Fly Ash (Coal Creek)

Technical Data Sheet

General Overview:

Fly Ash is composed of small, hard and spherical particles rich in silica and alumina. It is a pozzolanic material obtained as a by-product from coal-fired thermal power stations. It reacts with free lime (calcium hydroxide) in Portland cement to form calcium silicate hydroxide. The spherical shape of the fly ash particles act almost as ball bearings during mixing, allowing concrete to be produced with less water. Both these characteristics significantly improve the concretes workability, durability and reduces permeability. The addition of fly ash also reduces the heat of hydration and reduces thermal cracking in thermally and chemically harsh environments.

Coal Creeks specifications are compliant with ASTM C618 Class F.

Class F fly ash is produced from the combustion of bituminous and sub-bituminous coals and is characterized by low calcium oxide content (less than 18% CaO) It is predominantly pozzolanic in nature; it does exhibit cementitious properties on its own but reacts with calcium hydroxide released during cement hydration to form additional cementitious compounds.

Class F fly ash is widely used in ready-mix concrete, precast concrete and mass concrete applications. Key performance benefits include:

- Reduced heat f hydration making it well suited for mass concrete pours
- Improved long-term strength gain
- Enhanced resistance to sulfate attack and alkali-silica reaction (ASR)
- Lower water demand and improved workability
- Reduced permeability and increased durability

Eco Materials Technology Class F fly ash can be used as a pozzolan in virtually any concrete application. When correctly proportioned.

Safety Precautions

Normal safety wear such as rubber gloves, dust masks and safety glasses used to handle conventional cement-based products should be worn. Safety Data Sheets (SDS) are available upon request.

Website

For more information about Multicrete Group and all our related products visit us at https://multicretesystems.com/ or call us at (204) 262-5900

REFERENCES

Eco Material Technologies
Fly Ash and Class F Fly Ash
http://ecomaterial.com/products/fly-ash/ , *Eco Material Technologies Class F Fly Ash Brochure*

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ASTM C618 / AASHTO M295 Testing of Coal Creek Coal Ash

Sample Date: 1/1 - 1/31/26 **Report Date:** 3/18/2026

Sample Type: Monthly **MTRF ID:** 260083

Sample ID: MnDOT Split

Chemical Analysis	Results	ASTM Limit Class F / C	AASHTO Limit Class F / C
Silicon Dioxide (SiO2)	53.81 %		
Aluminum Oxide (Al2O3)	15.75 %		
Iron Oxide (Fe2O3)	5.90 %		
Sum (SiO2+Al2O3+Fe2O3)	75.45 %	50.0 min	50.0 min
Sulfur Trioxide (SO3)	0.64 %	5.0 max	5.0 max
Calcium Oxide (CaO)	13.02 %	18.0 max / >18.0	18.0 max / >18.0
Magnesium Oxide (MgO)	4.23 %		
Sodium Oxide (Na2O)	3.21 %		
Potassium Oxide (K2O)	2.28 %		
Total Alkali (Sodium Oxide Equivalent)	4.7 %		
Moisture	0.03 %	3.0 max	3.0 max
Loss on Ignition	0.20 %	6.0 max	5.0 max
Available Alkalies, as Na2Oe	1.60 %	Not Required	1.5 max*
			*when required by purchase
Physical Analysis			
Fineness, % retained on 45-µm sieve	23.57 %	34 max	34 max
Fineness Uniformity	1.01 %	±5 max	±5 max
Strength Activity Index - 7 or 28 day requirement			
7 day, % of control	83 %	75 min	75 min
28 day, % of control	97 %	75 min	75 min
Water Requirement, % control	93 %	105 max	105 max
Density, ASTM C604	2.46 g/cm3		
Density Uniformity	1.76 %	±5 max	±5 max

The test data listed herein was generated by applicable ASTM methods. The reported results pertain only to the sample(s) or lot(s) tested. This report cannot be reproduced without permission from EM Resources LLC.

Meeting either 7-day or 28-day strength activity index indicates specification compliance

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