



## 53 Grade Ordinary Portland Cement

Despatched during Week No.	1	From	01/01/19	To	07/01/19
Test Certificate No.	1	Reference No.		WCW/IMS/QA/FM/08	
Dated	15/01/19				
S.N.	Parameters	Results Obtained	Requirement as per IS 269 : 2015 (Variety: OPC 53)		
<b>Chemical Composition</b>					
1	Lime Saturation Factor ( $\text{CaO} - 0.7 * \text{SO}_3 / (2.8 * \text{SiO}_2 + 1.2 * \text{Al}_2\text{O}_3 + 0.65 * \text{Fe}_2\text{O}_3)$ )	0.90	Not greater than 1.02 and not less than 0.80		
	Ratio of % Alumina to that of Iron Oxide $\text{Al}_2\text{O}_3 / \text{Fe}_2\text{O}_3$	1.23	Not less than 0.66		
	Insoluble Residue (% by mass)	0.70	Not more than 5.0 %		
	Magnesia (% by mass)	1.03	Not more than 6.0 %		
	Sulphuric Anhydride (% by mass)	2.80	Not More than 3.5 %		
	Total loss on Ignition (%)	1.70	Not More than 4.0 %		
	Chloride Content (%)	0.010	Not more than 0.1 % for general purpose & not more than 0.05 % for pre-stressed structures		
<b>Physical Analysis</b>					
2	<b>Fineness</b>				
	Blaine's Specific Surface Area ( $\text{m}^2 / \text{kg}$ )	320	Not Less than 225		
3	<b>Compressive Strength (MPa)</b>				
	72 ± 1h (3 Days)	36.8	Not less than 27.0		
	168 ± 2h (7 Days)	45.7	Not less than 37.0		
	672 ± 4h (28 Days) *	Awaited	Not less than 53.0		
4	<b>Setting Time (Minutes)</b>				
	Initial	130	Not less than 30		
	Final	185	Not more than 600		
5	<b>Soundness</b>				
	Le-Chatelier Expansion (mm)	1.00	Not more than 10.0		
	Auto-Clave Expansion (%)	0.060	Not more than 0.8		
6	Normal Consistency (%)				
		27.00			
	Temp. During Testing ( $^{\circ}\text{C}$ )	27.00	( $27 \pm 2$ ) $^{\circ}\text{C}$		

The above cement complies with the requirements of IS 269 : 2015 (Variety: OPC 53) for 53 Grade Ordinary Portland Cement

Manager (QA)