



# Cement Mill Test Report

Month of Issue: November 2023

<b>Plant:</b>	Harleyville, South Carolina
<b>Product:</b>	EcoStrong PLC Type IL (10) MS
<b>Silo:</b>	1, 2, 4, 5, 7, 8
<b>Manufactured:</b>	October 2023

## ASTM C595 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	4
SiO <sub>2</sub> (%)	---	19.0	Fineness, Blaine (m <sup>2</sup> /kg) (C204)	---	495
Al <sub>2</sub> O <sub>3</sub> (%)	---	4.8	Fineness, No. 325 sieve, (% retained) (C430)	---	0.2
Fe <sub>2</sub> O <sub>3</sub> (%)	---	3.2	Density of Cement (g/cm <sup>3</sup> ) (C188)	---	3.11 ‡
CaO (%)	---	63.2	Compressive strength (MPa, [PSI]) (C109)		
MgO (%)	---	1.3	1 day	---	18.1 [2630]
SO <sub>3</sub> (%)	3.0 max †	2.6	3 days	13.0 [1890] min	31.1 [4510]
Loss on ignition (%)	10.0 max	5.2	7 days	20.0 [2900] min	36.4 [5280]
Na <sub>2</sub> O <sub>Eq</sub> of portland cement (%)	---	0.56	28 days (previous month's data)	25.0 [3620] min	45.3 [6570]
CO <sub>2</sub> (%)	---	3.8	Time of setting (minutes)		
Limestone (%)	5 to 15	8.1	Vicat Initial (C191)	45 to 420	117
CaCO <sub>3</sub> in Limestone (%)	70 min	93 ‡	Heat of Hydration @ 3 days (kJ/kg, [cal/g]) (C1702)	---	345 [82]‡
Inorganic Process Addition (%) (Baghouse Dust)	---	1.7	Mortar Bar Expansion (%) (C1038)	0.020 max	0.006 ‡
Optional Chemical Information:			Physical Requirements for Blended Cements With Special Properties:		
Chloride (%)		0.03	Sulfate resistance @ 180 days (%) (C1012)	0.10 max	0.02 ‡

Dashes in the spec limit mean Not Applicable

† May exceed 3.0% SO<sub>3</sub> maximum based on our C1038 results of < 0.020% expansion at 14 days.

‡ Current production run not available - most recent provided.

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

Analysts: Richard Buford, George Wren, Neil Graham

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of SCDOT and NCDOT specifications for Type IL; ASTM C595 & AASHTO M 240 specifications for Type IL(10); ASTM C1157 specification for Type GU.

Certified By:

Sean J. Makens - Quality Manager

11/2/2023

Argos USA

Harleyville Plant

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