QPL 13: PATCHING MATERIALS

SECTION A. ASPHALT PATCHING MATERIALS

SECTION A.1: HIGH PERFORMANCE COLD PATCH MATERIALS

GENERAL

This evaluation procedure outlines the Department's approval process for asphalt cold-mix patching materials composed of a suitable aggregate and additives for the repair of both asphalt and concrete surfaces.

SPECIFICATIONS

- None

PROCEDURES

A completed Product Evaluation Form, Safety Data Sheet (if applicable), product data information, and a sample of the product being tested must be submitted to the Division of Materials and Tests.

Following receipt of the submitted information, the manufacturer shall be required to install his product on both asphalt and concrete surfaces as directed by the Division of Materials and Tests. The cold patch material shall be installed in either November or December and the evaluation will continue through the end of May of the following year. At the completion of the evaluation period, if the test areas in both the concrete and asphalt surfaces have remained intact and performed satisfactorily, the material will be added to the Qualified Products List.

QPL 13: PATCHING MATERIALS

SECTION A.2: ELASTOMERIC PATCHING MATERIALS HOT APPLIED

GENERAL

This evaluation procedure outlines the Department's approval process for elastomeric patching materials used for patching potholes in asphalt and concrete pavements.

SPECIFICATIONS

- None

PROCEDURES

A completed Product Evaluation Form, Safety Data Sheet (if applicable), product data information, and a sample of the product being tested must be submitted to the Division of Materials and Tests.

Following receipt of the submitted information, the manufacturer shall be required to install his product on an asphalt and concrete surface as directed by the Division of Materials and Tests. The patching material shall be left in the field for 6 months to 1 year. At the completion of the evaluation period, if the test patch area has remained intact and performed satisfactorily, the material will be added to the Qualified Products List.

QPL 13: PATCHING MATERIALS

SECTION A.3: ELASTOMERIC PATCHING MATERIALS COLD APPLIED

GENERAL

This evaluation procedure outlines the Department's approval process for elastomeric patching materials used for patching potholes in asphalt and concrete pavements.

SPECIFICATIONS

- None

PROCEDURES

A completed Product Evaluation Form, Safety Data Sheet (if applicable), product data information, and a sample of the product being tested must be submitted to the Division of Materials and Tests.

Following receipt of the submitted information, the manufacturer shall be required to install his product(s) on an asphalt and/or concrete surface as directed by the Division of Materials and Tests. The patching material shall be left in the field for 6 months to 1 year. At the completion of the evaluation period, if the test patch area has remained intact and performed satisfactorily, the material will be added to the Qualified Products List.

QPL 13: PATCHING MATERIALS

SECTION B. CONCRETE PATCHING MATERIALS

SECTION B.4: RAPID SET CEMENTITIOUS PATCHING MATERIALS

GENERAL

This evaluation procedure outlines the Department's approval process for rapid setting cementitious patching materials used in bridge and concrete repair.

SPECIFICATIONS

- ASTM C109 – Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)
- ASTM C157 – Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete
- ASTM C579 – Standard Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes
- ASTM C928 – Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs
- AASHTO Product Evaluation & Audit Solutions Review – AASHTO Product Evaluation & Audit Solutions - Home

QPL 13: PATCHING MATERIALS

PROCEDURES

A completed Product Evaluation Form, Safety Data Sheet (if applicable), product data information, and a sample of the product being tested must be submitted to the Division of Materials and Tests.

The Department uses AASHTO Product Evaluation & Audit Solutions for approval for rapid set cementitious patching materials. The AASHTO Product Evaluation & Audit Solutions data must be submitted to the Department and must meet the following requirements:

Age	Compressive Strength (psi)	Length Change (% decrease)	Slant Shear (Hardened-to-Plastic) (psi)
3 hours	1000		
1 day	3000		1000
7 days	4000		1500
28 days	> 7-day strength	< 0.06	

The manufacturer must submit notarized certification to TDOT five (5) years after completion of AASHTO Product Evaluation & Audit Solutions testing and approval for the TDOT QPL that the formulation of the product has not changed.

The product must be submitted to AASHTO Product Evaluation & Audit Solutions for retesting every seven (7) years.

QPL 13: PATCHING MATERIALS

SECTION B.5: HIGH PERFORMANCE COLD PATCH MATERIALS

GENERAL

This evaluation procedure outlines the Department's approval process for asphalt cold-mix patching materials composed of a suitable aggregate and additives for the repair of both asphalt and concrete surfaces.

SPECIFICATIONS

- None

PROCEDURES

A completed Product Evaluation Form, Safety Data Sheet (if applicable), product data information, and a sample of the product being tested must be submitted to the Division of Materials and Tests.

Following receipt of the submitted information, the manufacturer shall be required to install his product on both asphalt and concrete surfaces as directed by the Division of Materials and Tests. The cold patch material shall be installed in either November or December and the evaluation will continue through the end of May of the following year. At the completion of the evaluation period, if the test areas in both the concrete and asphalt surfaces have remained intact and performed satisfactorily, the material will be added to the Qualified Products List.

QPL 13: PATCHING MATERIALS

SECTION B.6: TWO-COMPONENT EPOXY-TYPE PATCHING MATERIALS

GENERAL

This evaluation procedure outlines the Department's approval process for two component-epoxy type patching materials used in bridge and concrete repair.

SPECIFICATIONS

- ASTM C881 – Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete
- ASTM C882 – Standard Test Method for Bond Strength of Epoxy-Resin Systems Used With Concrete By Slant Shear
- AASHTO Product Evaluation & Audit Solutions Review – AASHTO Product Evaluation & Audit Solutions - Home

PROCEDURES

A completed Product Evaluation Form, Safety Data Sheet (if applicable), product data information, and a sample of the product being tested must be submitted to the Division of Materials and Tests.

The Department uses AASHTO Product Evaluation & Audit Solutions for approval for two-component epoxy-type patching materials. The AASHTO Product Evaluation & Audit Solutions data must be submitted to the Department and must meet the following requirements:

Age	Compressive Strength (psi)	Slant Shear (Hardened-to-Plastic) (psi)
3 hours	1000	
1 day	3000	1000
7 days	4000	1500
28 days	> 7-day strength	

QPL 13: PATCHING MATERIALS

SECTION B.7: COSMETIC REPAIR EPOXY TYPE PATCHING MATERIALS

GENERAL

This evaluation procedure outlines the Department's approval process for epoxy type patching materials used to make cosmetic bridge and concrete repairs.

SPECIFICATIONS

- ASTM C881 – Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete
- ASTM C882 – Standard Test Method for Bond Strength of Epoxy-Resin Systems Used With Concrete By Slant Shear

PROCEDURES

A completed Product Evaluation Form, Safety Data Sheet (if applicable), product data information, and a sample of the product being tested must be submitted to the Division of Materials and Tests.

The product will be mixed according to the manufacturer's recommendations and must meet the following requirements.

Age	Slant Shear (Hardened-to-Plastic) (psi)
1 day	1000
7 days	1500

QPL 13: PATCHING MATERIALS

SECTION B.8: STRUCTURAL MATERIALS AND COMPONENTS

NO LONGER ACTIVE

REFER TO QPL 16: PRE-PACKAGED GROUT

QPL 13: PATCHING MATERIALS

SECTION B.9: POLYMER-MODIFIED CEMENTITIOUS STRUCTURAL PATCHING VERTICAL AND OVERHEAD

GENERAL

This evaluation procedure outlines the Department's approval process for polymer modified cementitious patching materials used for overhead and vertical structural repair of bridge members.

SPECIFICATIONS

- ASTM C109 – Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)
- ASTM C928 – Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs
- AASHTO Product Evaluation & Audit Solutions Review – AASHTO Product Evaluation & Audit Solutions - Home

PROCEDURES

A completed Product Evaluation Form, Safety Data Sheet (if applicable), and product data information must be submitted to the Division of Materials and Tests.

The Department uses AASHTO Product Evaluation & Audit Solutions) for approval for polymer-modified cementitious structural patching vertical and overhead. The AASHTO Product Evaluation & Audit Solutions data must be submitted to the Department and must meet the following requirements:

Age	Compressive Strength (psi)	Length Change (% decrease)	Slant Shear (Hardened-to-Plastic) (psi)
1 day	2000		1000
7 days	4000		1500
28 days	> 7-day strength	< 0.15	

The product can be extended with aggregate as recommended by the manufacturer and must have a working time of at least 10 minutes.

QPL 13: PATCHING MATERIALS

SECTION B.10: ELASTOMERIC PATCHING MATERIALS HOT APPLIED

GENERAL

This evaluation procedure outlines the Department's approval process for elastomeric patching materials used for patching potholes in asphalt and concrete pavements.

SPECIFICATIONS

- None

PROCEDURES

A completed Product Evaluation Form, Safety Data Sheet (if applicable), product data information, and a sample of the product being tested must be submitted to the Division of Materials and Tests.

Following receipt of the submitted information, the manufacturer shall be required to install his product(s) on an asphalt and/or concrete surface as directed by the Division of Materials and Tests. The patching material shall be left in the field for 6 months to 1 year. At the completion of the evaluation period, if the test patch area has remained intact and performed satisfactorily, the material will be added to the Qualified Products List.

QPL 13: PATCHING MATERIALS

SECTION B.12: ELASTOMERIC PATCHING MATERIALS COLD APPLIED

GENERAL

This evaluation procedure outlines the Department's approval process for elastomeric patching materials used for patching potholes in asphalt and concrete pavements.

SPECIFICATIONS

- None

PROCEDURES

A completed Product Evaluation Form, Safety Data Sheet (if applicable), product data information, and a sample of the product being tested must be submitted to the Division of Materials and Tests.

Following receipt of the submitted information, the manufacturer shall be required to install his product(s) on an asphalt and/or concrete surface as directed by the Division of Materials and Tests. The patching material shall be left in the field for 6 months to 1 year. At the completion of the evaluation period, if the test patch area has remained intact and performed satisfactorily, the material will be added to the Qualified Products List.

QPL 13: PATCHING MATERIALS

SECTION B.11: METHACRYLATE BINDER RESIN SYSTEM

GENERAL

This evaluation procedure outlines the Department's approval process for methacrylate binder resin systems used for sealing cracks in concrete surfaces.

SPECIFICATIONS

- TDOT Special Provision SP604CR – Special Provision Regarding Bridge Deck Cracks
- ASTM C882 – Standard Test Method for Bond Strength of Epoxy-Resin Systems Used with Concrete By Slant Shear

PROCEDURES

A completed Product Evaluation Form, Safety Data Sheet (if applicable), product data information, and a sample of the product being tested must be submitted to the Division of Materials and Tests.

The material is tested as follows:

1. Cut three 3"x 6" (75x150-mm) portland cement mortar cylinders in half at a 30-degree angle.
2. Clean all surfaces of cut halves, by either brushing or sandblasting.
3. Place the two halves of each specimen together, forming a gap approximately 0.02in. (0.5mm). Tape and the periphery of the specimen closed, but leave a slit of approximately ¾ in. (20 mm) of the upper portion of the joint.
4. Place silicone along the joint for an additional seal.
5. Support the specimen so that the cylinder is vertical. Slowly pour resin-bonding system into the exposed joint until it is completely filled.
6. Keep the joint vertical for 48 hours to cure.
7. Determine the compressive strength of the composite cylinder.

A minimum compressive strength of 1500 psi must be achieved for approval of the product.