



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

**CEMENT
MILL
TEST**

Cement Identified as: Type IA **Date:** 03/01/22
Production Dates: January, 2022 **Silo:** 7

| STANDARD CHEMICAL REQUIREMENTS (ASTM C114) | SPECIFICATIONS | ASTM C 150 TYPE IA | AASHTO M85 Type IA | RESULTS |
|--|----------------|-----------------------|-----------------------|---------------|
| Silicon Dioxide (SiO ₂), % | | ---- | | 19.3 |
| Aluminum Oxide (Al ₂ O ₃), % | | ---- | | 4.2 |
| Ferric Oxide (Fe ₂ O ₃), % | | ---- | | 3.1 |
| Calcium Oxide (CaO), % | | ---- | | 61.8 |
| Magnesium Oxide (MgO), % | Maximum | 6.0 | 6.0 | 4.0 |
| Sulfur Trioxide (SO ₃), % ^A | Maximum | 3.0 | 3.0 | 3.6 |
| Loss on Ignition (LOI), % | Maximum | 3.0 | 3.0 | 2.6 |
| Insoluble Residue, % | Maximum | 0.75 | 0.75 | 0.48 |
| Alkalies (Na ₂ O equivalent), % | | ---- | | 0.73 |
| Tricalcium Silicate (C ₃ S), Potential % | | ---- | | 62 |
| Dicalcium Silicate (C ₂ S), Potential % | | ---- | | 8 |
| Tricalcium Aluminate (C ₃ A), Potential % | | ---- | | 6 |
| Tetracalcium Aluminoferrite (C ₄ AF), Potential % | | ---- | | 9 |
| CO ₂ , % | | | | 1.2 |
| Limestone, % | Maximum | 5 | 5 | 1.2 |
| CaCO ₃ in Limestone, % | Minimum | 70 | 70 | 98 |
| PHYSICAL REQUIREMENTS | | | | |
| (ASTM C204) Blaine Fineness, m ² /kg | Minimum | 260 | 260 | 398 |
| (ASTM C191) Time of Setting (Vicat) | | | | |
| Initial Set, minutes | Minimum | 45 | 45 | 112 |
| Final Set, minutes | Maximum | 375 | 375 | 210 |
| (ASTM C185) Air Content, % | Range | 16-22 | 16-22 | 19 |
| (ASTM C151) Autoclave Expansion, % | Maximum | 0.80 | 0.80 | 0.10 |
| (ASTM C1038) Expansion in Water, % | Maximum | 0.02 | 0.02 | |
| (ASTM C187) Normal Consistency, % | | ---- | | 26.5 |
| (ASTM C109) Compressive Strength, psi (Mpa) | | | | |
| 1 Day | | | | 1880 (13.0) |
| 3 Day | Minimum | 1450 (10.0) | 1450 (10.0) | 2700 (18.6) |
| 7 Day | Minimum | 2320 (16.0) | 2320 (16.0) | 3510 (24.2) |
| 28 Day | Minimum | 3190 (22.0) | 3190 (22.0) | 4260 (29.4) |

^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, JT
 Chemical Testing completed by: TA, NC, KL, NM

Rusty Strader
 Quality Control Manager
 Fairborn Cement Company



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Additional Data

| Type | Inorganic Processing | |
|------------------------------------|----------------------|-----------|
| | Addition Data | Limestone |
| Amount (%) | Baghouse Dust | Limestone |
| SiO ₂ (%) | 0.0 | 2.7 |
| Al ₂ O ₃ (%) | 11.8 | 2.6 |
| Fe ₂ O ₃ (%) | 4.3 | 1.1 |
| CaO (%) | 1.7 | 0.6 |
| SO ₃ (%) | 44.2 | 50.4 |
| | 0.7 | 0.4 |

Base cement Phase Composition

| | |
|----------|----|
| C3S (%) | 60 |
| C2S (%) | 8 |
| C3A (%) | 5 |
| C4AF (%) | 9 |

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By: *Rusty Strader*

Rusty Strader
Quality Control Manager
Fairborn Cement Company