



Cement Mill Test Report

Month of Issue: SEPTEMBER 2023

Plant: NUH CEMENT - HEREKE, TURKEY (Kocaeli) (FDOT CMT79)
Consigned: ARGOS USA
Product: Portland Cement Type I/II
Manufactured: May 2023

ASTM C150 and AASHTO M 85 Standard Requirements

CHEMICAL ANALYSIS			PHYSICAL ANALYSIS		
Item	Spec limit	Test Result	Item	Spec limit	Test Result
Rapid Method, X-Ray (C114)			Air content of mortar (%) (C185)		
SiO ₂ (%)	---	19.6		12 max	8
Al ₂ O ₃ (%)	6.0 max	4.6	Blaine Fineness (m2/kg) (C204)		
Fe ₂ O ₃ (%)	6.0 max	3.7		280 min	398
CaO (%)	---	64.3		430 max**	
MgO (%)	6.0 max	1.6	Compressive strength (MPa, [PSI]) (C109)		
SO ₃ (%)	3.0 max *	2.7	1 day	---	17.8 [2580]
Loss on ignition (%)	3.0 max	2.6	3 days	12.0 [1740] min	29.8 [4320]
Insoluble residue (%)	1.5 max	0.2	7 days	19.0 [2760] min	37.1 [5380]
CO ₂ (%)	---	1.8	28 days	28.0 [4060] min	48.2 [6990]
Limestone (%)	5.0 max	4.2	Density		
CaCO ₃ in Limestone (%)	70 min	98.4		---	3.13
NaEq (%) ***			Time of setting (minutes)		
NaEq (%) at 95% Confidence Level		0.52 +/- 0.05	Vicat Initial (C191)	45 - 375	118
Adjusted Potential Phase Composition (C150)			Heat of Hydration (KJ/Kg, [cal/g]) (C1702)		
C ₃ S (%)	---	62	3 days (for information only)	---	N/A
C ₂ S (%)	---	9	Mortar Bar Expansion (%) (C1038)		
C ₃ A (%)	8 max	6		0.020 max	N/A
C ₄ AF (%)	---	11	ASTM C150-21 and AASHTO M 85-21 Optional Chemical Requirements		
C ₃ S+4.75*C ₃ A (%)	100 max	90			

* May exceed 3.0% SO₃ maximum based on our C1038 results of <0.020% expansion at 14 days.

** Maximum fineness limits do not apply if the sum of C₃S + 4.75C₃A is less than or equal to 90, or heat of hydration is less than or equal to 335 kJ/kg at 3 days when tested in accordance with C1702.

*** Please refer to ASTM C1778 for guidance on reducing the risk of alkali-aggregate reaction in concrete.

We Certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of applicable

FDOT Section 921, ALDOT, GDOT, LADOTD, SCDOT, NCDOT, TxDOT, MDOT

Specifications for TYPE I/II;

ASTM C150 & AASHTO M85 STANDARD SPECIFICATIONS FOR TYPE I/II CEMENT

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