CTL | THOMPSON MATERIALS ENGINEERS, INC.

ASTM C618-25a - Chemical and Physical Analyses - Coal Ash/Pozzolans

CTL Ticket: 26006	Plant of Origin: Bridger	Sample Date Range: 12/16/2025
CTL Project: CT17328	Sample Type: Fly Ash	to: 01/15/2026
Report Date: 03/13/2026	Sample ID: BSL-001-26	Date Received: 01/21/2026
	Supplier: Bridgesource	

Chemical Composition (%)

(by Wyoming Analytical Laboratories, Inc.)

			ASTM C618-25a Class N	Class F	Class C
Silicon Dioxide:	*62.5*				
Aluminum Oxide:	*15.7*				
Iron Oxide:	*5.8*				
Total Silica, Aluminum, Iron:	*84.0*		≥70.0%	≥50.0%	≥50.0
Sulfur Trioxide:	*1.3*		≤4.0%	≤5.0%	≤5.0%
Calcium Oxide:	*5.6*		N/A	≤18.0%	>18.0%
Magnesium Oxide:	*2.07*		N/A	N/A	N/A
Total Alkalis, as Na_2O:	4.65				
Sodium:		3.75	Product Class:	Class F	
Potassium:		1.37	Conforms to Class:	Yes	

Volatile Composition (Mass%)

Moisture Content:	*0.1*	≤3.0%	≤3.0%	≤3.0%
Loss on Ignition:	*0.3*	≤10.0%	≤6.0%	≤6.0%

Physical Test Results

Fineness, Retained on #325 Sieve (%):	*25.4*	≤34%	≤34%	≤34%
Fineness, Retained on #100 Sieve (%)*:			≤10%	≤10%
*(Harvested ash bottom ash blends only)				
Strength Activity Index (%) *		* No 7-day limit if 28-day meets		
Percent of Control @ 7 Days:	*78*	≥75%	≥75%	≥75%
Percent of Control @ 28 Days:	*81*	≥75%	≥75%	≥75%
Water Requirement, % of Control:	*98*	≤115%	≤105%	≤105%
Soundness, Autoclave Expansion (%):	*0.00*	≤0.8%	≤0.8%	≤0.8%
Density (g/cm3) :	2.35	N/A	N/A	N/A

Uniformity

Established from 10 previous tests

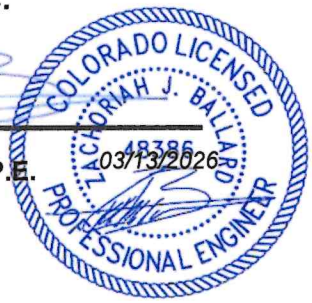
Average Fineness:	22.2	Difference	3.2(%)	±5(%)	±5(%)	±5(%)
Average Density:	2.40	Difference	-2.11%	±5%	±5%	±5%

Supplementary Requirements

Available Alkalis, as Na_2O	1.73%				
Sodium Oxide:	1.47%	Drying Shrinkage %: 0.01	≤0.03	≤0.03	≤0.03
Potassium Oxide:	0.4%				

Comments: *Meets ASTM C618-25 and AASHTO M295-25.*

CTL | Thompson, Inc.



Zachoriah J. Ballard, MCE, P.E. 03/13/2026

22 Lipan Street | Denver, Colorado 80223 | Telephone: 303-825-0777 Fax: 303-893-1568

January 28, 2026

Dennis Jonsrud
CTL Thompson, Materials Engineers, Inc.
22 Lipan St.
Denver, CO 80223

Request #: **45917**
WAL Sample #: **U3983**
Customer Sample ID: Bridgesource BSL-001-26 12-16-25--1-15-26 CT 17328.000 CTL 26006
PO#:
Project#:

Date Received: 1/26/2026
Sample Matrix: fly ash

CHEMICAL ANALYSIS
WT%, DRY BASIS

Silicon Dioxide, SiO_2	62.47
Aluminum Oxide, Al_2O_3	15.74
Iron Oxide, Fe_2O_3	5.78
Total ($SiO_2 + Al_2O_3 + Fe_2O_3$)	83.99
Calcium Oxide, CaO	5.62
Magnesium Oxide, MgO	2.07
Sodium Oxide, Na_2O	3.75
Potassium Oxide, K_2O	1.37
Total Alkalies as Na_2O	4.65
Titanium Dioxide, TiO_2	0.82
Manganese Dioxide, MnO_2	0.05
Phosphorus Pentoxide, P_2O_5	0.11
Strontium Oxide, SrO	0.15
Barium Oxide, BaO	0.46
Sulfur Trioxide, SO_3	1.31
Loss on Ignition (750°C)	0.30
Total	100.00
Moisture (105°C), as Received	0.07

Analysis per ASTM C 311/XRF
Analyst NHG/ 1/28/2026 13:04

Charles R. Wilson
Mineral Manager

Monte L. Ellis
Laboratory Director

WYOMING ANALYTICAL LABORATORIES, INC

1660 Harrison Street
Laramie, WY 82070

www.wal-lab.com
laramie@wal-lab.com

ph: 307-742-7995
fax: 307-721-8956