Florida Department of Transportation

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605 Suwannee Street
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JIM BOXOLD
SECRETARY

December 23, 2015

Khoa Nguyen
Director, Office of Technical Services
Federal Highway Administration
3500 Financial Plaza, Suite 400
Tallahassee, Florida 32312

Re: State Specifications Office
Section **924**
Proposed Specification: **9240202 Admixtures for Concrete.**

Dear Mr. Nguyen:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

The changes are proposed by Amy Tootle of the State Construction Office to require all construction-related documentation to be submitted by electronic means for consistency with the State Construction Office e-Construction initiative.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via email to daniel.scheer@dot.state.fl.us.

If you have any questions relating to this specification change, please call me at 414-4130.

Sincerely,

Signature on file

Daniel Scheer, P.E.
State Specifications Engineer

DS/dt
Attachment
cc: Florida Transportation Builders' Assoc.
State Construction Engineer

ADMIXTURES FOR CONCRETE.
(REV 10-14-15)

SUBARTICLE 924-2.2 is deleted and the following substituted:

924-2.2 Certification: Manufacturers of admixtures shall ~~provide~~ submit certified test results from an independent laboratory inspected by the Cement and Concrete Reference Laboratory (CCRL) on a regular basis for applicable tests, with all deficiencies corrected for APL approval and upon request of the Engineer.

SUBARTICLE 924-2.7 is deleted and the following substituted:

924-2.7 For Corrosion Inhibitors: Corrosion inhibitors shall meet the requirements of ASTM G109 and all requirements in this Section.

Calcium nitrite is a chemically reactive admixture used in concrete to inhibit the corrosion of embedded reinforcing steel and other metallic components. The calcium nitrite supplier shall ~~furnish~~ submit to the Engineer ~~with~~ test certificates from an independent laboratory indicating compliance with this Specification. The test certificate shall include corrosion inhibiting properties per ASTM G109 and results of physical tests included in this section. Calcium nitrite shall be supplied by the same manufacturing source throughout the project. If a single primary source of calcium nitrite cannot be maintained throughout the project, new test certificates shall be submitted. The Engineer will determine specification compliance of a new supplier's product, and evaluate the effectiveness of the new calcium nitrite product before approving the source.

The active ingredient shall be calcium nitrite $Ca(NO_2)_2$.

The calcium nitrite shall be furnished in solution containing not less than 29% calcium nitrite solids. The concentration of the calcium nitrite solution shall be verified by spectrophotometric analysis or other comparable methods. The nitrite concentration shall be measured in accordance with Standard Methods for the Examination of Water and Waste Water, 18th Edition.

A volume of one gallon of calcium nitrite solution shall weigh within the range of 10.40 to 11.92 lb.

The calcium nitrite solution shall be added to the concrete mixture at a rate of 4.50 to 4.60 gal/yd^3 of concrete.

The addition of calcium nitrite to the concrete mix shall not adversely affect the properties of fresh and hardened concrete.

Calcium Nitrite concrete shall meet the following physical requirements when mixed and tested in accordance with AASHTO M194:

Water Content, % of control	95 to 100
Time of setting, allowable deviation from control, h:min:	
Initial: at least not more than	1:00 earlier nor 1:30 later
Final: at least not more than	1:00 earlier nor 1:30 later
Compressive Strength, min. % of control:	shall be 100 for all ages

Flexural strength, min, % of control:	shall be 100 for all ages
Length change, max Shrinkage (alternative Requirements): % of control	135
Increase over control	0.010
Relative durability factor, min	80

The following table lists the corrosion inhibiting test result limits for calcium nitrite concrete tested in accordance with ASTM G109:

Maximum Allowable Test Results of Calcium Nitrite Concrete	
Measured average macrocell current any time during the test	10 μA
Average macrocell current at test completion	2 μA
Average visible corrosion measured as percent corroded area of control	85%

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