



SECTION 42 – JOINT SEALING FILLER (FAA P-605)

42-1 GENERAL

The Contractor shall perform all work required by the plans and specifications for construction of portland cement (PCC) and asphalt (AC) pavement joints in accordance with the Standard Specifications, except as specified otherwise in FAA Specification Item P-605, as included and modified hereafter, and as shown on the Plans. If pre-molded joint sealer is proposed for PCC pavement joints, it shall conform to the requirements set forth in Section 37 of these Specifications.

ITEM P-605 JOINT SEALING FILLER

DESCRIPTION

605-1.1 *This item shall consist of providing and installing a resilient and adhesive joint sealing filler capable of effectively sealing joints and cracks in pavements.*

MATERIALS

605-2.1 **JOINT SEALERS.** *Joint sealing material shall be SIKAFLEX 15LMSL, manufactured by Sika Corporation, or approved equal. It shall be a self-leveling polyurethane joint sealant specifically designed for use in sealing joints in concrete and asphalt pavement. Sealant shall conform to Federal Specification S-00230C, Type 1, Class A, and ASTM C920, Type S, Grade P, Class 25. Test results from a certified laboratory shall confirm that submitted alternates have the following properties:*

- (a) *Color: Grey.*
- (b) *Service Range: Minus 40 to 170 degrees F.*
- (c) *Curing Rate: Tack Free 1-2 hours, final cure 3-5 days.*
- (d) *Recovery: Greater than 90 percent.*
- (e) *Shore “A” Hardness (ASTM D2240) 21-Day: 45.*
- (f) *Tensile Properties (ASTM D412):*
 - 1) *Tensile Strength: 550 psi.*
 - 2) *Elongation at Break: 700 percent.*
 - 3) *Modulus of Elasticity 100 Percent: 150 psi.*



- (g) *Adhesion Peel (ASTM C794) (Substrate Concrete):*
- 1) *Peel Strength: Greater than 30 psi.*
 - 2) *Adhesion Loss: 0 percent.*
- (h) *Joint Movement: Plus or minus 25 percent.*

Each lot or batch of sealing compound shall be delivered to the job site in the manufacturer's original sealed bulk drums and with manufacturer's certification stating that the compound meets requirements specified.

Contractor shall store sealing materials from inclement weather and maintain material temperatures as recommended by manufacturer. Store sealers as required by applicable materials specifications.

605-2.2 BACKER ROD. *Preformed backer rod shall be installed in all pavement construction, expansion, and contraction joints as shown in the Plans. Rods shall be approved, non-moisture absorbing, non-gassing, extruded closed-cell polyethylene foam of reticulated closed cell extruded polyolefin foam. Backer rods shall be of a sufficient diameter to support the sealant in the joint until it has cured. Backer rod materials shall be compatible with the sealant, shall not adhere to the sealant, shall be compressible without extruding the sealant, and shall recover to maintain contact with the joint faces when the joint is open.*

CONSTRUCTION METHODS

605-3.1 TIME OF APPLICATION. *Joints shall be sealed as soon after completion of the curing period as feasible and before the pavement is opened to traffic, including construction equipment. The pavement temperature shall be above 40°F (4°C) at the time of installation of the poured joint sealing material.*

605-3.2 PREPARATION OF JOINTS.

a. Sawing. *All joints shall be sawed in accordance with specifications and plan details. Immediately after sawing the joint, the resulting slurry shall be completely removed from joint and adjacent area by flushing with a jet of water, and by use of other tools as necessary.*

b. Sealing. *Immediately before sealing, the joints shall be thoroughly cleaned of all remaining laitance, curing compound, and other foreign material. Cleaning shall be accomplished by sandblasting. Sandblasting shall be accomplished in a minimum of two passes. One pass per joint face with the nozzle held at an angle directly toward the joint face and not more than 3 inches from it. Upon completion of cleaning, the joints shall be blown out with*



compressed air free of oil and water. Only air compressors with operable oil and water traps shall be used to prepare the joints for sealing. The joint faces shall be surface dry when the seal is applied.

Prior to resealing joints, the existing joint material shall be removed to the depth as shown on the Plans. If joint sealer other than that originally used is specified, all existing joint sealer shall be removed.

605-3.3 INSTALLATION OF SEALANTS. *Joints shall be inspected for proper width, depth, alignment, and preparation, and shall be approved by the Engineer before sealing is allowed. Sealants shall be installed in accordance with the following requirements:*

Cold Applied Sealants. Cold applied joint sealing compound shall be applied by means of pressure equipment that will force the sealing material to the bottom of the joint and completely fill the joint without spilling the material on the surface of the pavement. A backing material shall be placed as shown on the plans and shall be nonadhesive to the concrete or the sealant material. Sealant that does not bond to the concrete surface of the joint walls, contains voids, or fails to set to a tack-free condition will be rejected and replaced by the Contractor at no additional cost. Before sealing the joints, the Contractor shall demonstrate that the equipment and procedures for preparing, mixing, and placing the sealant will produce a satisfactory joint seal. This shall include the preparation of two small batches and the application of the resulting material. Any sealant spilled on the surface of the pavement, structures and/or lighting fixtures, shall be removed immediately.

- a. Unless otherwise specified, seal joints as soon as feasible after completion of curing period and before pavement is opened to traffic, including construction equipment.*
 - 1) Do not apply joint sealing compound in wet joints, when atmospheric and pavement temperatures are below 50 degrees F, or when weather is rainy or foggy.*
- b. Immediately before sealing, sandblast joints to remove laitance, curing compound, and other foreign material.*
 - 1) Remove laitance, curing compound, and other foreign materials from upper edges of joint to distance not less than 1 inch from each side of joint edge on pavement surface.*
 - 2) Sand shall be of proper size and quality necessary for Work.*
 - 3) Nozzle shall be of proper size and of long-wearing type. Nozzles enlarged by wear shall be replaced as necessary.*



- 4) *Sandblast at air pressure or not less than 90 psi using minimum of 300 cubic feet of air per minute.*
- c. *Following sandblasting, clean joints using air blowing nozzle.*
- 1) *Air compressors shall be portable and capable of furnishing not less than 90 pounds per square inch pressure.*
 - 2) *Employ suitable traps to maintain compressed air free of oil and free of moisture. Presence of oil or free moisture in compressed air will necessitate cessation of operations until suitable adjustments are made.*
- d. *Remove foreign material and other debris from joints or cracks from pavement surface by means of power sweeper or hand broom and immediately remove from designated area.*
- 1) *Remove debris before beginning joint sealing operation.*
 - 2) *Remove sandblasting residue from joint.*
 - 3) *Remove sealant spilled on surface of pavement immediately.*
- e. *Under no circumstances shall liquid membrane curing compound be applied in joints.*
- f. *Use curing tape, backer rod, or approved bond-breakers as shown on the Plans at expansion joints to isolate joint filler from joint seal.*
- g. *Fill joint with continuous body of sealing compound free of voids, blisters, and foreign particles. Top of compound shall be 1/8- to 1/4-inch from top surface of pavement, unless otherwise detailed on the Plans. Excess sealer on surface of pavement shall be removed and surface left in clean condition.*
- h. *Seal all cracks in existing asphalt prior to installing the asphalt overlay. No direct payment will be made as the sealing will be considered an incidental.*

METHOD OF MEASUREMENT

605-4.1 *See Section 42.2.*

BASIS OF PAYMENT



605-5.1 See Section 42-3.

TESTING REQUIREMENTS

ASTM D 412 Test Methods for Vulcanized Rubber and Thermoplastic Elastomers – Tension

ASTM D 1644 Test Methods for Nonvolatile Content of Varnishes

MATERIAL REQUIREMENTS

ASTM D 1854 Jet-Fuel-Resistant Concrete Joint Sealer, Hot-Applied Elastic Type

ASTM D 3406 Joint Sealants, Hot-Applied, Elastomeric-Type, for Portland Cement Concrete Pavements

ASTM D 3569 Joint Sealant, Hot-Applied, Elastometric, Jet-Fuel-Resistant Type, for Portland Cement Concrete Pavements

ASTM D 3581 Joint Sealant, Hot-Applied, Jet-Fuel-Resistant Type, for Portland Cement Concrete and Tar-Concrete Pavements

ASTM D 5893 Standard Specifications for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements

ASTM D 6690 Joint and Crack Sealants, Hot-Applied, for Concrete and Asphalt Pavements

*FED SPEC SS-S-200E(2)
Sealants, Joint, Two-Component, Jet-Blast Resistant, Cold Applied*

END ITEM P-605

42-2 METHOD OF MEASUREMENT

No separate measurement of joint sealing filler as described herein shall be made.

42-3 BASIS OF PAYMENT



No separate payment will be made for joint sealing filler, which cost is considered incidental to associated bid items.

END OF SECTION 42