



WORK TEST CERTIFICATE



## **53 Grade Ordinary Portland Cement**

hed during Week No.	29	From	16-Ju	I-2019	То	22-Jul-2019
tificate No.	29	Deferrer				
	8/20/2019		;e No.		WCW/IMS/QA/FM/08	
Parameters		Results Obtained	Requirement as per IS 269 : 2015 (Variety: OPC 53)			
Chemical Composition	on		1	1		
Lime Saturation Factor ( CaO – 0.7 *SO3) / (2.8* SiO2 + 1.2* Al2O3 + 0.65* Fe2O3)			0.88	Not greater than 1.02 and not less than 0.80		
Ratio of % Alumina to that of Iron Oxide Al2O3 / Fe2O3			1.22	Not less than 0.66		
Insoluble Residue (% by mass)			0.54	Not more than 5.0 %		
Magnesia (% by mass)			0.96	Not more than 6.0 %		
Sulphuric Anhydride (%	% by mass)	3.01	Not More than 3.5 %			
Total loss on Ignition (	%)	1.59	Not More than 4.0 %			
Chloride Content (%)			0.013	Not more than 0.1 % for general purpose & not more than 0.05 % for pre-stressed structures		
Physical Analysis				•		
Fineness						
2 Blaine's Specific Surface Area (m2 / kg)			300	Not Less than 225		
Compressive Strengt	:h (MPa)					
72 ± 1h (3 Days)			36.5	Not less than 27.0		
168 ± 2h (7 Days)			47.5	Not less than 37.0		
672 ± 4h (28 Days) *			59.5	Not less than 53.0		
Setting Time (Minutes	s)					
Initial			132	Not less than 30		
Final			192	Not more than 600		
Soundness						
Le-Chatelier Expansion	n (mm)		1.07	Not more than 10.0		
Auto-Clave Expansion (%)			0.077	Not more than 0.8		
6 Normal Consistency (%)						
Normal Consistency (%	%)		27.80			
	tificate No. Pa Chemical Composition Lime Saturation Factor ( CaO – 0.7 *SO3) / (2.8* Si Ratio of % Alumina to Al2O3 / Fe2O3 Insoluble Residue (% M Magnesia (% by mass Sulphuric Anhydride (% Total loss on Ignition (% Chloride Content (%) Physical Analysis Fineness Blaine's Specific Surfa Compressive Strengt 72 ± 1h (3 Days) 168 ± 2h (7 Days) 672 ± 4h (28 Days) * Setting Time (Minutes) Initial Final Soundness Le-Chatelier Expansion	tificate No. 29 8/20/2019 8/20/2019  Parameters  Chemical Composition Lime Saturation Factor (CaO - 0.7 *SO3) / (2.8* SiO2 + 1.2* Al2O3 + 0.6 Ratio of % Alumina to that of Iron Oxide Al2O3 / Fe2O3 Insoluble Residue (% by mass) Magnesia (% by mass) Sulphuric Anhydride (% by mass) Sulphuric Anhydride (% by mass) Sulphuric Anhydride (% by mass) Total loss on Ignition (%) Chloride Content (%) Physical Analysis Fineness Blaine's Specific Surface Area (m2 / kg) Compressive Strength (MPa) 72 ± 1h (3 Days) 168 ± 2h (7 Days) 672 ± 4h (28 Days) * Setting Time (Minutes) Initial Final Soundness Le-Chatelier Expansion (mm)	tificate No.	tificate No.          29       Reference No.         8/20/2019       Reference No.         Reference No.         Chemical Composition         Lime Saturation Factor ( CaO – 0.7 *SO3) / (2.8* SIO2 + 1.2* AI2O3 + 0.65* Fe2O3)       0.88         Ratio of % Alumina to that of Iron Oxide AI2O3 / Fe2O3       0.88         Insoluble Residue (% by mass)       0.54         Magnesia (% by mass)       0.96         Sulphuric Anhydride (% by mass)       3.01         Total loss on Ignition (%)       1.59         Chloride Content (%)       0.013         Physical Analysis       59         Fineness       300         Compressive Strength (MPa)       300         72 ± 1h (3 Days)       36.5         168 ± 2h (7 Days)       47.5         672 ± 4h (28 Days) *       59.5         Setting Time (Minutes)       1132         Initial       132         Final       192         Soundness       Le-Chatelier Expansion (mm)       1.07	29       Reference No.         8/20/2019       Reference No.         Chemical Composition       Requirer         Lime Saturation Factor (CaO - 0.7 *SO3) / (2.8* SiO2 + 1.2* AI2O3 + 0.65* Fe2O3)       0.88       Not greater         Ratio of % Alumina to that of Iron Oxide AI2O3 / Fe2O3       1.22       Not less that         Insoluble Residue (% by mass)       0.54       Not more th         Magnesia (% by mass)       0.96       Not more th         Sulphuric Anhydride (% by mass)       3.01       Not More th         Total loss on Ignition (%)       1.59       Not more th         Chorressive Strength (MPa)       0.013       Not more th         72 ± 1h (3 Days)       36.5       Not less th         168 ± 2h (7 Days) *       59.5       Not less th         672 ± 4h (28 Days) *       59.5       Not less th         Initial       132       Not less th         Final       192       Not more th         Soundness	29       Reference No.       WCW         8/20/2019       Reference No.       WCW         Parameters       Results Obtained       Requirement as per (Variety:         Chemical Composition       Lime Saturation Factor (CaO - 0.7 *SO3) / (2.8* SIO2 + 1.2* AI2O3 + 0.65* Fe2O3)       0.88       Not greater than 1.02 ar         Ratio of % Alumina to that of Iron Oxide AI2O3 / Fe2O3       1.22       Not less than 0.66         Insoluble Residue (% by mass)       0.54       Not more than 5.0 %         Magnesia (% by mass)       0.96       Not more than 0.66         Insoluble Residue (% by mass)       0.96       Not more than 0.66         Insoluble Residue (% by mass)       0.96       Not more than 0.66         Sulphuric Anhydride (% by mass)       3.01       Not More than 3.5 %         Total loss on Ignition (%)       1.59       Not More than 0.1 % for more than 0.05 % for pre-         Physical Analysis       Fineness       Interess         Blaine's Specific Surface Area (m2 / kg)       300       Not Less than 225         Compressive Strength (MPa)       72 ± 1h (3 Days) *       36.5       Not less than 37.0         672 ± 4h (28 Days) *       59.5       Not less than 53.0       Setting Time (Minutes)         Initial       132       Not more than 600       Soundness       Initial </td

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

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Manager (QA)