



Suwannee American Cement

Sumterville Plant

Portland Cement Type IL (13) - Silo 3

Production Date: 02/01/2020 To 02/29/2020

STANDARD REQUIREMENTS

| Chemical Data | | | Physical Data | | |
|--|-------------|---------|--|--------------------|----------------|
| Item | Spec. Limit | Results | Item | Spec. Limit | Results |
| SiO ₂ (%) | A | 18.2 | Air Content of mortar (volume %) | 12 max | 7 |
| Al ₂ O ₃ (%) | A | 4.4 | Blaine fineness (m ² /kg)** | A | 486 |
| Fe ₂ O ₃ (%) | A | 3.3 | Autoclave expansion (%) | -0.20 min/0.80 max | 0.07 |
| CaO (%) | A | 63.9 | Fineness, retained in #325 | A | 2.7 |
| MgO (%) | A | 1.1 | Compressive strength (MPa/[psi]): | | |
| SO ₃ (%)* | 3.0 max | 3.2 | 1 day | | 14.5 [2103] |
| Loss of ignition (%) | 10.0 max | 6.4 | 3 days | 13.0[1890] min | 27.0 [3915] |
| Na ₂ O (%) | A | 0.20 | 7 days | 20.0[2900] min | 34.5 [5000] |
| K ₂ O (%) | A | 0.56 | 28 days (previous month) | 28.0[4060] min | 40.1 [5820] |
| Insoluble residue (%) | A | 0.37 | Time of setting (minutes) | | |
| CO ₂ (%) | A | 4.7 | (Vicat) Initial | 45 min | 96 |
| Limestone (%) | 15.0 max | 11.1 | (Vicat) Final | 375 max | 218 |
| CaCO ₃ in limestone (%) | 70 min | 97 | Sulfate Resistance (ASTM C1012 180d) (%) | 0.10 max | 0.03 |
| Inorganic process addition (%) | 5.0 max | -- | Heat of hydration (ASTM C1702 3d) | B | 69cal/g-287J/g |
| Sum of C ₃ S + 4.75C ₃ A | A | 81 | Mortar Bar Expansion (ASTM C1038) (%)* | 0.020 max | 0.005 |
| Potential phase composition | | | Base Cement Phase Composition | | |
| C ₃ S (%) | A | 47 | C ₃ S (%) | | 55 |
| C ₂ S (%) | A | 17 | C ₂ S (%) | | 20 |
| C ₃ A (%) | A | 7 | C ₃ A (%) | | 8 |
| C ₄ AF (%) | A | 10 | C ₄ AF (%) | | 11 |

OPTIONAL REQUIREMENTS

| Item | Spec. Limit | Results | Item | Spec. Limit | Results |
|---------------------|-------------|---------|--|-------------|---------|
| Equiv. Alkalies (%) | 0.60 max | 0.57 | False Set (%) | 50 min | 59 |
| Chloride (%) | B | 0.00 | Density (ASTM C188) (g/cm ³) | B | 3.06 |

Additional Data

| Type | Limestone | Inorganic Processing Addition |
|------------------------------------|-----------|-------------------------------|
| Amount | 11.1 | -- |
| SiO ₂ (%) | 0.4 | -- |
| Al ₂ O ₃ (%) | 0.1 | -- |
| Fe ₂ O ₃ (%) | 0.1 | -- |
| CaO (%) | 54.9 | -- |
| SO ₃ (%) | 0.1 | -- |

This cement meets ASTM C595 and AASHTO M240 Specification for Type IL (MS) Portland 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

A Not applicable.

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

C Test result is not yet available

March 5, 2020
 Sumterville Cement Plant
 Suwannee American Cement
 4750 E County Rd 470
 Sumterville, FL 32008
 Tel: (352) 569-5393 - Fax: (352) 569-5397

Tammy Martin
 Quality Control Manager