



Florida Department of Transportation

RON DESANTIS
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

JARED W. PERDUE, P.E.
SECRETARY

September 15, 2026

Daniel Holt, PE, PTOE
Director, Project Delivery
Director, Technical Services
FHWA
400 West Washington Street, Suite 4200
Orlando, FL 32801

Re: State Specifications Office
Section: 974
Proposed Specification: **9740100 Surface Applications**

Dear Mr. Holt:

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

The changes are proposed by James Greene to add material requirements for Section 333 and 403.

Please review and transmit your comments, if any, within two weeks (10 business days). Comments should be sent via email daniel.strickland@dot.state.fl.us.

If you have any questions relating to this specification change, please call me at (850) 414-4130.

Sincerely,

Signature on File

Daniel Strickland, P.E.
State Specifications Engineer

DS/jb

Attachment

cc: Florida Transportation Builders' Assoc.
State Construction Engineer

SURFACE APPLICATIONS (REV 6-18-26)

SUBARTICLE 974-1 is deleted and the following substituted:

974-1 Description.

This section specifies the material requirements for detectable warnings, patterned pavement, ~~and~~ green-colored pavement markings, high friction surface treatment, and epoxy concrete overlay.

SECTION 974 is expanded by the following Articles:

974-5 High Friction Surface Treatment.

974-5.1 General: Use a two-part polymer resin binder treatment capable of retaining a bauxite aggregate topping under vehicular traffic conditions.

974-5.2 Approved Product List Requirements: Manufacturers seeking evaluation of products for inclusion on the APL shall submit an application in accordance with Section 6 and include the documentation identified in Table 974-8. Documentation and reports must demonstrate that the product meets the requirements of this Section.

Table 974-8	
<u>Documentation</u>	<u>Requirements</u>
<u>Product Photo</u>	<u>Displays the significant features of each product.</u>
<u>Technical Data Sheet</u>	<u>Uniquely identifies each product and includes product's specifications, storage instructions, and recommended installation materials and equipment as applicable.</u> <u>Include the following information as applicable:</u> <u>1. Use on concrete surfaces</u> <u>2. Use on asphalt surfaces (dense graded, open graded, etc)</u> <u>3. Primers, sealers, etc.</u>
<u>Product Label/Ticket</u>	<u>For each component of the product system. Labels must contain the following information as applicable:</u> <u>1. Uniquely identifies the product name.</u> <u>2. Address of the manufacturer.</u> <u>3. Show the date of manufacture, and lot number.</u> <u>4. Warning of any special handling or precautions of the material, as recommended by the manufacturer.</u> <u>The component materials shall be clearly marked with the volume of materials in units of gallons and the product name.</u>
<u>Safety Data Sheet (SDS)</u>	<u>SDS meeting OSHA requirements for each product component and manufacturer recommended installation materials as applicable.</u>
<u>Independent Laboratory Test Report</u>	<u>Submit independent laboratory test results meeting the requirements in Tables 974-9 and 974-10.</u>
<u>Installation Instructions*</u>	<u>Includes the following information as applicable:</u>

<u>Table 974-8</u>	
<u>Documentation</u>	<u>Requirements</u>
	<u>1. Surface preparation and installation procedures</u> <u>2. The minimum gel and curing time prior to installing the product.</u> <u>3. Installation materials and equipment.</u> <u>4. Aggregate source and rate of application.</u> <u>5. Method of application for measuring, mixing, placing, and finishing.</u> <u>6. Storage and handling of the components.</u> <u>7. Disposal and recycling method.</u> <u>8. Contingency plan.</u> <u>Include instructions for repair of any surface defects, including cracking, bleeding, raveling, and delamination.</u>
<u>Product Sample</u>	<u>Submit upon request from the Department. If the product is a system, a sample of each component must be submitted.</u>
<u>*Aggregate suppliers may be exempt from the installation instructions.</u>	

974-5.3 Polymer Binder: The polymer resin binder shall consist of a thermosetting modified polymer compound and shall meet the Table 974-9.

<u>Table 974-9</u> <u>Polymer Resin Binder Requirements</u>		
<u>Property</u>	<u>Test Method</u>	<u>Requirement</u>
<u>Viscosity</u>	<u>ASTM D2556</u>	<u>700 – 3,000 cP</u>
<u>Gel Time</u>	<u>ASTM C881</u> <u>(60 gram mass)</u>	<u>≥10 minutes</u>
<u>Ultimate Tensile Strength</u>	<u>ASTM D638</u> <u>(Type 1 Specimen)</u>	<u>2,000 – 5,000 psi</u>
<u>Elongation at break point</u>	<u>ASTM D638</u> <u>(Type 1 Specimen)</u>	<u>30 – 70%</u>
<u>Durometer Hardness (shore D)</u>	<u>ASTM D2240</u>	<u>60 – 80</u>
<u>Compressive Strength</u>	<u>ASTM C579</u>	<u>≥1,000 psi at 3 hours</u> <u>≥5,000 psi at 7 days</u>
<u>Cure Rate (dry time)</u>	<u>ASTM D1640</u>	<u>≤3 hours</u>
<u>Water Absorption</u>	<u>ASTM D570</u>	<u>≤1.0%</u>
<u>Adhesive Strength at 24 hrs</u>	<u>ASTM C1583</u>	<u>≥250 psi or</u> <u>100% substrate failure</u>

974-5.4 Aggregate: The aggregate shall be a calcined bauxite. The aggregate shall be clean, dry, and free from foreign matter. The aggregate shall meet the following requirements:

<u>Table 974-10</u> <u>Aggregate Requirements</u>		
<u>Property</u>		<u>Test Methods</u>
<u>Aggregate Abrasion Value</u>		<u>AASHTO T 96</u>
<u>Aggregate Grading</u>	<u>No. 4 Sieve Size</u>	<u>AASHTO T 27</u>
	<u>No. 6 Sieve Size</u>	<u>AASHTO T 27</u>
	<u>No. 16 Sieve Size</u>	<u>AASHTO T 27</u>
<u>Moisture Content</u>		<u>AASHTO T 255</u>
<u>Aluminum Oxide</u>		<u>ASTM C25</u>

974-6 Epoxy Concrete Overlay (Bridge Deck)

974-6.1 General: Epoxy concrete overlay consists of three components: primer, binder, and aggregate. The primer and binder provide preservation for the bridge deck, while the aggregate provides surface friction for traffic.

974-6.2 Approved Product List Requirements: Manufacturers seeking evaluation of products for inclusion on the APL shall submit an application in accordance with Section 6 and include the documentation identified in Table 974-11. Documentation and reports must demonstrate that the product meets the requirements of this Section.

<u>Table 974-11</u>	
<u>Documentation</u>	<u>Requirements</u>
<u>Product Photo</u>	<u>Displays the significant features of each product.</u>
<u>Technical Data Sheet</u>	<u>Uniquely identifies each product and includes product's specifications, storage instructions, and recommended installation materials and equipment as applicable.</u> <u>Include the following information as applicable:</u> <u>1. Use on concrete surfaces</u> <u>2. Comparable concrete repair materials</u>
<u>Product Label/Ticket</u>	<u>For each component of the product system. Labels must contain the following information as applicable:</u> <u>1. Uniquely identifies the product name.</u> <u>2. Address of the manufacturer.</u> <u>3. Show the date of manufacture, and lot number.</u> <u>4. Warning of any special handling or precautions of the material, as recommended by the manufacturer.</u> <u>The component materials shall be clearly marked with the volume of materials in units of gallons and the product name.</u>
<u>Safety Data Sheet (SDS)</u>	<u>Provide SDS meeting OSHA requirements for product and manufacturers recommend installation materials as applicable.</u> <u>Non-Hazardous, per RCRA Subtitle C Table 1 of 40 CFR 261.24 "Toxicity Characteristic" and not exude fumes which are hazardous, toxic, or detrimental to persons or property.</u>
<u>Independent Laboratory Test Report</u>	<u>Submit independent laboratory test results meeting the requirements in Tables 974-12, 974-13 and 974-14.</u>
<u>Installation Instructions*</u>	<u>Uniquely identifies the product and includes the following information as applicable:</u>

<u>Table 974-11</u>	
<u>Documentation</u>	<u>Requirements</u>
	<u>1. Surface preparation and installation procedures.</u> <u>2. The minimum gel and curing time prior to installing the product.</u> <u>3. Installation materials and equipment.</u> <u>4. Rate of application.</u> <u>5. Method of application for measuring, mixing, placing, and finishing epoxy concrete overlay.</u> <u>6. Method for protecting areas not to receive epoxy concrete overlay.</u> <u>7. Description of acceptable environmental conditions for placing epoxy concrete overlay.</u> <u>8. Storage and handling of components.</u> <u>9. Disposal and recycling of excess epoxy concrete overlay and containers.</u> <u>10. Contingency plan.</u> <u>Include instructions for repair of any surface defects, including cracking, bleeding, raveling, and delamination.</u>
<u>Product Sample</u>	<u>Submit upon request from the Department. If the product is a system, a sample of each component must be submitted.</u>
<u>*Aggregate suppliers may be exempt from the installation instructions.</u>	

974-6.3 Primer: The primer shall be compatible with the epoxy binder and meet the requirements in Table 974-12.

<u>Table 974-12</u>		
<u>Primer Requirements</u>		
<u>Property</u>	<u>Test Method</u>	<u>Requirement</u>
<u>Viscosity</u>	<u>ASTM D2556</u>	<u>≤100 cP</u>
<u>Flash Point</u>	<u>ASTM D3278</u>	<u>≥180 °F</u>
<u>Adhesion to Surface</u>	<u>ASTM C1583</u>	<u>≥250 psi</u>

974-6.4 Epoxy Binder: The binder shall meet the requirements in Table 974-13.

Table 930-13 Epoxy Binder Requirements ¹		
<u>Property</u>	<u>Test Method</u>	<u>Requirement</u>
<u>Viscosity</u>	<u>ASTM D2556</u>	<u>1,000 – 2,500 cP</u>
<u>Flash Point</u>	<u>ASTM D3278</u>	<u>≥180 °F</u>
<u>Gel Time</u>	<u>ASTM C881</u>	<u>≥10 minutes²</u>
<u>Compressive Strength</u>	<u>ASTM C579</u>	<u>≥1,000 psi at 3 hours</u> <u>≥5,000 psi at 7 days</u>
<u>Tensile Strength</u>	<u>ASTM D638</u>	<u>2,000 – 7,000 psi at 7 days</u>
<u>Tensile Elongation</u>	<u>ASTM D638</u>	<u>30 – 80%</u>
<u>Adhesion to Surface³</u>	<u>ASTM C1583</u>	<u>≥250 psi</u>
1. Epoxy binders exhibit negligible penetration by chloride ion (ASTM C1202).		
2. Minimum gel time of 5 minutes when automated proportioning, mixing, and dispensing equipment are used.		
3. Tested with selected aggregate.		

974-6.5 Aggregate: The aggregate shall be basalt, bauxite, or flint. The aggregate shall be clean, dry, and free from foreign matter. The aggregate shall meet the requirements in Table 974-14.

Table 974-14 Aggregate Requirements			
<u>Property</u>		<u>Test Method</u>	<u>Requirement</u>
<u>Aggregate Abrasion Value</u>		<u>AASHTO T96</u>	<u>≤30%</u>
<u>Aggregate Gradation</u>	<u>No. 4 Sieve Size</u>	<u>AASHTO T27</u>	<u>100% Passing</u>
	<u>No. 8 Sieve Size</u>	<u>AASHTO T27</u>	<u>30 – 75% Passing</u>
	<u>No. 16 Sieve Size</u>	<u>AASHTO T27</u>	<u>5% Maximum Passing</u>
	<u>No. 30 Sieve Size</u>	<u>AASHTO T27</u>	<u>1% Maximum Passing</u>
<u>Moisture Content</u>		<u>AASHTO T255</u>	<u>≤0.2%</u>

SURFACE APPLICATIONS

(REV 6-18-26)

SUBARTICLE 974-1 is deleted and the following substituted:

974-1 Description.

This section specifies the material requirements for detectable warnings, patterned pavement, green-colored pavement markings, high friction surface treatment, and epoxy concrete overlay.

SECTION 974 is expanded by the following Articles:

974-5 High Friction Surface Treatment.

974-5.1 General: Use a two-part polymer resin binder treatment capable of retaining a bauxite aggregate topping under vehicular traffic conditions.

974-5.2 Approved Product List Requirements: Manufacturers seeking evaluation of products for inclusion on the APL shall submit an application in accordance with Section 6 and include the documentation identified in Table 974-8. Documentation and reports must demonstrate that the product meets the requirements of this Section.

Table 974-8	
Documentation	Requirements
Product Photo	Displays the significant features of each product.
Technical Data Sheet	Uniquely identifies each product and includes product's specifications, storage instructions, and recommended installation materials and equipment as applicable. Include the following information as applicable: ~~1.4.~~ Use on concrete surfaces ~~2.5.~~ Use on asphalt surfaces (dense graded, open graded, etc) ~~3.6.~~ Primers, sealers, etc.
Product Label/Ticket	For each component of the product system. Labels must contain the following information as applicable: 1. Uniquely identifies the product name. 2. Address of the manufacturer. 3. Show the date of manufacture, and lot number. 4. Warning of any special handling or precautions of the material, as recommended by the manufacturer. The component materials shall be clearly marked with the volume of materials in units of gallons and the product name.
Safety Data Sheet (SDS)	SDS meeting OSHA requirements for each product component and manufacturer recommended installation materials as applicable.
Independent Laboratory Test Report	Submit independent laboratory test results meeting the requirements in Tables 974-9 and 974-10.
Installation Instructions*	Includes the following information as applicable: 1. Surface preparation and installation procedures

Table 974-8	
Documentation	Requirements
	2. The minimum gel and curing time prior to installing the product. 3. Installation materials and equipment. 4. Aggregate source and rate of application. 5. Method of application for measuring, mixing, placing, and finishing. 6. Storage and handling of the components. 7. Disposal and recycling method. 8. Contingency plan. Include instructions for repair of any surface defects, including cracking, bleeding, raveling, and delamination.
Product Sample	Submit upon request from the Department. If the product is a system, a sample of each component must be submitted.
*Aggregate suppliers may be exempt from the installation instructions.	

974-5.3 Polymer Binder: The polymer resin binder shall consist of a thermosetting modified polymer compound and shall meet the Table 974-9.

Table 974-9 Polymer Resin Binder Requirements		
Property	Test Method	Requirement
Viscosity	ASTM D2556	700 – 3,000 cP
Gel Time	ASTM C881 (60 gram mass)	≥10 minutes
Ultimate Tensile Strength	ASTM D638 (Type 1 Specimen)	2,000 – 5,000 psi
Elongation at break point	ASTM D638 (Type 1 Specimen)	30 – 70%
Durometer Hardness (shore D)	ASTM D2240	60 – 80
Compressive Strength	ASTM C579	≥1,000 psi at 3 hours ≥5,000 psi at 7 days
Cure Rate (dry time)	ASTM D1640	≤3 hours
Water Absorption	ASTM D570	≤1.0%
Adhesive Strength at 24 hrs	ASTM C1583	≥250 psi or 100% substrate failure

974-5.4 Aggregate: The aggregate shall be a calcined bauxite. The aggregate shall be clean, dry, and free from foreign matter. The aggregate shall meet the following requirements:

Table 974-10 Aggregate Requirements			
Property		Test Methods	Test Methods
Aggregate Abrasion Value		AASHTO T 96	≤20%
Aggregate Grading	No. 4 Sieve Size	AASHTO T 27	100% Passing
	No. 6 Sieve Size	AASHTO T 27	95% Minimum Passing
	No. 16 Sieve Size	AASHTO T 27	5% Maximum Passing
Moisture Content		AASHTO T 255	≤0.2%
Aluminum Oxide		ASTM C25	≥86%

974-6 Epoxy Concrete Overlay (Bridge Deck)

974-6.1 General: Epoxy concrete overlay consists of three components: primer, binder, and aggregate. The primer and binder provide preservation for the bridge deck, while the aggregate provides surface friction for traffic.

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Table 974-11	
Documentation	Requirements
Product Photo	Displays the significant features of each product.
Technical Data Sheet	Uniquely identifies each product and includes product's specifications, storage instructions, and recommended installation materials and equipment as applicable. Include the following information as applicable: <u>1.3.</u> Use on concrete surfaces <u>2.4.</u> Comparable concrete repair materials
Product Label/Ticket	For each component of the product system. Labels must contain the following information as applicable: 1. Uniquely identifies the product name. 2. Address of the manufacturer. 3. Show the date of manufacture, and lot number. 4. Warning of any special handling or precautions of the material, as recommended by the manufacturer. The component materials shall be clearly marked with the volume of materials in units of gallons and the product name.
Safety Data Sheet (SDS)	Provide SDS meeting OSHA requirements for product and manufacturers recommend installation materials as applicable. Non-Hazardous, per RCRA Subtitle C Table 1 of 40 CFR 261.24 "Toxicity Characteristic" and not exude fumes which are hazardous, toxic, or detrimental to persons or property.
Independent Laboratory Test Report	Submit independent laboratory test results meeting the requirements in Tables 974-12, 974-13 and 974-14.
Installation Instructions*	Uniquely identifies the product and includes the following information as applicable:

Table 974-11	
Documentation	Requirements
	1. Surface preparation and installation procedures. 2. The minimum gel and curing time prior to installing the product. 3. Installation materials and equipment. 4. Rate of application. 5. Method of application for measuring, mixing, placing, and finishing epoxy concrete overlay. 6. Method for protecting areas not to receive epoxy concrete overlay. 7. Description of acceptable environmental conditions for placing epoxy concrete overlay. 8. Storage and handling of components. 9. Disposal and recycling of excess epoxy concrete overlay and containers. 10. Contingency plan. Include instructions for repair of any surface defects, including cracking, bleeding, raveling, and delamination.
Product Sample	Submit upon request from the Department. If the product is a system, a sample of each component must be submitted.
*Aggregate suppliers may be exempt from the installation instructions.	

974-6.3 Primer: The primer shall be compatible with the epoxy binder and meet the requirements in Table 974-12.

Table 974-12 Primer Requirements		
Property	Test Method	Requirement
Viscosity	ASTM D2556	≤ 100 cP
Flash Point	ASTM D3278	≥ 180 °F
Adhesion to Surface	ASTM C1583	≥ 250 psi

974-6.4 Epoxy Binder: The binder shall meet the requirements in Table 974-13.

Table 930-13 Epoxy Binder Requirements ¹		
Property	Test Method	Requirement
Viscosity	ASTM D2556	1,000 – 2,500 cP
Flash Point	ASTM D3278	≥180 °F
Gel Time	ASTM C881	≥10 minutes ²
Compressive Strength	ASTM C579	≥1,000 psi at 3 hours ≥5,000 psi at 7 days
Tensile Strength	ASTM D638	2,000 – 7,000 psi at 7 days
Tensile Elongation	ASTM D638	30 – 80%
Adhesion to Surface ³	ASTM C1583	≥250 psi
1. Epoxy binders exhibit negligible penetration by chloride ion (ASTM C1202). 2. Minimum gel time of 5 minutes when automated proportioning, mixing, and dispensing equipment are used. 3. Tested with selected aggregate.		

974-6.5 Aggregate: The aggregate shall be basalt, bauxite, or flint. The aggregate shall be clean, dry, and free from foreign matter. The aggregate shall meet the requirements in Table 974-14.

Table 974-14 Aggregate Requirements			
Property		Test Method	Requirement
Aggregate Abrasion Value		AASHTO T96	≤30%
Aggregate Gradation	No. 4 Sieve Size	AASHTO T27	100% Passing
	No. 8 Sieve Size	AASHTO T27	30 – 75% Passing
	No. 16 Sieve Size	AASHTO T27	5% Maximum Passing
	No. 30 Sieve Size	AASHTO T27	1% Maximum Passing
Moisture Content		AASHTO T255	≤0.2%