# FLY ASH TEST REPORT

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|---|---|
| Sample from : | Centralia/Kamloops Type F Fly Ash |
| Average Analysis: | October 2023 |
| Test Report Number | Centralia/Kamloops-11-23_F_CSA |
| Ash Source: | Centralia Washington |

## Chemical Analysis

| | | |
|---|---|---|
| Silicon Dioxide ($SiO_2$) | **59.9** | % |
| Aluminum Oxide ($Al_2O_3$) | **12.3** | % |
| Iron Oxide ($Fe_2O_3$) | **5.3** | % |
| Total ($SiO_2$) + ($Al_2O_3$) + ($Fe_2O_3$) | **77.5** | **%** |
| Sulphur Trioxide ($SO_3$) | **0.3** | % |
| Calcium Oxide (CaO) | **12.0** | % |
| Magnesium Oxide | **3.6** | % |
| Moisture Content | **0.03** | % |
| Loss on Ignition | **2.94** | % |
| Total Alkalies as Equivalent $Na_2O$ | **2.94** | % |

## Physical Analysis

| | | |
|---|---|---|
| Fineness Retained on 45 um (No. 325 Sieve) | **7.5** | % |
| Fineness Retained on 160 um | **0.0** | |
| Quality of Air Entrianment | **1.1** | % |
| Strength Activity Index with Portland Cement | | |
| % of Control at 7 Days | **81** | % |
| % of Control at 28 Days *(previous month's result)* | **89** | % |
| Water Requirement, Percent of Control | **100** | % |
| Autoclave Expansion | **0.06** | % |
| Density | **2.66** | $g/cm^3$ |
| | | |
| Density, Variation from Average | **0.30** | **%** |
| Fineness 45um Sieve, Variation from Average | **1.90** | **%** |

We hereby certify that the composite fly ash sample above meets the chemical, physical and testing frequency requirements of CAN/CSA A3001 for Type F Fly Ash.

*** Tested at CCIL, ASTM C1077 and AASHTO R18 Acreedited Laboratory**

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