ORIGINATION FORM
Proposed Revisions to the Specifications
(Please provide all information - incomplete forms will be returned)

Date: October 22,2021

Originator: Ron Simmons

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Office: State Materials Office

Specification Section: 413

Article/Subarticle: 413-3.2

Associated Section(s) Revisions: None

Will the proposed revision require changes to:

Publication	Yes	No	Office Staff Contacted
Standard Plans Index	○	◉	Joshua Turley, Rick Jenkins
Traffic Engineering Manual	○	◉	Javier Ponce
FDOT Design Manual	○	◉	Gevin McDaniel
Construction Project Administration Manual	○	◉	Scott Arnold
Basis of Estimate/Pay Items	○	◉	Ryan Gray, Melissa Hollis
Structures Design Guidelines	○	◉	Ben Goldsberry
Approved Product List	○	◉	Karen Byram
Materials Manual	○	◉	Tim Counts

Will this revision necessitate any of the following:

Design Bulletin ☐ **Construction Bulletin** ☐ **Estimates Bulletin** ☐ **Materials Bulletin** ☐

Are all references to external publications current? **Yes** ◉ **No** ○

If not, what references need to be updated? (Please include changes in the redline document.)

None

Why does the existing language need to be changed?

Exisitng language needed to be changed to clarify requirements and update test methods

Summary of the changes:

Adjusted language to make clear it is a system, replaced 2 test methods, clarified an additional method, and increased the initial rate of dispersion based on feild comments that it was too low.

Are these changes applicable to all Department jobs? **Yes** ◉ **No** ○

If not, what are the restrictions?

None

Contact the State Specifications Office for assistance in completing this form.

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SECRETARY

M E M O R A N D U M

DATE: November 18, 2021

TO: Specification Review Distribution List

FROM: Daniel Strickland, P.E., State Specifications Engineer

SUBJECT: Proposed Specification: **4130302 Sealing Cracks and Concrete Structure Surfaces.**

In accordance with Specification Development Procedures, we are sending you a copy of a proposed specification change.

The changes are proposed by Ronald Simmons from the State Materials Office to clarify requirements and update test methods.

Please share this proposal with others within your responsibility. Review comments are due within four weeks and should be sent to Mail Station 75 or online at http://fdotewp1.dot.state.fl.us/programmanagement/development/industryreview.aspx . Comments received after **December 16, 2021,** may not be considered. Your input is encouraged.

DS/ra

Attachment

SEALING CRACKS AND CONCRETE STRUCTURE SURFACES
(REV 11-8-21)

SUBARTICLE 413-3.2 is deleted and the following substituted:

413-3.2 Materials: Use a methacrylate system that has a three component formulation consisting of methacrylate monomer, cumene hydroperoxide (CHP) initiator, and cobalt promoter. The methacrylate system cannot contain wax. Use a HMWM ~~monomer~~ system that is approved by the Department and included on the Department's Approved Product List (APL). ~~Use initiator and promoter approved by the monomer manufacturer.~~ Manufacturers seeking evaluation of their products must submit an application conforming to the requirements of Section 6 along with the following documentation:

1. Manufacturer's material installation instructions showing the product can be installed in accordance with this Section.
2. Independent laboratory test data and results showing the product has been tested in accordance with the requirements of this Section and meets the requirements.
3. Qualification of their on-site representatives.

413-3.2.1 Properties: Use a methacrylate ~~material~~ system that meets the following physical and performance requirements:

Table 413-2
Physical Properties of Methacrylate ~~Resin~~System

~~Viscosity (Brookfield RVT)~~	~~14-20 cps at 50 rpm~~
Density (ASTM D1481)	8.5 - 9.0 lb/gl at 77° F
Flash Point (ASTM D93)	> 200°F (Pensky Martens CC)
Odor	Low
Bulk Cure Speed	3 Hours @ 73°F (max.)
Surface Cure	8 Hours @ 73°F (max.)
Gel Time(1)	60 minutes (max.) @ 73.4 ± 1.8°F
Tack Free Time	4-6 Hours (max.) (at 72°F and 50% Relative Humidity
Compressive Strength (ASTM D695~~AASHTO T106~~)	6,500 psi (min)
Tensile Strength (ASTM ~~C307~~D638)	1,300 psi (min)
Shear Bond Adhesion (ASTM C882)	600 psi (min)
Elongation(2) (ASTM D638)	~~10% to 30%~~Report
Physical Properties of Methacrylate monomer (Part A)	
Viscosity (ASTM D2196, Method A)~~Wax Content~~	14-20 cps using Ultra Low Adapter~~0~~

1. Use a test method capable of measuring the gel time to the nearest 0.5 minute.
2. Do not use methacrylate with elongation less than 20% for concrete decks supported by steel girders.

The monomer shall have a shelf life of no less than 12 months and shall be no more than 8 months old at the time of application. Provide each container shipped to the job site with the following information on a manufacturer's label: manufacturer's name, product name, lot or batch number, date of production, and drum serial number. Identify the catalysts by their generic classification and provide the date of manufacture.

SUBARTICLE 413-3.4.6 is deleted and the following substituted:

413-3.4.6 Sand Distribution: Apply sand over the monomer treated area within a timely period following the application of the polymer based on the manufacturer's recommendations for the existing conditions. Use equipment that will produce a uniform distribution of the sand over the treated area. If wheel mounted, use a sand spreader that has pneumatic tires compatible with the treatment material such that no tire footprints are left on the deck surface.

Use an initial application rate of ~~0.6~~1.0 (plus or minus 0.05) pounds of sand per square yard of treated ~~area, and~~area and adjust the rate as necessary to produce a friction number (FN) of no less than FN40R greater than or equal to 35 at 7 days. If friction numbers below those specified are obtained, completely remove all loose sand from the surface and re-apply the polymer at a rate of 150 square feet per gallon and spread additional sand as necessary to achieve the specified friction numbers. Remove the surface material by grinding, shot blasting, or other approved method if satisfactory friction values are not achieved. Friction tests must be conducted in accordance with AASHTO T242, using the ribbed tire option. Secure the services of an independent enterprise with prior experience on roadway friction testing with the equipment described to perform the friction tests.