



Cement

FLY ASH TEST REPORT

Analysis by: Lafarge Seattle Concrete Lab
Sample from : Centralia Power Plant
Average Analysis: June 2021
Test Report Number 7-21 Class F

Chemical Analysis

| | Results | Limits |
|---|----------------|----------------|
| Silicon Dioxide (SiO ₂) | 47.9 % | |
| Aluminum Oxide (Al ₂ O ₃) | 16.6 % | |
| Iron Oxide (Fe ₂ O ₃) | 5.8 % | |
| Total (SiO ₂) + (Al ₂ O ₃) + (Fe ₂ O ₃) | 70 % | 50% Min - ASTM |
| Sulphur Trioxide (SO ₃) | 1.0 % | 5% Max - ASTM |
| Calcium Oxide (CaO) | 15.0 % | 18% Max - ASTM |
| Magnesium Oxide | 5.6 % | |
| Moisture Content | 0.15 % | 3% Max - ASTM |
| Loss on Ignition | 0.29 % | 5% Max |
| Available Alkali as Equiv. Na ₂ O (<i>previous month's result</i>) | 0.52 % | 1.5% Max |

Physical Analysis

| | | |
|--|------------------------------|-----------------|
| Fineness Retained on 45 um (No. 325 Sieve) | 20.0 % | 34% Max - ASTM |
| Strength Activity Index with Portland Cement | | |
| % of Control at 7 Days | 88 % | 75% Min - ASTM |
| % of Control at 28 Days (<i>previous month's result</i>) | 92 % | 75% Min - ASTM |
| Water Requirement, Percent of Control | 93 % | 105% Max- ASTM |
| Autoclave Expansion | 0.05 % | 0.8% Max - ASTM |
| Density | 2.64 Mg/m³ | |

Uniformity Requirements

| | | |
|---|---------------|---------------|
| Density, Variation from Average | 0.00 % | 5% Max - ASTM |
| Fineness 45um Sieve, Variation from Average | 2.30 % | 5% Max - ASTM |

We hereby certify that the composite fly ash sample above meets the chemical and physical requirements of ASTM C618 and AASHTO M295 for class F fly ash.

Certified : _____

Rob Shogren
Technical Director

WESTERN REGION

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