



Suwannee American Cement Branford Plant

Portland Cement Type I-II (MH)

Silos: 2, 5

Production Period : 3/1/2019 To 3/31/2019

STANDARD REQUIREMENTS

| Chemical Data | | | Physical Data | | | |
|------------------------------------------------|-------------|---------|----------------------------------------|-------------------|----------------|-------------|
| Item | Spec. Limit | Results | Item | Spec. Limit | Results | |
| SiO ₂ (%) | A | 20.0 | Air Content of mortar (volume %) | 12 max | 8 | |
| Al ₂ O ₃ (%) | 6.0 max | 5.2 | Blaine fineness (m ² /kg)** | 260 min / 430 max | 405 | |
| Fe ₂ O ₃ (%) | 6.0 max | 3.4 | Autoclave expansion (%) | 0.80 max | 0.10 | |
| CaO (%) | A | 64.4 | Compressive strength (MPa/[psi]): | | | |
| MgO (%) | 6.0 max | 0.6 | | 1 day | | 15 [2180] |
| SO ₃ (%)* | 3.0 max | 3.1 | | 3 days | 12.0[1740] min | 25.4 [3680] |
| Loss of ignition (%) | 3.5 max | 3.2 | | 7 days | 19.0[2760] min | 36.6 [5310] |
| Na ₂ O (%) | A | 0.12 | 28 days (previous month) | 28.0[4060] min | 51.5 [7470] | |
| K ₂ O (%) | A | 0.20 | Time of setting (minutes) | | | |
| Insoluble residue (%) | 1.5 max | 0.24 | (Vicat) Initial | 45 min | 76 | |
| CO ₂ (%) | A | 1.8 | (Vicat) Final | 375 max | 205 | |
| Limestone (%) | 5.0 max | 4.5 | Heat of hydration (ASTM C1702 3d) | B | 269 | |
| CaCO ₃ in limestone (%) | 70 min | 90 | Mortar Bar Expansion (ASTM C1038) (%)* | 0.020 max | 0.009 | |
| Inorganic process addition (%) | 5.0 max | -- | Base Cement Phase Composition | | | |
| Sum of C ₃ S + 4.75C ₃ A | 100 max | 93 | C ₃ S (%) | | 57 | |
| Potential phase composition | | | C ₂ S (%) | | 16 | |
| C ₃ S (%) | A | 54 | C ₃ A (%) | | 8 | |
| C ₂ S (%) | A | 16 | C ₄ AF (%) | | 11 | |
| C ₃ A (%) | 8 max | 8 | | | | |
| C ₄ AF (%) | A | 10 | | | | |

OPTIONAL REQUIREMENTS

| Item | Spec. Limit | Results | Item | Spec. Limit | Results |
|---------------------|-------------|---------|------------------------------------------|-------------|---------|
| Equiv. Alkalies (%) | 0.60 max | 0.25 | False Set (%) | 50 min | 87 |
| Chloride (%) | B | 0.02 | Density (ASTM C188) (g/cm ³) | B | 3.15 |

Additional Data

| Type | Limestone | Inorganic Processing Addition |
|------------------------------------|-----------|-------------------------------|
| Amount | 4.5 | -- |
| SiO ₂ (%) | 6.0 | -- |
| Al ₂ O ₃ (%) | 0.6 | -- |
| Fe ₂ O ₃ (%) | 0.3 | -- |
| CaO (%) | 50.6 | -- |
| SO ₃ (%) | 0.3 | -- |

This cement meets ASTM C150-18 and AASHTO M 85-18 Specification for Type I-II Portland Cement

This cement also meets all applicable FDOT (Facility ID: CMT 29), GADOT (Source Code: 53), ALDOT (CAMMS ID: 10146), SCDOT,

and NCDOT (Plant ID: CM69) specifications for Type I-II cement

*It is permissible to exceed the max value for SO₃ content, provided it is demonstrated by ASTM C1038 that the cement will not develop expansion exceeding 0.020% in 14 Days

** Maximum fineness limits do not apply if the sum of C₃S + 4.75C₃A is less than or equal to 90.

A Not applicable.

B Test result represents most recent value and is provided for information only.

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Brandford Cement Plant

Suwannee American Cement

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