



# HERACLES

GENERAL CEMENT CO.

A company of HOLCIM

Plant : MILAKI



Product : Class G (HSR)

API 10A Well Cement

## 2023 PRODUCT TECHNICAL DATA SHEET

(Standard : API spec 10A)

### CHEMICAL ANALYSIS

			Indicative values			Standard's Requirement
			Target	Min.	Max.	
SiO <sub>2</sub> (Silicon Dioxide)	(%)	:	<b>20.80</b>	20.45	21.80	
Al <sub>2</sub> O <sub>3</sub> (Aluminum Oxide)	(%)	:	<b>3.77</b>	3.35	4.10	
Fe <sub>2</sub> O <sub>3</sub> (Ferric Oxide)	(%)	:	<b>4.60</b>	4.30	5.10	
CaO (Calcium Oxide)	(%)	:	<b>63.60</b>	63.35	64.80	
MgO (Magnesium Oxide)	(%)	:	<b>2.40</b>	1.00	2.80	<b>Max 6.0%</b>
SO <sub>3</sub> (Sulphur Trioxide)	EN 196-2 (%)	:	<b>2.85</b>		3.00	<b>Max 3.0%</b>
K <sub>2</sub> O (Potassium Oxide)	(%)	:	<b>0.40</b>	0.25	0.53	
Na <sub>2</sub> O (Sodium Oxide)	(%)	:	<b>0.22</b>	0.10	0.40	
LOI(950) (Loss On Ignition)	EN 196-2 (%)	:	<b>0.90</b>	0.55	2.00	<b>Max 3.0%</b>
IR (Insoluble Residue)	EN 196-2 (%)	:	<b>0.20</b>	0.10	0.55	<b>Max 0.75%</b>
TiO <sub>2</sub>	(%)	:	<b>0.28</b>	0.10	0.40	
P <sub>2</sub> O <sub>5</sub>	(%)	:	<b>0.15</b>	0.05	0.40	
CaO <sub>free</sub> (Free lime)	(%)	:	<b>0.60</b>	0.25	1.00	
Eq.Na <sub>2</sub> O (Equivalent Alkalies)	(%)	:	<b>0.48</b>	0.26	0.75	<b>Max 0.75%</b>
Cr6+	ppm	:	<b>0</b>			

### MINERALOGICAL COMPOSITION

C <sub>3</sub> S - Bogue * (Tricalcium Silicate)	(%)	:	<b>62.6</b>	53.0	65.0	<b>Min 48%,Max65%</b>
C <sub>3</sub> A * (Tricalcium Aluminate)	(%)	:	<b>2.2</b>		3.0	<b>Max 3%</b>
C <sub>4</sub> AF * (Tetracalcium Aluminoferrite)	(%)	:	<b>14.0</b>		15.5	
C <sub>4</sub> AF + 2(C <sub>3</sub> A) *	(%)	:	<b>18.4</b>		22	<b>Max 24%</b>

### PHYSICAL PROPERTIES

Specific Surface (Blaine)	EN 196-6 (cm <sup>2</sup> /g)	:	<b>3200</b>	2700	3600	
Free Fluid	API spec 10A (%)	:	<b>4.00</b>		5.80	<b>Max 5.9%</b>
Thickening time Sch 5	API spec 10A (minutes)	:	<b>105</b>	91	119	<b>Min 90min.Max120min</b>
Max.Consistency.15-30min	API spec 10A (Bc)	:	<b>15</b>		30	<b>Max 30Bc</b>

### COMPRESSIVE STRENGTHS

8hour Strength 100F(38°C)	API spec 10A (PSI/Mpa)	:	<b>580 (4.0)</b>	320 (2.2)		<b>Min. 300 (2.1)</b>
8hour Strength 140F(60°C)	API spec 10A (PSI/Mpa)	:	<b>2030 (14)</b>	1595 (11)		<b>Min.1500 (10.3)</b>

\*API 10A Table 1 : when WAI203/WFe2O3>0.64

C3S = 4.07 - 7.6 S - 6.72 A - 1.43 F -2.85 SO3

C3A = 2.65 A - 1.69 F

C4AF = 3.04 F

\* API 10A Table 1 : when WAI203/WFe2O3<0.64

C3S = 4.07 - 7.6 S - 4.48 A - 2.86 F -2.85 SO3

C3A = 0

C4AF = 3.04 F