



Certified to NSF/ANSI 61

# Cement Mill Test Report

Month of Issue: May 2022

<b>Plant:</b>	Martinsburg, West Virginia
<b>Product:</b>	Portland Limestone Cement Type IL (10) MS
<b>Silo:</b>	Silos 61 & 62
<b>Manufactured:</b>	4/1/22 to 4/30/22

## ASTM C595 IL, C1157 GU and AASHTO M 240 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	7
SiO2 (%)		18.0	Blaine Fineness (m2/kg) (C204)		503
Al2O3 (%)		4.6	-325 (%) (C430)	---	98.2
Fe2O3 (%)		2.9	Autoclave expansion (%) (C151)	-0.2 - 0.8	0.08
CaO (%)		60.9	Compressive strength (MPa, [PSI]) (C109)		
MgO (%)		2.8	1 day	---	17.5 [2540]
SO3 (%)	3.0 max *	3.4	3 days	13.0 [1890] min	26.1 [3780]
Loss on ignition (%)	10.0 max	5.8	7 days	20.0 [2900] min	31.1 [4510]
Insoluble residue (%)			28 days	25.0 [3620] min	38.8 [5630]
Na <sub>2</sub> O <sub>eq</sub> (%)**		0.69	Time of setting (minutes)		
CO2 in Cement, %		4.4	Vicat Initial (C191)	45-420 min	123
Limestone in Cement, %		10.4	Mortar Bar Expansion (%) (C1038)	0.020 max	0.014
CaCO3 in Limestone		96.3			
Cement Density (g/cm <sup>3</sup> ) (C188) <sup>1</sup>		3.08	Sulfate Resistance (%) (C1012) <sup>1</sup>		
			180 days	0.10 max	0.08

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

<sup>1</sup> Results are from the most recent test

\*\* Please refer to ASTM C1178 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 for ASTM C595, ASTM C1157 and AASHTO M240 standard specification for blended hydraulic cement.

Certified By:

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