FAIRBORN CEMENT COMPANY

3250 Linebaugh Rd.
Xenia, OH 45385
Telephone (800) 762-0040
FAX (937) 879-8425

CEMENT MILL TEST

Cement Identified as: **Type I, Type II** **Date: 08/30/21**

Production Period: **July, 2021** **Silos: 2, 5, 6**

STANDARD CHEMICAL REQUIREMENTS (ASTM C 114)	SPECIFICATIONS	ASTM C 150 TYPE I	ASTM C 150 TYPE II (MH)	AASHTO M85 Type I	RESULTS
Silicon Dioxide (SiO2), %		------	------	------	**19.3**
Aluminum Oxide (Al2O3), %	Maximum	------	6.0	------	**4.4**
Ferric Oxide (Fe2O3), %	Maximum	------	6.0	------	**3.0**
Calcium Oxide (CaO), %		------	------	------	**62.0**
Magnesium Oxide (MgO), %	Maximum	6.0	6.0	6.0	**4.5**
Sulfur Trioxide (SO3), % [A]	Maximum	3.0	3.0	3.0	**3.3**
Loss on Ignition (LOI), %	Maximum	3.5	3.5	3.5	**2.6**
Insoluble Residue, %	Maximum	1.50	1.50	1.5	**0.62**
Alkalies (Na2O equivalent), %		------	------	------	**0.82**
Tricalcium Silicate (C3S), Potential %		------	------	------	**60**
Dicalcium Silicate (C2S), Potential %		------	------	------	**8**
Tricalcium Aluminate (C3A), Potential %	Maximum	------	8	------	**6**
Tetracalcium Aluminoferrite (C4AF), Potential %		------	------	------	**9**
C3S + 4.75C3A	Maximum		100		**91**
CO2, %					**1.5**
Limestone, %	Maximum	5.0	5.0		**3.6**
CaCO3 in Limestone, %	Minimum	70	70		**97**
PHYSICAL REQUIREMENTS					
(ASTM C 204) Blaine Fineness, m^2/kg	Range	260 Min.	260 - 430	260 Min.	**411**
(ASTM C 191) Time of Setting (Vicat)					
Initial Set, minutes	Minimum	45	45	45	**99**
Final Set, minutes	Maximum	375	375	375	**208**
(ASTM C 185) Air Content, %	Maximum	12	12	12	**7**
(ASTM C 151) Autoclave Expansion, %	Maximum	0.80	0.80	0.80	**0.12**
(ASTM C 1038) Expansion in Water, %	Maximum	0.02	0.02	0.02	**0.007**
(ASTM C 187) Normal Consistency, %		------	------	------	**26.4**
Heat of Hydration (ASTM C 1702)					
3 day, cal/g	Most Recent Value				**82**
(ASTM C 109) Compressive Strength, psi (Mpa)				------	
1 Day		------	------	------	**2674 (18.4)**
3 Day	Minimum	1740 (12.0)	1450 (10.0)	1740 (12.0)	**4301 (29.7)**
7 Day	Minimum	2760 (19.0)	2470 (17.0)	2760 (19.0)	**5117 (35.3)**
28 Day	Minimum	4060 (28.0)	4060 (28.0)	4060 (28.0)	**6188 (42.7)**

[A] *Per ASTM C150 Table 1 footnote D*

We hereby certify that this cement conforms to all of the standard requirements for portland cement in the above specification for the type specified.

By: Rusty Strader

Physical Testing completed by: DG, MS
Chemical Testing completed by: TA, NC, KL, NM

Rusty Strader
Quality Control Manager
Fairborn Cement Company

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Additional Data

Inorganic Processing Addition Data	Baghouse Dust	Limestone
Type	Baghouse Dust	---
Amount (%)	1.0	3.6
SiO2 (%)	12.3	2.6
Al2O3 (%)	4.3	1.1
Fe2O3 (%)	1.6	0.6
CaO (%)	42.6	50.4
SO3 (%)	1.0	0.4

Base cement Phase Composition	
C3S (%)	56
C2S (%)	12
C3A (%)	6
C4AF (%)	9

We hereby certify that this cement conforms to all of the standard requirements for portland cement in the above specification for the type specified.

By: Rusty Strader

Rusty Strader
Quality Control Manager
Fairborn Cement Company