

## اسمنت معتدل لمقاومة الكبريت - نوع 2

### Moderate Sulphate Resisting Cement (MSRC)

Type of Cement : Type II  
 Standard : ASTM C-150-19  
 Week No. : 28/20  
 Sample Date : 08-14.07.2020 تاريخ العينة :  
 Issue Date : 19-Aug-19

Parameters	Units	Results %	Specification	
<b>Chemical Test Results</b>				
Loss On Ignition	LOI	%	2.77	Max. 3.0 %
Silicon Dioxide	SiO <sub>2</sub>	%	20.08	
Aluminium Oxide	Al <sub>2</sub> O <sub>3</sub>	%	4.84	Max. 6.0 %
Ferric Oxide	Fe <sub>2</sub> O <sub>3</sub>	%	3.35	Max. 6.0 %
Calcium Oxide	CaO	%	63.09	
Magnesium Oxide	MgO	%	1.94	Max. 6.0 %
Equivalent Alkali (Na <sub>2</sub> O+0.658K <sub>2</sub> O)		%	0.57	Max. 0.60 %
Sulphur Trioxide	SO <sub>3</sub>	%	2.70	Max 3.0 %
Chloride	Cl <sup>-</sup>	%	0.015	
Insoluble Residue	IR	%	0.31	Max. 1.50 %
Free Lime	Free CaO	%	0.92	
<b>Cement Phases</b>				
Tri Calcium Silicate	C <sub>3</sub> S	%	55.48	
Tri Calcium Aluminate	C <sub>3</sub> A	%	7.16	Max. 8.0 %
C <sub>3</sub> S+4.75C <sub>3</sub> A		%	89.51	Max. 100 %
<b>Physical Test Results</b>				
Fineness ( Specific Surface )	Blaines	m <sup>2</sup> /kg	348	Min. 260 m <sup>2</sup> /kg
+45 µm Residue		%	9.16	
Specific Gravity			3.15	
Initial Setting Time	IST	Minutes	200	Min. 45 minutes
Final Setting Time	FST	Minutes	235	Max. 375 minutes
Soundness -Autoclave	Expansion	%	0.10	Max. 0.80 %
Air Content		%	2.50	Max. 12.0 %
False Setting		%	88.8	Min. 50.0 %
<b>Heat of Hydration (KJ/kg)</b>				
3 Days		KJ/kg	233.0	Max. 335 KJ/kg
7 Days		KJ/kg	271.0	
<b>Compressive Strength (MPa)</b>				
3 Days		MPa	24.6	Min. 10.0
7 Days		MPa	30.1	Min.17.0
28 Days		MPa	38.4	Min.28.0

We hereby certify that the above described PORTLAND CEMENT ,TYPE-II, at the time of consignment, meets the chemical and Physical requirements of ASTM C-150-19a.

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