



Cement Mill Test Report

Month of Issue: March 2023

Plant: Martinsburg, West Virginia
Product: Portland Cement Type I/II
Silo: Silos C1,C2,51,53,63,70
Manufactured: 2/1/23 to 2/28/23

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)	12 max	8
SiO ₂ (%)	---	19.2	Blaine Fineness (m ² /kg) (C204)	260 min	388
Al ₂ O ₃ (%)	6.0 max	4.7	-325 (%) (C430)	---	97.4
Fe ₂ O ₃ (%)	6.0 max	2.9			
CaO (%)	---	62.9	Compressive strength (MPa, [PSI]) (C109)		
MgO (%)	6.0 max	2.8	1 day	---	13.9 [2020]
SO ₃ (%)	3.0 max *	3.2	3 days	12.0 [1740] min	24.7 [3580]
Loss on ignition (%)	3.5 max	2.6	7 days	19.0 [2760] min	30.9 [4480]
Insoluble residue (%)	1.5 max	0.4	28 days	---	38.7 [5620]
Na ₂ O _{eq} (%)**		0.61	Time of setting (minutes)		
CO ₂ in Cement, %	---	1.3	Vicat Initial (C191)	45 - 375	140
Limestone in Cement, %	5.0 max	3.2			
CaCO ₃ in Limestone	70 min	96.8	Mortar Bar Expansion (%) (C1038)	0.020 max	0.009
<u>Adjusted Potential Phase Composition (C150)</u>					
C3S (%)	---	58	ASTM C150 and AASHTO M 85 Optional Physical Requirements:		
C2S (%)	---	11	False Set (%) (C451)	50 min	66
C3A (%)	8 max	8			
C4AF (%)	---	9			
C3S+4.75*C3A (%)	---	94			

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

** Please refer to ASTM C1778 or AASHTO R 80 for guidance on reducing the risk of alkali-aggregate reaction in concrete.

The Argos cement is certified at the time of shipment, meets the chemical and physical requirements

of applicable WVDOT, ODOT, PennDOT, VDOT, NCDOT, DDOT, MDSHA, NJDOT, KYTC, NYSDOT, ConnDOT, DelDOT, MassDOT, INDOT and SCDOT Specifications for TYPE I/II CEMENT;

ASTM C150 & AASHTO M 85 STANDARD SPECIFICATIONS FOR TYPE I AND TYPE II CEMENT;

Certified By:

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