



Cement Mill Test Report

Month of Issue: September 2022

Plant: Harleyville, South Carolina
 Product: EcoStrong PLC Type IL (10) MS
 Silo: 1, 2, 4, 5, 7, 8
 Manufactured: August 2022

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	5
SiO ₂ (%)	---	18.6	Fineness, Blaine (m2/kg) (C204)	---	510
Al ₂ O ₃ (%)	---	4.6	Fineness, No. 325 sieve, (% retained) (C430)	---	99.6
Fe ₂ O ₃ (%)	---	3.2	Autoclave expansion (%) (C151)	-0.20 to 0.80	0.01
CaO (%)	---	62.3	Density of Cement (g/cm3) (C188)	---	3.09 ‡
MgO (%)	---	1.4	Compressive strength (MPa, [PSI]) (C109)		
SO ₃ (%)	3.0 max †	2.8	1 day	---	18.2 [2650]
Loss on ignition (%)	10.0 max	5.9	3 days	13.0 [1890] min	30.4 [4410]
Na ₂ O _{Eq} (%)	---	0.43	7 days	20.0 [2900] min	36.3 [5270]
CO ₂ (%)	---	4.5	28 days (previous month's data)	25.0 [3620] min	41.9 [6070]
Limestone (%)	5 to 15	11.3	Time of setting (minutes)		
CaCO ₃ in Limestone (%)	70 min	90 ‡	Vicat Initial (C191)	45 to 420	106
Inorganic Process Addition (%) (Baghouse Dust)	---	1.8	Heat of Hydration @ 3 days (kJ/kg, [cal/g]) (C1702)	---	301 [72]‡
			Mortar Bar Expansion (%) (C1038)	0.020 max	0.002 ‡
Optional Chemical Information:			Physical Requirements for Blended Cements With Special Properties:		
Chloride (%)		0.05	Sulfate resistance @ 180 days (%) (C1012)	0.10 max	0.02 ‡

Dashes in the spec limit mean Not Applicable

† May exceed 3.0% SO3 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: Robert Parker, Richard Buford, George Wren.

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

9/6/2022

Argos USA

Harleyville Plant

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