

Item No. 413S
Cleaning and/or Sealing Joints and
Cracks (Portland Cement Concrete)

413S.1 Description

This item shall govern the cleaning and/or sealing of joints and cracks in either new or existing Portland cement concrete pavements and bridge decks in conformance with the requirements herein and the details indicated on the Drawings or as established by the Engineer or designated representative.

This specification is applicable for projects or work involving either inch-pound or SI units. Within the text, the inch-pound units are given preference followed by SI units shown within parentheses.

413S.2 Submittals

The submittal requirements of this specification item include:

- A. Sealant Type (Rubber-Asphalt, Polymer Modified Emulsion, Low Modulus Silicone or Polyurethane), Class and method of application (crack sealing, joint sealing, etc),
- B. Manufacturer recommendations concerning the use of primer and backer rod
- C. Manufacturer recommended equipment and procedures for preparation, dispensing, application, curing etc of the sealant, and
- D. Manufacturer certification that the product to be supplied meets or exceeds the specifications,
- E. Listing of the equipment proposed for the Work.

413S.3 Materials

Joints and/or cracks shall be sealed with the type and/or class of materials indicated on the Drawings. The materials shall conform to the requirements of TxDOT Specification Item No. 433S, "Joint Sealants and Fillers" and TxDOT Departmental Materials Specification No. DMS 6310, "Joint Sealants and Seals".

Primers, if required, shall be as recommended by the manufacturer of the sealant. Backer rods, when required, shall be compatible with the sealant and shall not react with or bond to the sealant.

The sealing compound shall be delivered in the manufacturer's original sealed containers. Each container shall be legibly marked with the name of the manufacturer, the trade name of the sealer, the manufacturer's batch number or lot, the pouring temperature, and the safe heating temperature.

413S.4 Equipment

All equipment shall be in accordance with the sealant manufacturer's recommendations. Air compressors shall be equipped with appropriate filters for removing oil and water from the air.

Any equipment, that damages dowels, reinforcing steel, Portland cement concrete, base, subbase or subgrade in the process of cleaning the joints and/or cracks, shall be discontinued and the joint and/or crack shall be cleaned by other methods approved by the Engineer or designated representative, which do not cause such damage.

413S.5 Construction Methods

Equipment, tools and machinery recommended for proper prosecution of the Work shall be on the project and shall be approved by the Engineer or designated representative prior to the initiation of the joint and/or crack cleaning and sealing operations.

A. Joint and Crack Preparation.

The bonding surface of cracks and joints shall be cleaned of infiltrated material, saw cuttings or other foreign material. All material removed from joints and cracks shall be removed from the paved surface of the roadway.

No sealing of any joints or cracks shall be done when the joints or cracks are damp, unless drying of the joints and cracks with compressed air can be demonstrated and meets with the approval of the Engineer or designated representative.

1. Joint Preparation.

The joints shall be cleaned with filtered compressed air or other methods approved by the Engineer or designated representative. Unless noted otherwise on the Drawings, hand tools, air guns, power routers, abrasive equipment or other equipment may be used to clean the joints. Where indicated on the Drawings, the joint sealant space shall be resized by sawing to the width and depth shown on the Drawings to accommodate the type of sealant specified.

2. Crack Preparation.

Unless indicated otherwise on the Drawings, the crack shall be grooved initially at the surface so that a reservoir of rectangular cross section is provided for the sealant. The grooves shall be cut to the dimensions shown on the Drawings. The devices that are used for grooving, such as diamond blade random cut saws, random-crack grinders, etc., shall be capable of following the path of the crack without causing excessive spalling or other damage to the concrete.

B. Joint and Crack Sealing

The sealant shall be installed in accordance with the manufacturer's recommended procedure. The joint and/or crack surfaces shall be surface dry unless recommended otherwise by the manufacturer of the sealant.

The surface temperature at the time of the sealing operation shall not be less than 40°F (4.5°C).

The minimum depth of sealant shall be ½ inch (12.5 mm) or a depth recommended by the sealant manufacturer and the top of the sealant shall be located 1/8 to ¼ inch (3 to 6.5 mm) below the adjacent pavement surface.

1. Primer.

If required, the primer shall be applied as soon as possible after cleaning is accomplished. The primer shall be applied uniformly at the rate recommended by the sealant manufacturer. The primer shall be applied to exposed metal surfaces before new corrosion begins and shall be allowed to cure for a minimum of thirty (30) minutes, but no longer than eight (8) hours prior to the application of the sealant, unless sealant manufacturer recommendations indicate otherwise.

2. Backer Rods.

Backer rods shall be used to prevent a fluid type sealant from flowing through the joint and crack and to retain the sealant at its required elevation. The application and use of backer rod shall be as recommended by the sealant manufacturer and approved by the Engineer or designated representative.

413S.6 Measurement

Accepted work performed under this item shall be included in other pay items and will not be measured and paid for unless a separate pay item is provided in the contract bid form documents.

If a pay item is included in the contract documents, acceptable work for "Cleaning and/or Sealing Joints and Cracks" shall be measured by the lineal foot (meter: 1 meter equals 3.281 feet) of sealant in place.

If a pay item is included in the contract documents, acceptable work "Cleaning and/or Sealing Joints and Cracks" shall be measured by the pound (kilograms: 1 kilogram equals 2.205 pounds).

413S.7 Payment

When included as a pay item in the contract documents, the work performed and materials furnished as provided by this item and measured in accordance with Article 413S.6, "Measurement", will be paid for at the appropriate unit bid price bid. The unit bid prices shall include full compensation for cleaning and, if necessary, grooving and/or sawing the crack/joint; furnishing, hauling and placing primer and backer rod, if necessary; furnishing, heating, hauling, and placing the crack/joint sealer; all freight involved and all manipulations, labor, tools, equipment and incidentals necessary to complete the work.

Payment, when included as a contract pay item, will be made under:

Pay Item No. 413S-A: _____ Sealer Per Lineal Foot.
Pay Item No. 413S-B: _____ Sealer Per Pound of Sealer Used.

End

SPECIFIC Cross Reference Materials
Item No. 413S, "Cleaning and/or Sealing Joints and Cracks (Portland Cement Concrete)"

Texas Department of Transportation: Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges

| <u>Designation</u> | <u>Description</u> |
|--------------------|--|
| Item No. 433S | Joint Sealants and Fillers |
| Item No. 438 | Cleaning and/or Sealing Joints and Cracks (Portland Cement Concrete) |

Texas Department of Transportation: Departmental Materials Specifications

| <u>Designation</u> | <u>Description</u> |
|--------------------|--------------------------|
| DMS 6310 | Joint Sealants and Seals |

RELATED Cross Reference Materials

City of Austin Standard Specifications

| <u>Designation</u> | <u>Description</u> |
|--------------------|--------------------|
|--------------------|--------------------|

Item No. 301S Asphalts, Oils and Emulsions
Item No. 313S Cleaning and/or Sealing Joints and Cracks (Asphaltic Concrete)

Texas Department of Transportation: Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges

| <u>Designation</u> | <u>Description</u> |
|--------------------|--|
| Item No. 300 | Asphalts, Oils and Emulsions |
| Item No. 352 | Cleaning and/or Sealing Joints and Cracks (Asphaltic Concrete) |