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AC 150/5370-10

CHANGE 8

DATE 4/3/80

# ADVISORY CIRCULAR

CHANGE



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

Washington, D.C.

*M-494.4*

**Subject:** Change 8 to STANDARDS FOR SPECIFYING CONSTRUCTION OF AIRPORTS--  
Rewritten in Guide Specification Format

1. **PURPOSE.** This Change transmits Item P-605, Joint Sealing Filler. It has been rewritten in guide specification format and the material specifications for the various sealants have been updated.

The Change number and date of changed material is carried at the top of each page.

## PAGE CONTROL CHART

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		376 through 378	4/3/80

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Director, Office of Airport Standards

## ITEM P-605 JOINT SEALING FILLER

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## 1. DESCRIPTION

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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.

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## 2. MATERIALS

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2.1 JOINT SEALERS. Joint sealing materials shall meet the requirements of [\*\*\_\_\_\_\_].

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[Each lot or batch of sealing compound shall be delivered to the jobsite in the manufacturer's original sealed container. Each container shall be marked with the manufacturer's name, batch or lot number, and the safe heating temperature and shall be accompanied by the manufacturer's certification stating that the compound meets the requirements of this specification.]

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[Each lot of preformed joint sealer delivered to the jobsite shall be accompanied by the manufacturer's certification stating that it meets the requirements of this specification.]

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The Engineer shall specify one or more of the following:

Fed. Spec. SS-S-200 - Sealing Compounds, Two-Component, Elastomeric, Polymer Type, Jet-Fuel-Resistant, Cold Applied.

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ASTM D1854 - Jet-Fuel-Resistant Concrete Joint Sealer, Hot-Poured Elastic Type

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ASTM D2628 - Preformed Polychloroprene Elastomeric Joint Seals for Concrete Pavements

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ASTM D3405 - Joint Sealants, Hot-Poured, for Concrete and Asphalt Pavements

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ASTM D3406 - Joint Sealants, Hot-Poured, Elastomeric-Type, for Portland Cement Concrete Pavements

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ASTM D3569 - Joint Sealant, Hot-Poured, Elastometric, Jet-Fuel-Resistant type, for Portland Cement Concrete Pavements

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ASTM D3581 - Joint Sealant, Hot-Poured, Jet-Fuel-Resistant Type, for Portland Cement Concrete and Tar-Concrete Pavements

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If preformed joint sealer is specified, the manufacturer shall certify that the preformed seal will exert a minimum pressure of 3.0 pounds per square inch (21 KPa) when compressed to 80 percent of nominal width and a maximum of 25.0 pounds per square inch (172 KPa) when compressed to 50 percent of nominal width.

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Paragraph 2.2 applies only when preformed sealants are specified. Delete when not applicable.

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2.2 LUBRICANT. Lubricant for installation of preformed joint seal shall be a one-component polychloroprene compound containing only soluble phenolic resins blended together with anti-oxidants and acid acceptors in aromatic hydrocarbon solvent mixture and shall meet the following requirements:

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	Requirements	ASTM	88
Average weight per gallon, pounds	7.8		90
Solids content, percent by weight	22-28	D1644, Method A	92 93
Film strength, psi	2,300 min.	D412	95
Elongation, percent	750 min.	D412	97

Each shipment of lubricant shall be delivered to the jobsite in the manufacturer's original sealed container. Each container shall be marked with the manufacturer's name, batch or lot number, and the date of manufacture and shall be accompanied by the manufacturer's certification stating that the lubricant meets the requirements of the specification.

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This lubricant shall be stored at a temperature between 50 degrees F (10 degrees C) and 80 degrees F (27 degrees C) and shall be used within 270 days of its manufacture.

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3. CONSTRUCTION METHODS

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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 degrees F (5 degrees C)] [50 degrees F (10 degrees C)] at the time of installation of the [preformed joint seal.] [poured joint sealing material.]

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Specify 40 degrees F for preformed seal and 50 degrees F for poured seals.

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If the pavement must be opened to traffic prior to placement of the sealant, this paragraph should be modified to require the Contractor to temporarily fill the joint with a jute or nylon rope immediately after the joint is sawed. The rope should be slightly larger than the joint and should be forced into the joint so that the top of the rope is 1/8 inch below the pavement surface. The rope shall be removed immediately prior to cleaning.

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3.2 PREPARATION OF JOINTS. Immediately before sealing, the joints shall be thoroughly cleaned of all laitance, curing compound, and other foreign material. Cleaning shall be accomplished by [sandblasting.] [wire brushing.] [high pressure water blast.] Upon completion of cleaning, the joints shall be blown out with compressed air. The joint faces shall be surface dry when the seal is applied.

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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.

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Sandblasting or wire brushing is the recommended method of cleaning since the joints can be primed immediately after the cleaning.

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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:

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[Hot Poured Sealants. The joint sealant shall be applied uniformly solid from bottom to top and shall be filled without formation of entrapped air or voids. A backing material shall be placed as shown on the plans and shall be nonadhesive to the concrete or the sealant material. The heating kettle shall be an indirect heating type, constructed as a double boiler. A positive temperature control and mechanical agitation shall be provided. The sealant shall not be heated to more than 20 degrees F (-11 degrees C) below the safe heating temperature. The safe heating temperature can be obtained from the manufacturer's shipping container. A direct connecting pressure type extruding device with nozzles shaped for insertion into the joint shall be provided. Any sealant spilled on the surface of the pavement shall be removed immediately.]

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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 which 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.)

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The use of a backup material or bond breaker in the bottom of the joint to be filled is recommended to control the depth of the sealant, to achieve the desired shape factor, and to support the sealant against indentation and sag.

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Backup materials and bond breakers should be compatible with the sealant, should not adhere to the sealant, should be compressible without extruding the sealant, and should recover to maintain contact with the joint faces when the joint is open.

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Preformed Elastomeric Joint Seals. Preformed joint sealer shall be placed using equipment capable of installing the sealer in the upright position, without cutting, nicking, distorting, or otherwise damaging the seal. Lubricant shall be applied to the concrete or the preformed seal, or both, and the seal shall be installed in a substantially compressed condition and at the depth below the surface of the pavement as shown in the plans. The method of installation shall be such that the joint sealer will not be stretched more than 5 percent of the minimum theoretical length, or compressed more than 2 percent. The method of installation shall be checked for stretching or compression, using transverse joint sealer. The check shall consist of installing sealer in five joints of at least 25 feet in length, removing the sealer immediately after installation, and checking the length. This check may be modified by premarking or precutting the sealer to length prior to installation if this is compatible with the equipment being used. If the measured length of any of these five sealers indicated that the sealer is stretched or compressed beyond these limits, the installation shall be modified to correct the situation. Once satisfactory sealing operations have started, one joint length per every hundred shall be removed and checked. If the limits are exceeded, the joint sealers on either side should be removed until the condition disappears. The affected joints shall be resealed in a satisfactory manner at no cost to the

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owner, and the method of installation shall be checked again for satisfactory procedure. The seal shall be installed in the longest practicable lengths in longitudinal joints and shall be cut at the joint intersections for continuous installation of the seal in the transverse joints.]

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The Engineer should select either hot poured, cold applied, or preformed sealant and include the appropriate paragraph in the specification.

## 4. METHOD OF MEASUREMENT

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4.1 Joint sealing material shall be measured by the [gallon (liter)] [pound (kg)] [linear foot (meter)] of sealant in place, complete, and accepted.

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## 5. BASIS OF PAYMENT

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5.1 Payment for joint sealing material shall be made at the contract unit price per [gallon (liter).] [pound (kg).] [linear foot (meter).] The price shall be full compensation for furnishing all materials, for all preparation, delivering, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

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Payment will be made under:

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Item P-605.1 Joint Sealing Filler - per gallon (liter)

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Item P-605.1 Joint Sealing Filler - per pound (kg)

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Item P-605.1 Preformed sealer - per linear foot (meter)

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## 6. TESTING REQUIREMENTS

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ASTM D412 Tests for Rubber Properties in Tension

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ASTM D1644 Tests for Nonvolatile Content of Varnishes

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## 7. MATERIAL REQUIREMENTS

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ASTM D1854 Jet-Fuel-Resistant Concrete Joint Sealer, Hot-Poured Elastic Type

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ASTM D2628 Preformed Polychloroprene Elastomeric Joint Seals for Concrete Pavements

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<u>ASTM</u> D3405	<u>J</u> oint Sealants, <u>H</u> ot-Poured, <u>f</u> or Concrete and <u>A</u> sphalt Pavements	332 332
<u>ASTM</u> D3406	<u>J</u> oint Sealants, <u>H</u> ot-Poured, <u>E</u> lastomeric-Type, <u>f</u> or Portland Cement Concrete Pavements	337 338
<u>ASTM</u> D3569	<u>J</u> oint Sealant, <u>H</u> ot-Poured, <u>E</u> lastometric, <u>J</u> et- <u>F</u> uel-Resistant Type, <u>f</u> or Portland Cement Concrete Pavements	344 345 345
<u>ASTM</u> D3581	<u>J</u> oint Sealant, <u>H</u> ot-Poured, <u>J</u> et-Fuel-Resistant Type, <u>f</u> or Portland Cement Concrete and Tar- Concrete Pavements	350 351 351
<u>Fed. Spec.</u> <u>SS-S-200</u>	Sealing Compounds, Two Component, <u>E</u> lastomeric, <u>P</u> olymer Type, <u>J</u> et-Fuel Resistant, <u>C</u> old Applied	355 360 361
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