05 mg/l to 100 mg/l
		Total Chromium	APHA 22 <sup>nd</sup> Edition 3111B	0.05 mg/l to 100 mg/l
		Iron	APHA 22 <sup>nd</sup> Edition 3111B	0.1 mg/l to 1000 mg/l
		pH	IS 3025 (Part-11) 2003, Electrometric Method	2 to 12
		Total Dissolved Solid	IS 3025 (Part-16) 2002, Amds1	5 mg/l to 10000 mg/l
		Specific conductance/ Conductivity	IS 3025 (Part-14) 2002	5 $\mu\Omega$ /cm to 20200 $\mu\Omega$ /cm
		Sulphate	IS 3025 (Part-24) 2002	1.0 mg/l to 5000 mg/l
Turbidity	IS 3025 (Part-10) 2002 Nephelometric Method	1.0 NTU to 1000 NTU		

