

***Chemical Composition and Physical Properties of Ordinary Portland cement  
[CEM I 52.5N]***

NO	DESCRIPTION (EN 197-1 CEM I 52.5N)		UNIT	VALUE	RANGE
<b>CHEMICAL COMPOSITION</b>					
1	Silicon Dioxide	SiO <sub>2</sub>	%	19.85	19.70-20.90
2	Aluminum Oxide	Al <sub>2</sub> O <sub>3</sub>	%	5.70	5.55-5.90
3	Ferric Oxide	Fe <sub>2</sub> O <sub>3</sub>	%	3.70	3.60 - 4.0
4	Calcium Oxide	CaO	%	64.5	63.80-66.00
5	Magnesium Oxide (Max 5.0)	MgO	%	1.01	0.7 – 3.0
6	Sulfur Trioxide (Max 4.0)	SO <sub>3</sub> <4	%	2.85	2.5-3.5
7	Chloride < 0.10	Cl <sup>-</sup> <0.1	%	0.05	0.02 - 0.08
8	Insoluble residue (Max 5.0)	I.R.< 5	%	0.49	0.30 - 1.5
9	Loss On ignition	L.O.I.< 5	%	2.28	1.5 - 3.0
10	Free-Lime < 2	F-CaO< 2	%	1.26	0.6 – 1.8
11	Chromium Hexavalent (Max 2.0)	Cr VI< 2	ppm	1.5	0.7 - 1.8
12	Alkali Equivalent	Na <sub>2</sub> O equivalent	%	0.65	0.50 - 0.75
13	Sieve 45		%	6.0	4.0 – 10.0
14	Sieve 90		%	0.0	0.00- 0.2
<b>PHYSICS TEST</b>					
1	Fineness (Blaine)		Cm <sup>2</sup> /g	3370	3200-3800
2	Water consistency		%	28.2	26.5-30.0
3	Initial setting time	Min 45	Minutes	150	110- 170
4	Final setting time		Minutes	220	180 - 300
5	2Day (Compressive Strength)	Min 20	MPa	26	20-30
6	28Day (Compressive Strength))	Min 52.5	MPa	56	54-60
7	Soundness	Max 10mm	mm	1.15	0.6 – 4.0


