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**CEMENT  
MILL  
TEST**

**Cement Identified as:** Type IL (10) **Date:** 08/04/23  
**Production Period:** June, 2023 **Silos:** 2,5,9

STANDARD CHEMICAL REQUIREMENTS (ASTM C114)	SPECIFICATIONS	ASTM C595 Type IL	RESULTS
Sulfur Trioxide (SO <sub>3</sub> ), % <sup>A</sup>	Maximum	3.0	3.4
Alkalies (Na <sub>2</sub> O equivalent), %			0.81
Loss on Ignition (LOI), %	Maximum	10.0	5.3
CaCO <sub>3</sub> in Limestone, %	Minimum	70	76
Limestone, %	Maximum	7.5 - 12.5	10.5
<b>PHYSICAL REQUIREMENTS</b>			
(ASTM C204) Blaine Fineness, m <sup>2</sup> /kg			463
(ASTM C430) 45-um sieve, % retained			1.3
(ASTM C191) Time of Setting (Vicat)			
Initial Set, minutes	Range	45 - 420	131
Final Set, minutes			239
(ASTM C185) Air Content, %	Maximum	12	7
(ASTM C151) Autoclave Expansion, %	Min / Max	-0.20 / 0.80	0.13
(ASTM C1038) Expansion in Water, %	Maximum	0.02	0.013
(ASTM C452), Sulfate Resistance, %			0.03
(ASTM C187) Normal Consistency, %			26.7
(ASTM C188) Density (g/cm <sup>3</sup> )			3.07
Heat of Hydration (ASTM C1702) 3 day, cal/g	Most Recent Value		79.5
(ASTM C109) Compressive Strength, psi (Mpa)			
1 Day		-----	2811 ( 19.4 )
3 Day	Minimum	1890 ( 13.0 )	4464 ( 30.8 )
7 Day	Minimum	2900 ( 20.0 )	5326 ( 36.7 )
28 Day	Minimum	3620 ( 25.0 )	6513 ( 44.9 )

<sup>A</sup> Per ASTM C595 Table 1 footnote B

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: TL, JT  
 Chemical Testing completed by: CA, NC, KL, NM

Rusty Strader  
 Quality Control Manager  
 Fairborn Cement Company