

ORIGINATION FORM

Date: 12/3/13

Originator: Charles Boyd

Contact Information: 414-4275

Specification Title: **NONMETALLIC ACCESSORY MATERIALS FOR CONCRETE PAVEMENT AND CONCRETE STRUCTURES**

Specification Section, Article, or Subarticle Number: **932-1.3.1 and 1.3.2**

Why does the existing language need to be changed? **To clarify that Type D silicone can be used per the Design Standard 21110 or as shown in the plans, and to delete an incorrect 2" callout.**

Summary of the changes: **Added clarification to 932-1.3.1 and deleted 2" callout from Table 932-1.3.2 in the "Movement Capability" section.**

Are these changes applicable to all Department jobs? **Yes**

If not, what are the restrictions?

Will these changes result in an increase or decrease in project costs? **No**

If yes, what is the estimated change in costs?

With who have you discussed these changes? **Changes are based on review comments on proposed 458 spec changes.**

What other offices will be impacted by these changes? **Construction**

Are changes needed to the PPM, Design Standards, SDG, CPAM or other manual? **No**

Is a Design Bulletin, Construction Memo, or Estimates Bulletin needed? **No**

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

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ANANTH PRASAD, P.E.
SECRETARY

MEMORANDUM

DATE: December 13, 2013

TO: Specification Review Distribution List

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

SUBJECT: Proposed Specification: **9320103 Nonmetallic Accessory Materials for Concrete Pavement and Concrete Structures.**

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

This change was proposed by Charles Boyd of the State Structures Design Office modify the language for current Department practice.

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 to my attention via e-mail at SP965DS, or daniel.scheer@dot.state.fl.us. Comments received after **January 10, 2014**, may not be considered. Your input is encouraged.

DS/dt
Attachment

NONMETALLIC ACCESSORY MATERIALS FOR CONCRETE PAVEMENT AND CONCRETE STRUCTURES.

(REV 12-3-13)

SUBARTICLE 932-1.3.1 is deleted and the following substituted:

932-1.3.1 Low Modulus Silicone Sealants: Silicone sealant shall be furnished in a one part or pre-measured two part formulation meeting the requirements specified herein.

Acetic acid cure sealants are not acceptable. A primer as specified in 932-1.4 for bonding sealant to concrete shall be used if required by the manufacturer. When a manufacturer's product is tested and approved by the Department using a primer, primer will be required for project installation.

Do not use Low Modulus Silicone Sealants Types A, B or C for bridge expansion joints.

Silicones shall be identified in the following manner:

Type A - A low modulus, non-sag (non-self-leveling) silicone formulation, used in sealing horizontal and vertical joints in cement concrete pavements and bridges (i.e., concrete-concrete joints). Tooling is required.

Type B - A very low modulus, self-leveling silicone formulation, used in sealing horizontal joints (including joints on moderate slopes) in cement concrete pavements and bridges (i.e., concrete-concrete joints). Tooling is not normally required.

Type C - An ultra-low modulus, self-leveling silicone formulation, used in sealing horizontal joints (including joints on moderate slopes) in cement concrete pavements and bridges (i.e., concrete-concrete joints). It can also be used to seal the joints between cement concrete pavements and asphalt concrete shoulders (including asphalt-asphalt joints). Tooling is not normally required.

Type D - An ultra-low modulus, self-leveling silicone formulation, cold-applied, rapid-cure, used to seal expansion joints that experience both thermal and/or vertical movements. The material must cure by chemical reaction and not by evaporation of solvent or fluxing of harder particles. Tooling shall not be required. Use according to Design Standards, Index No. 21110 *for bridge deck expansion joints with backer rods or as shown in the Plans for other joints with or without backer rods.*

SUBARTICLE 932-1.3.2 is deleted and the following substituted:

932-1.3.2 Physical Requirements:

Silicone Sealant Type	Test Method	Type A	Type B	Type C	Type D
Flow	ASTM d5893	No Flow			
Slump (maximum)	ASTM d2202	0.3 inches			
Extrusion	ASTM C1183,	20 ml/min	20 ml/min	20 ml/min	20 ml/min

Silicone Sealant Type	Test Method	Type A	Type B	Type C	Type D
rate (minimum)	Procedure A				
Tack-free time at 77 ± 3°F and 45 to 55% Relative Humidity	ASTM C679	90 minutes maximum	180 minutes, maximum	60 minutes, maximum	30 – 60 minutes
Specific gravity	ASTM D792, Method A	1.1 to 1.515	1.10 to 1.40	1.26 to 1.34	1.26 to 1.34
Durometer hardness, Shore A (Cured seven days at 77 ± 3°F and 50 ± 5% Relative Humidity)	ASTM D2240	10-25			
Durometer hardness, Shore 00 (Cured 21 days at 77 ± 3°F and 50 ± 5% Relative Humidity)	ASTM D2240		40-80	20-80	
Tensile stress (maximum) at 150% elongation	ASTM D412 (Die C)	45 psi	40 psi	15 psi	
Elongation (Cured seven days at 77 ± 3°F and 50 ± 5% Relative Humidity)	ASTM D412 (Die C)	800% minimum			600% minimum
Elongation (Cured 21 days at 77 ±	ASTM D412 (Die C)		800% minimum	1400% minimum	

Silicone Sealant Type	Test Method	Type A	Type B	Type C	Type D
3°F and 50 ± 5% Relative Humidity)					
Ozone and Ultraviolet Resistance	ASTM C793	No chalking, cracking or bond loss after 5,000 hours, minimum.			
Bond to concrete mortar briquets (primed if required) (Cured seven days at 77 ± 3°F and 50 ± 5% Relative Humidity)	AASHTO T132	50 psi minimum			
Bond to concrete briquets (Cured 21 days at 77 ± 3°F and 50 ± 5% Relative Humidity)	AASHTO T132		40 psi minimum	35 psi minimum (includes bond to asphalt)	
Movement Capability	ASTM C719	No adhesive or cohesive failure and adhesion, 10 cycles at -50 to +100%			No adhesive or cohesive failure and adhesion, 10 cycles at +100/-50 % (joints 2" wide)

Portland Cement Mortar: Briquettes shall be molded and cured 28 days minimum in accordance with AASHTO T132. Cured briquettes shall be dried at 230°, plus or minus 5°F, sawed in half and bonded together with a thin section of sealant. After cure of sealant, briquettes shall be tested in accordance with AASHTO T132.