

Laboratory **Shanker Laboratories, F-277, Flatted Factory Complex, Captain Gaur Marg, Okhla, New Delhi**

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

Certificate Number **TC-6113 (In lieu of T-3441)**

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Validity **28.05.2017 to 27.05.2019**

Last Amended on **10.08.2017**

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**

<b>I.</b>	<b>SOIL &amp; ROCK</b>			
<b>1.</b>	<b>Soil</b>	pH	IS 2720 (Part 26)	6 to 12
		Total Soluble Sulphates	IS 2720 (Part 27)	0.2 % to 15 %
<b>II.</b>	<b>WATER</b>			
<b>1.</b>	<b>Water (for Drinking Purpose)</b>	pH	IS 3025 (Part 11)	6 to 12
		Chlorides	IS 3025 (Part 32)	1 mg/l to 5000 mg/l
		Sulphates	IS 3025 (Part 24)	5 mg /l to 2000 mg/l
		Total Dissolved Solids	IS 3025 (Part 16)	1 mg/l to 5000 mg/l
		Total Alkalinity as CaCo3	IS 3025 (Part 23)	2 mg/l to 1000 mg/l
		Calcium	IS 3025 (Part 40)	1 mg/l to 1000mg/l
		Magnesium	IS 3025 (Part 46)	1 mg/l to 1000 mg/l
		Iron	IS 3025 (Part 53)	0.1 mg/L to 10 mg/L
		Total Hardness as CaCO3	IS 3025 (Part 21)	1 mg/L to 5000 mg/L
<b>2.</b>	<b>Water (for Construction Purpose)</b>	pH	IS 3025 (Part 11)	6 to 12
		Chlorides	IS 3025 (Part 32)	10 mg/l to 4000 mg/l
		Sulphates	IS 3025 (Part 24)	10 mg/l to 600 mg/l
		Acidity	IS 3025 (Part 22)	0.1 ml to 25 ml
		Alkalinity as CaCO <sub>3</sub>	IS 3025 (Part 23)	1 ml to 100ml
		Suspended Matter	IS 3025 (Part 17)	10 mg/L to 5000 mg/L
		Organic Solids	IS 3025 (Part 18)	10 mg/L to 400 mg/L
		Inorganic Solids	IS 3025 (Part 18)	10 mg/L to 3000 mg/L
<b>III.</b>	<b>ORES &amp; MINERALS</b>			
<b>1.</b>	<b>Iron Ore</b>	Silica	IS 1493 (Part 1)	0.5 % to 12 %
		Iron	IS 1493 (Part 1)	40 % to 95 %
		Alumina	SOP/SL/IO/02, Issue No.1	0.5 % to 20 %

**Sachin Tomar**  
Convenor

**N. Venkateswaran**  
Program Director

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
2.	<b>Limestone</b>	Loss on Ignition	IS 1760 (Part 1)	15 to 44
		Silica	IS 1760 (Part 2)	0.5 % to 20 %
		Iron Oxide	SOP/SL/IO/01, Issue No.1	0.1 % to 5 %
		Aluminium Oxide	IS 1760 (Part 3)	0.1 % to 5 %
		Calcium Oxide	IS 1760 (Part 3)	25 % to 60 %
		Magnesium Oxide	IS 1760 (Part 3)	0.5 % to 25 %
<b>IV.</b>	<b>SOLID FUELS</b>			
1.	<b>Coal</b>	Ash	IS 1350 (Part 1)	0.5 % to 55 %
		Moisture	IS 1350 (Part 1)	1 % to 15 %
		Volatile Matter	IS 1350 (Part 1)	10 % to 40 %
		Carbon	IS 1350 (Part 4)	30 % to 90 %
		Hydrogen	IS 1350 (Part 4)	1 % to 6 %
		Nitrogen	IS 1350 (Part 4)	0.5 % to 4 %
		Sulphur	IS 1350 (Part 3)	1 % to 10 %
		Gross Calorific Value	IS 1350 (Part 2)	500 kcal/g to 9000 kcal/g
<b>V.</b>	<b>BUILDING MATERIAL</b>			
1.	<b>Cement (OPC/PPC)</b>	Loss on Ignition	IS 4032	0.5 % to 10 %
		Silica	IS 4032	15 % to 35 %
		Alumina	IS 4032	1 % to 10 %
		Iron Oxide (By EDTA)	IS 4032, Cl. 4.5.2	0.1 % to 6 %
		Total Lime (By EDTA)	IS 4032, Cl. 4.7.2	40 % to 70 %
		Magnesium Oxide (By EDTA)	IS 4032, Cl.4.8.2	2 % to 10 %
		Sulphuric Anhydride	IS 4032	0.5 % to 10 %
		Total Chloride	IS 4032	0.01 % to 0.5 %
		Total Soda	IS 4032, Cl. 4.0	0.05 % to 2.5 %
		Total Potash	IS 4032, Cl. 4.0	0.05 % to 3 %
2.	<b>Fly Ash</b>	Loss on Ignition	IS 1727	0.2 % to 15 %
		Silica	IS 1727	5 % to 70 %
		Alumina	IS 1727	2 % to 30 %
		Iron Oxide	IS 1727	0.5 % to 5 %

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		Calcium oxide	IS 1727	0.5 % to 10 %
		Magnesium Oxide	IS 1727	0.5 % to 10 %
3.	Admixture	pH	IS 9103	6 to 12
		Chlorides	IS 6925	0.01 % to 1.0 %
		Ash	IS 9103	2 % to 25 %
		Dry Material content	IS 9103	0.5 % to 30 %
		Sulphate	IS 9103	0.5 % to 30 %
4.	Concrete (Hardened)	Chloride	IS 14959 (Part 2)	0.01 % to 6 %
		Sulphates	IS 4032	0.05 % to 5 %
5.	Aggregate	Alkali Aggregate reactivity Dissolved Silica	IS 2386 (Part 7) Cl 3.7 & 3.9	2 mmol/L to 70 mmol/L
		Alkali Aggregate Test Reduction in Alkalinity	IS 2386 (Part 7): 1963 Cl 3.7 & 3.9	20 mmol/L to 500 mmol/L
6.	Lime	Loss on Ignition	IS 6932 (Part 1)	0.5 % to 10 %
		Silica	IS 6932 (Part 1)	0.5 % to 15 %
		Calcium oxide	IS 6932 (Part 1)	10 % to 90 %
		Magnesium Oxide	IS 6932 (Part 1)	0.5 % to 10 %
		Iron Oxide	IS 6932 (Part 1)	0.1 % to 4 %
		Alumina	IS 6932 (Part 1)	0.5 % to 10 %
7.	Gypsum	Combined Water	IS 1288	1 % to 21 %
		Sulphate SO <sub>3</sub>	IS 1288	0.5 % to 47 %
		Silica	IS 1288	2 % to 15 %
		Iron & Aluminum	IS 1288	1 % to 6 %
		Calcium Oxide	IS 1288	25 % to 40 %
		Magnesium Oxide	IS 1288	0.5 % to 5 %

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