



Cement Mill Test Report

Month of Issue: April 2022

Plant:	Harleyville, South Carolina
Product:	Portland Cement Type I and Type I/II(MH)
Silo:	1, 4, 5, 7
Manufactured:	April 2022

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	6
SiO2 (%)	---	20.2	Blaine Fineness (m2/kg) (C204)	260 - 430	404
Al2O3 (%)	6.0 max	4.9	-325 (%) (C-430)	---	98.8
Fe2O3 (%)	6.0 max	3.4	Autoclave expansion (%) (C151)	0.80 max	0.00
CaO (%)	---	63.6	Compressive strength (MPa, [PSI]) (C109)		
MgO (%)	6.0 max	1.4	1 day	---	16.7 [2430]
SO3 (%)	3.0 max †	2.8	3 days	12.0 [1740] min	29.1 [4220]
Loss on ignition (%)	3.5 max	2.7	7 days	19.0 [2760] min	36.2 [5240]
Insoluble residue (%)	1.5 max	0.43	28 days (Reflects previous month's data)	---	43.8 [6350]
Equivalent alkalis (%)	---	0.49	Time of setting (minutes)		
CO2 (%)	---	1.4	Vicat Initial (C191)	45 - 375	120
Limestone (%)	5.0 max	3.6	Heat of Hydration (kJ/kg) (C1702)		
CaCO3 in Limestone (%)	70 min	91	3 days (for information only) ‡	---	316
Inorganic Processing Addition (%) (Baghouse Dust)	5.0 max	1.9	Mortar Bar Expansion (%) (C1038) ‡	0.020 max	0.002
Adjusted Potential Phase Composition (C150)			ASTM C150 and AASHTO M 85 Optional Physical Requirements:		
C3S (%)	---	55	Early Stiffening (%)	50 min	72
C2S (%)	---	16	Density (g/cm3)		3.15
C3A (%)	8 max	7			
C4AF (%)	---	10			
C3S+4.75*C3A (%)	100 max	86			
ASTM C150 and AASHTO M 85 Optional Chemical Requirements:					
Chloride (%) (for information only)		0.04			

* 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 applicable GDOT, TDOT, MDOT, SCDOT, NCDOT, VDOT, and MDDOT Specifications for Type I and Type I/II(MH).
ASTM C150 & AASHTO M 85 STANDARD SPECIFICATIONS FOR TYPE I AND TYPE I/II(MH) CEMENT;

Certified By:

Sean J. Makens - Quality Manager

Report created: 4/23/2022

Argos USA

Harleyville Plant

463 Judge Street, Harleyville, South Carolina 29448

Phone: 843-462-7651