

**MICHIGAN DEPARTMENT OF TRANSPORTATION  
AIRPORTS DIVISION  
STANDARD SPECIFICATION  
P-605  
Joint Sealing Filler**

**DESCRIPTION**

**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.

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

**MATERIALS**

**2.1 Joint Sealers.** Joint Sealing materials shall meet the requirements of one or more of the following, as required by the project specifications:

Fed. Spec. SS-S-200E(2) – Sealants, Joint, Two-Component, Jet-Fuel-Resistant, Cold Applied for Portland Cement Concrete Pavement.

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

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

ASTM D 7116 - Joint Sealant, Hot-Applied, 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 – 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.

Each lot or batch of sealing compound shall be

**CONSTRUCTION METHODS**

**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 of equipment. The pavement temperature shall be above 40°F (4°C) at the time of installation of preformed joint seals. The pavement temperature shall be above 50°F (10°C) at the time of installation of poured joint sealing material.

If the pavement must be opened to traffic prior to placement of the sealant, the Contractor shall temporarily fill the joint with a jute or nylon rope immediately after the joint is sawed. The rope shall 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.

**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 laitance

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\* ASTM D3569 was canceled and replaced with ASTM D7116 (change made on May 1, 2012)

(accumulation of fine particles on the surface of fresh concrete), curing compound, and other foreign material. Cleaning shall be accomplished by sandblasting, wire brushing, or high pressure water blast. Sand blasting 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.

**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:

(a) **Hot Applied 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 both non-reactive and non-adhesive 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°F (-11°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, structures and/or lighting fixtures shall be removed immediately.

(b) **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 non-reactive and non-adhesive 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 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.

#### **METHOD OF MEASUREMENT**

**4.1** Joint sealing material shall be measured by the linear foot of sealant in place, complete, and accepted.

#### **BASIS OF PAYMENT**

**5.1** Payment for joint sealing material shall be made at the contract unit price. 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.

Payment will be made under the nomenclature and seven digit item number specified in the plans and proposals for each type of joint sealing filler material required.

The first three digits of any item number for work included under this specification shall be 605, i.e. 605XXXX.

**MATERIAL & TESTING REQUIREMENTS**

ASTM D 1854	Jet-Fuel Resistant Concrete Joint Sealer, Hot-Applied Elastic Type
ASTM D 3406	Joint Sealant, Hot-Applied, Elastomeric-Type, for Portland Cement Concrete Pavements
ASTM D 7116*	Joint Sealant, Hot-Applied, 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	Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant 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	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-Fuel-Resistant, Cold Applied for Portland Cement Concrete Pavement.
ASTM D 412	Test Methods for Vulcanized Rubber and Thermoplastic Elastomers – Tension
ASTM D 1644	Test Methods for Nonvolatile Content of Varnishes

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\* ASTM D3569 was canceled and replaced with ASTM D7116 (change made on May 1, 2012)