

Cement Mill Test Report

Month of Issue: JANUARY 2023

Plant: ZONA FRANCA ARGOS S.A.S. CARTAGENA
Consigned: ARGOS USA LLC - SAVANNAH
Product: Portland Cement Type I/II
Vessel: MV WINTERSET V - 32
Manufactured: NOVEMBER 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 (C 114)			Air content of mortar (%) (C 185)		
SiO ₂ (%)	---	19.5		12 max	4
Al ₂ O ₃ (%)	6.0 max	5.4	Blaine Fineness (m2/kg) (C 204)		
Fe ₂ O ₃ (%)	6.0 max	43.7		280 minimum	400
CaO (%)	---	64.5	Compressive strength (MPa, [PSI]) (C 109)		
MgO (%)	6.0 max	0.7	1 day	---	16.9 [2450]
SO ₃ (%)	3.0 max *	2.8	3 days	12.0 [1740] min	28.9 [4190]
Loss on ignition (%)	3.5 max	2.1	7 days	19.0 [2760] min	37.0 [5370]
Insoluble residue (%)	1.5 max	0.25	28 days (previous month's data)	---	45.4 [6580]
CO ₂ (%)	---	1.1	Time of setting (minutes)		
Limestone (%)	5.0 max	2.3	Vicat Initial (C 191)	45 - 375	120
CaCO ₃ in Limestone (%)	70 min	92	Heat of Hydration (KJ/Kg, [cal/g]) (C 1702)		
Na ₂ O (%)	---	0.21	3 days (for information only)**	---	278
K ₂ O (%)	---	0.39	Mortar Bar Expansion (%) (C 1038)**		
NaEq (%) ***	---	0.46		0.020 max	0.010
Adjusted Potential Phase Composition (C 150)					
C ₃ S (%)	---	62			
C ₂ S (%)	---	8			
C ₃ A (%)	8 max	7			
C ₄ AF (%)	---	13			
C ₃ S+4.75*C ₃ A (%)	100 max	94			

ASTM C150-22 and AASHTO M 85-22 Optional Chemical Requirements:

* May exceed 3.0% SO₃ maximum based on our C 1038 results of <0.020% expansion at 14 days.

** Current Production run not available - most recent provided

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

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of applicable TXDOT, SCDOT, NCDOT, GDOT, FDOT, MDSHA. Specifications for Type I and Type II(MH) and VDOT Specifications for Type I, I/II and II; ASTM C150-22 & AASHTO M 85-22 STANDARD SPECIFICATIONS FOR TYPE I AND TYPE II(MH) CEMENT;

Completed By:

Quality Professional
Nubia Puella Arellano

Certified By:

Quality Manager
Carlos E. Fernández