# ITEM 439

## POLYURETHANE JOINT SEAL

439.1 Description. This item shall govern for the furnishing and placing of a polyurethane base joint sealing compound in those joints designated on the plans.

439.2 Materials. The sealant shall be a polyurethane base, two component, cold applied joint sealing compound suitable for sealing horizontal joints in concrete slabs. The sealant shall be a two package system consisting of a base compound and an accelerator compound. The two components shall be easily identifiable by color difference which also aids in showing proper mixing. When properly mixed and packaged, the sealant shall convert to a rubber-like compound meeting the requirements specified herein. If primers are recommended by the manufacturer, they will be required and shall be used in construction.

The sealant shall be Machine Extruded type.

439.3 Test Requirements. When tested in accordance with Test Method Tex-525-C, the sealer shall meet the following requirements:

The sealer shall be of such consistency that it can be extruded into a sloping joint in one operation without excessive flow.

| | |
|---|---|
| Stability when stored for months at a temperature not exceeding 80° F. | Continue to pass six other requirements |
| Mixing Ratio | Equal parts base and accelerator |
| Viscosity of individual components at 77° F. ± 2 F, Poises | 50 Minimum<br>750 Maximum |
| Viscosity of sealer, based on Volume Ratio of Components, Poises | 50 Minimum<br>500 Maximum |
| Application life at 77° F ± 2 F, and ± 5% relative humidity after proper mixing | 3 minutes, minimum<br>10 minutes, maximum |
| Tack Free Time, Hours | 24 Maximum |
| Weight Loss after Heat Aging, Percent | 10 Maximum |
| Compression Set, Percent | 15 Maximum |

| | |
|---|---|
| Resilience at 77° F, Percent | 80 Minimum |
| Resilience after Heat Aging, Percent | 80 Minimum |

Initial Adhesion - 150% Extension (1/2" to 1-1/4")

| | |
|---|---|
| Normal Curing<br>Rapid Curing | Pass* |
| Adhesion after Water Immersion | Pass* |
| Adhesion after Heat Aging | Pass* |
| Adhesion after Cycling at 20° F. | Pass* |

* Tensile force at 150-percent extension shall not be less than 8 psi nor more than 75 psi. There shall be no evidence of crack, separation or other opening that at any point is over 1/8-inch deep in the sealer or between the sealer and test blocks.

439.4 Construction Methods. The bonding surface of joints shall be cleaned free of laitance, concrete, paint, corrosion, mill scale, oil or grease by sandblasting prior to application of the primer. Metal surface shall be given a class "A" blast cleaning in accordance with the Item, "Cleaning, Paint and Painting". After sandblasting, the joint shall be blown out to remove all loose dust.

Priming of surface for proper bond and materials for priming shall be as recommended by the sealant manufacturer. The primer shall be applied to metal surfaces soon after cleaning and before new corrosion begins and shall be allowed to dry a minimum of 30-minutes, but not more than eight hours before applying the sealant.

In open type joints, a backing shall be provided to hold the fluid sealant in-place. Backing shall be a compressible type material such as closed-cell, resilient foam or sponge rubber stack of vinyl, butyl, or neoprene; or, expanded polyethylene or polyurethane. In all cases, bond must be broken between the backing and sealant.

The depth of the sealant shall conform with Table No. 1. The top surface of the sealant shall be approximately 1/4-inch below the top of the joint.

Table No. 1

| Joint Opening | 1/2" to 1" | 1-1/4" | 1-1/2" |
|---|---|---|---|
| Depth of Sealant | 1/2" | 5/8" | 3/4" |

The sealant shall be placed in the open joint to the depths required in Table No. 1, in one pass so that it will flow and level out a smooth surface across the joint. The sealant shall be of such consistency that it can be placed into a sloping joint without excessive flow down the cross slope of the structure.

439.5 Measurement and Payment. No direct measurement or payment will be made for the materials, work to be done or equipment to be furnished under this item, but it shall be considered subsidiary to the particular item required by the plans and the contract.

END OF ITEM 439