



F20250213-Silo #7-CIP

CERTIFICATE NUMBER

February 13, 2025

DATE

Laboratory Test Certification

Class F Coal Ash*

Source: Qinhuangdao, China

Chemical Analysis: (QUAL-XRF) - %

ASTM C 618-23* Limits Class F

Silicon Oxide (SiO ₂)	47.43	
Aluminum Oxide (Al ₂ O ₃)	39.13	
Iron Oxide (Fe ₂ O ₃)	3.36	
Sum (SiO ₂ +Al ₂ O ₃ +Fe ₂ O ₃)	89.92	50 Min.
Calcium Oxide (CaO)	4.12	18 Max
Magnesium Oxide (MgO)	0.96	
Sulfur Trioxide (SO ₃)	1.01	5.0 Max.
Sodium Oxide (Na ₂ O)	0.53	
Potassium Oxide (K ₂ O)	1.20	
NaEq (Na ₂ O + 0.658 K ₂ O)	1.35	
Moisture Content	0.04	3.0 Max.
Loss on Ignition (LOI)	1.78	6.0 Max.

Physical Analysis:

Specific Gravity	2.22	CTL#3923002
Variation, % from Average	0.45	5% Max
Fineness - Retained on No. 325, %	9.6	34% Max
Variation, Points from Average	2.3	5 Max
Water Requirement, % of Control	100.0	105% Max
Strength Activity Index : **		
% of Control at 7 Days	92 %	75% Min.
% of Control at 28 Days	2/13/25 %	75% Min.

We certify that the above described composite sample of Coal Ash*, complies with the standard chemical and physical requirements of ASTM C618-23*, Class F. See Note: C Table 2-Meeting the 7 or 28 day strength activity index will indicate specification compliance.

Cement Division

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