

POLYMER MORTAR EXPANSION DAM WITH RAPID CURE SILICONE JOINT SEALANT

1. DESCRIPTION - This work is the furnishing and installation of expansion dams with two part, Rapid Cure Silicone Joint Sealant for Bridge Joints. The dimensions for the dams and joint widths shall be as specified or shown on plan drawings.

2. MATERIAL

a) JOINT BACKING MATERIAL. Provide backer rod material that is extruded, soft type, low density polyethylene, with a skin-like outer texture that will not bond to the silicone sealant.

b) SILICONE SEALANT. Provide a two-part, rapid curing, 100 percent, silicone sealant meeting the following physical requirements.

AS SUPPLIED	PART A	TEST METHOD
Flow	Self Leveling	ASTM C 639 Type I
Extrusion rate	200-550 grams/min	MIL- S-8802
Specific gravity	1.25- 1.34	ASTM D 792 Method A
As installed at 77°F and 50% relative humidity		

AS SUPPLIED	PART B	TEST METHOD
Flow	Self Leveling	ASTM C 639 Type I
Extrusion rate	180-550 grams/min	MIL-S-8802
Specific gravity	1.25-1.34	ASTM D 792 Method A

AS CURED (MIX PART A WITH PART B, MIX RATIO 1:1)

Skin over time at 77°F,	20 min. max	MIL-S-8802
Nonvolatile Content	93-99%	ASTM D 2822
5g/2h/150C/A1 cup		
Elongation ¹	600 % min	ASTM D 3583, Section 14 modified
Modulus @100%, PSI ¹	3-12	ASTM D 3583, Section 14 modified

¹ Cured 72 hours at 77±2°F and 50±5% relative humidity.

c) PRIMER FOR SILICONE SEALANT. The primer shall be in accordance with the silicone manufacturer's recommendations.

d) POLYMER MORTAR. The mortar material shall be a two-component, rapid curing, flexible epoxy with aggregate, that cures to a dense, semi-flexible, weather, abrasion, and impact resistant epoxy concrete. The material shall have the following physical properties:

Mixed Epoxy without Aggregate:

Tensile Strength	900 PSI min.	ASTM D 638*
Elongation at Break	45% min.	ASTM D 638*
Shore D Hardness	45-75	ASTM D 2240
Gel Time	20-60 minutes	AASHTO M200

*Molded Specimens, .25M Thickness

Mixed Epoxy with Aggregate:

Compressive Strength at 24 hours	2500 PSI min	ASTM C 579 Method B
Shear Strength	750* PSI min	ASTM C 882
Abrasion Resistance	1.5 max	ASTM C 501, TABER H22
Resilience	70% min	OKLA Test Procedure OHD L6
Thermal Compatibility	PASS	ASTM C 884

*Or concrete failure

e) AGGREGATE. The aggregate shall be furnished by the manufacturer. It shall be well graded, clean and dry.

3. CONSTRUCTION. Construct as shown on the plans and as follows:

Joints shall be inspected for proper depth, width, alignment and preparation as detailed in the plans and shall be approved by the engineer before installing the mortar and sealant material.

Sandblasting and cleaning shall be as recommended by the manufacturer and any compressed air used shall be filtered to separate oil and moisture.

The mortar shall be installed when the substrate temperature is 45 degrees F and rising. The use of accelerator and heat, when recommended by the manufacturer, may be used to improve the curing time of the mortar.

Mixing, placing & curing of the mortar shall be in accordance with the manufacturer's instructions, a copy of which shall be furnished to the engineer prior to the start of work.

The sealant shall be installed when the mortar has developed sufficient strength. After the temporary joint form is removed, the joint faces shall be sandblasted to remove all residue of the form material. The joint faces are then primed with approved primer in accordance with manufacturer's instructions. The backer rod is then installed to the proper depth and the silicone is extruded into the joint. The silicone sealant is self-leveling, therefore care must be taken to insure that leak-by is not a problem.

A qualified representative of the manufacturer shall be present at the start of work to insure proper installation.

4. MEASUREMENT AND PAYMENT. The mortar shall be paid by the cubic foot and silicone sealant paid by the linear foot. Measurement shall be out-to-out along the joint including curb, parapets and sidewalks, if applicable.