# Shep Poxy Roads & Highways MV

## High Strength Epoxy Bonding Agent

### Description

Shep Poxy Roads & Highways MV product is a two-component, high-strength epoxy adhesive that is ideal for bonding fresh to hardened concrete or for use in a variety of repair projects. It may be used in temperatures between 40 °F and 100 °F (4 °C and 38 °C).

### Uses

- Bonding hardened concrete to hardened concrete
- Bonding fresh concrete to hardened concrete and steel
- Coating and sealing interior or exterior slabs
- Durable, chemical resistant industrial coating
- Mortar repair for spalled concrete when mixed with dried silica sand or aggregate
- Gravity feed medium to large horizontal cracks.

### Advantages & Features

- Moisture insensitive allowing installation and curing in damp environments
- High modulus, self-leveling, medium viscosity
- NSF/ANSI 61 & 372 Drinking Water System Components
- Available packaging in cartridges and bulk; red basecoat available in 4 gallon kits only
- Extended working time with new higher strength formula

### Availability

Shep Poxy Roads & Highways MV is available through CMC Construction Services retail locations or online at cmc.constructionservices.com.

### Color & Ratio

Part A (Resin) White: Part B (Hardener) Dark Gray, Mixed Ratio: 1:1 by volume, Mixed Color - Gray. Shep Poxy Roads & Highways MV Red basecoat available in 4 gallon kits only.

CLASSIFIED C UL US
WATER QUALITY
MH61032
NSF / ANSI 61
NSF / ANSI 372

### Shelf Life

24 months when stored in unopened bulk containers in dry conditions. The 8.6 fl. oz. (254 ml) cartridge shelf life is 12 months when stored in unopened containers in dry conditions. Store between 40°F (4°C) and 95°F (35°C).

### Installation & Coverage

See Manufacturer's Printed Installation Instructions (MPII) available within this Technical Data Sheet (TDS). Due to occasional updates and revisions, always verify that you are using the most current version of the MPII. In order to achieve maximum results, proper installation is imperative. Bonding Agent - 1 gallon covers approximately 80 ft2 (7.4 m2) at a thickness of 20 mils. Adhesive - 1 gallon yields 231 in3 (3.8 L). Grout/ Mortar Repair - 1 gallon mixed with one equal part dried silica sand yields approximately 450 in3 (7.4 L) of grout. NOTE: Coverage may vary slightly according to surface temperature, surface texture and sand gradation.

### Chemical Resistance

A Chemical Resistance Chart for Shep Poxy Roads & Highways MV is available upon request. Contact a CMC Construction Services Technical Service Representative for details.

| Standards and Approvals |
|---|
| ASTM C881-15, AASHTO M235 |
| Shep Poxy Roads & Highways MV: Type II* Grade 2 Class B |
| Type I, II, IV* & V* Grade 2 Class C** |
| Drinking Water System Components |
| NSF/ANSI 61 & 372 |
| *With the exception of tensile strength |
| **Approved at temperatures ≥ 75 °F (24 °C) |

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## Clean Up

Always wear appropriate protective equipment such as safety glasses and gloves. Clean uncured materials from tools and equipment with mild solvent. Cured material can only be removed mechanically.

## Limitations & Warnings

- Do not thin with solvents, as this may affect cure
- Not recommended for any anchoring and doweling application where there may be a sustained tensile load, including overhead applications

## Safety

Please refer to the Safety Data Sheet (SDS) for Shep Poxy Roads & Highways MV products published on our website or call CMC Construction Services at 1.877.297.9111.

## Specification

The bonding agent shall be a two- component, 1:1 mix ratio epoxy system supplied in premeasured containers. Shep Poxy Roads & Highways MV, when cured 7 days and at a minimum temperature of 75 °F (24 °C), shall have a minimum compressive yield strength of 11,360 psi (78.3 MPa) and a minimum compressive modulus of 438,400 psi (3,023 MPa) per ASTM D695. Adhesive shall be Shep Poxy Roads & Highways MV by CMC Construction Services.

## Ordering Information

Table #1

| Shep's Poxy Roads & Highways MV Adhesive Packaging[1] | | | | | |
|---|---|---|---|---|---|
| **Package size** | | **8.6 FL. OZ.2 (254 ML) CARTRIDGE** | **102 FL. OZ. (3.0 L) KIT** | **2 GALLON (7.6 L) KIT** | **4 GALLON (15 L) KIT** |
| Part # | Gray | A9-2100HN | BUG-2100 | B2G-2100 | B2G-2100-A<br>B2G-2100-B |
| | Red[3] | --- | --- | --- | B2G-2100-A<br>B2G-2100-B |
| Manual Dispensing Tool | | TM9HD | N/A | | |
| Recommended Mixing Nozzle | | T12 | N/A | | |
| Case/Kit Qty. | | 12 | 1 Kit / Carton<br>51 oz. A<br>51 oz. B | 1 Kit / Carton<br>1 Gallon A<br>1 Gallon B | 1 Kit (loose)<br>5 Gallon A<br>5 Gallon B |
| Pallet Qty. | | 1,116 | 75 | | (30) 2 Gallon A<br>(30) 2 Gallon B |
| Pallet Weight (lbs.) | | 1,402 | 719 | 1,148 | 1,307 |

1. For bulk dispensing pumps, contact CMC Construction Services.
2. Packaged with two nozzles per cartridge.
3. Non-stocked item; may require additional lead time.

## Ordering Information

Table #2

| Shep's Poxy Roads & Highways MV NSF/ANSI Certifications[1,2] | | | | |
|---|---|---|---|---|
| **ANSI Certification** | **Description** | **Application** | **Water Contact Temperature** | **Surface Area to Volume Ratio** |
| NSF 61 | Drinking Water System Components - Health Effects | Barrier Materials | Cold 73 ± 4 °F (23 ± 2 °C) | 40 cm2/L |
| | | Joining and Sealing Materials | | |
| NFS 372[3] | Lead Free U.S. Safe Drinking Water Act | Barrier Materials | | |
| | | Joining and Sealing Materials | | |

1. Shep Poxy Roads & Highways MV is certified in both gray and red mixed color.
2. Shep Poxy Roads & Highways MV is certified as a barrier material and joining and sealing material for use with tanks greater than or equal to 900 gallons. Mix Ratio: Part A (Resin): Part B (Hardener) = 1:1 by volume. Application Method: Brush and roller. Maximum number of coats: 2. Max Dry Film Thickness (DFT): 110 mils. Final Cure Time: 72 hours at 75 °F (24 ° C).
3. Shep Poxy Roads & Highways MV is certified to NSF/ANSI 372 and conforms to the lead content requirements for "lead free" plumbing as defined by California, Louisiana

Table #3

| Shep's Poxy Roads & Highways MV Performance to ASTM C881-15[1,2,3] | | | | | | |
|---|---|---|---|---|---|---|
| **Property** | | **Cure Time** | **ASTM Standard** | **Units** | **Sample Conditioning** | |
| | | | | | **CLASS B 40° F (4° C)** | **CLASS C4 ≥75° F (≥24° C)** |
| Gel Time - 60 Gram Mass | | --- | C881 | Min | 108 | 43 |
| Consistency or Viscosity | | --- | | cP | 13,300 | 5,600 |
| Pot Life (1 Gallon)[5,6] | | --- | --- | Min | 37 | |
| Tack-Free Time | | --- | D2377 | --- | 7H 10Min | 3H 25Min |
| Compressive Yield Strength | | 7 day | D695 | (MPa) | 7,700 (53.1) | 11,360 (78.3) |
| Compressive Modulus | | | | | 221,900 (1,530) | 438,400 (3,023) |
| Ultimate Compressive Strength[5] | Neat | | | | --- | 13,985 (96.4) |
| | 1:1 -Aggregate[7] | | | | | 12,236 (84.4) |
| | 2:1 -Aggrgate[7] | | | | | 8,712 (60.1) |
| Tensile Strength | | | D638 | | 1,610 (11.1) | 5, 010 (34.5) |
| Tensile Elongation | | | | % | 4.2 | 6.0 |

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| | | | | | |
|---|---|---|---|---|---|
| Bonded Strength Hardened to Hardened Concrete | 2 day | C8882 | (MPa) | 2,030 (14.0) | 2,250 (15.5) |
| | 14 day | | | 2,630 (18.1) | 2,900 (20.0) |
| Bond Strength Fresh to Hardened Concrete | | | | 1,880 (13.0) | |
| Bond Strength Fresh Concret to Steel | 14 day | C8882 | (MPa) | --- | 1,040 (7.2) |
| Heat Deflection Temperature | 7 day | D648 | °F (°C) | 134 (56.7) | |
| Water Absorption | 14 day | D570 | % | 0.11 | |
| Linear Coefficient of Shrinkage | --- | D2566 | | 0.00006 | |

1. Results based on testing conducted on a representative lot(s) of product. Average results will vary according to the tolerances of the given property.
2. Full cure is listed above to obtain the given properties for each product characteristic.
3. Results may vary due to environmental factors such as temperature, moisture and type of substrate.
4. For Shep Poxy Roads & Highways MV, Class C is applicable from temperatures of 75 °F (24 °C) to 100 °F (38 °C).
5. Property not referenced in ASTM C881.
6. Pot life is measured as the workable and applicable time of 1.0 gallon (3.8 L) when mixed at 75 °F (24 °C).
7. Mixed epoxy ratio is always 1:1 by volume. Sand to mixed epoxy ratio refers to sand/aggregate in ratio to the mixed epoxy by volume. ASTM C778 (20-30) sand used to generate this data.

## Directions For Use

### Surface Preparation:

- To obtain optimum bonding, remove all dirt, oil, debris, wax, grease, dust, paint or coating, and any loose concrete or rocks from the surface area where the application of the bonding adhesive will be applied
- Concrete surface must be cleaned and profiled or roughened prior to application
- Mechanical Preparation - Use a scarifier, shotblaster, bushhammer or other equipment that will produce a profiled or roughened surface, then thoroughly remove all dust and debris produced
- Chemical Preparation (Acid Etching) - While wearing safety goggles, gloves and other recommended personal protective equipment (see Safety Data Sheet), use an acid mixture such as water/baking soda or water/ammonia to etch into the concrete surface, followed by a clean water rinse to remove all chemical acid mixture as well as the debris obtained from etching
- Surface may be dry or damp however, there should be no standing water; suggest testing per ASTM D4263 Standard Test Method for Indicating Moisture in Concrete by Plastic Sheet Method prior to application

### Cartridge Preparation:

When the ambient temperature or substrate falls below 70 °F (21 °C), condition the product between 70 - 75 °F (21 - 24°C) prior to use. Cold product may become too thick. Product that is too warm will react much faster than normal.

CAUTION: Check the expiration date on the cartridge to ensure it is not expired. Do not use expired product! Remove the protective cap from the adhesive cartridge and insert the cartridge into the recommended dispensing tool. Before attaching mixing nozzle, balance the cartridge by dispensing a small amount of material until both components are flowing evenly. For a cleaner environment, hand mix the two components and allow waste to cure prior to disposal in accordance with local regulations.

After the cartridge has been balanced, confirm the internal mixing element is in place and screw on the proper Adhesives Technology mixing nozzle to the cartridge (see Table 1). Do not modify mixing nozzle prior to dispensing adhesive.

Dispense the initial amount of material from the mixing nozzle into a disposable container according to local regulations. The product should be a uniform gray color with no streaks.

NOTE: The adhesive must be properly mixed in order to perform as published. CAUTION: When changing cartridges, never re-use nozzles. A new nozzle should be used with each new cartridge and steps 1 - 3 should be repeated accordingly.

## Bulk Mixing Instructions

When the ambient temperature or substrate falls below 70 °F (21 °C) condition the product between 70 - 75 °F (21 - 24 °C) prior to use. Cold product may become too thick. Product that is too warm will react much faster than normal.

NOTE: Thoroughly stir each component separately with a Jiffy Mixer or similar before mixing Part A and Part B together.

1. Pour the total contents of Part B (hardener) into the Part A pail (resin) OR proportion equal parts by volume of both Part A and Part B into a clean pail. Be sure that the components are mixed at an exact 1:1 ratio by volume.

2. Mix thoroughly with a low speed drill (400 – 600 rpm) with a Jiffy Mixer or similar. Carefully scrape the sides and the bottom of the container while mixing. Keep the paddle below the surface of the material to avoid entrapping air. Proper mixing will take at least 3 minutes and when well mixed the material will be free of streaks or lumps.

3. Mix only the amount of material that can be used before the pot life expires (see Table 3).

4. If aggregate is to be used, add the aggregate to the epoxy mix after part A and part B have been premixed

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together, then place immediately. NOTE: If mixing with sand, a 1:1 ratio is optimal. For grouting/mortar: Add up to 1-1/2 parts of kiln dried sand to 1 part mixed Shep Poxy Roads & Highways MV. Maximum thickness 1.5 inches (38.1 mm) per lift.

## Coating Application

To use Shep Poxy Roads & Highways MV as a coating adhesive, apply the single first coat using a clean roller. If a second coating is desired, apply second coat while the first coat is still slightly tacky (refer to Table 3 for Tack-Free Time). Silica sand, 20 to 50 mesh, may be used to create a slip-resistant surface. Broadcast the silica sand throughout the surface, then backroll into the surface to embed the sand.

## Bonding Agent Application

### Bonding Fresh Concrete to Hardened Concrete or Steel:

Using a brush or roller, apply an even coat of the mixed Shep Poxy Roads & Highways MV, epoxy to the clean and prepared concrete or steel surface. While the epoxy is still tacky, place fresh concrete over the top of the mixed epoxy.

### Bonding Hardened Concrete to Hardened Concrete:

Using a brush or roller, apply an even coat of the mixed Shep Poxy Roads & Highways MV, epoxy to both concrete surfaces and be sure to fill all gaps between the connecting concrete surfaces.

### Spall Repair:

An extensive range of spall repairs may be made using Shep Poxy Roads & Highways MV. NOTE: For spall repairs that are near a crack or expansion joint, it is recommended that a joint filler be used to treat the joint prior to repairing the spall. To prepare the surface for spall repair, cut into the sound concrete using a grinder with a diamond blade or tuck point diamond grinding wheel. The entire spall depth should be consistent to avoid a feathered edge effect. Prepare the area to be repaired as noted above under Surface Preparation. Shep Poxy Roads & Highways MV may be extended with the addition of silica sand. The recommended optimal ratio is 1:1 sand to Shep Poxy Roads & Highways MV, for optimum compressive strength (see Table 2). Other mix ratios may be used such as 1.5:1 and 2:1. However, it is recommended not to exceed a 2:1 mix ratio. After final cleaning, pour or dispense mixed neat or sand mixture of Shep Poxy Roads & Highways MV into the repair area and smooth out with a trowel to create a smooth surface.

### Gravity Feed Crack Repair for Horizontal Applications:

Shep Poxy Roads & Highways MV are formulated for medium cracks. For best results, cut a V shaped groove to open up the crack using an abrasive or diamond blade. Use wire brush to abrade and then blow out the crack to remove all dust, dirt, grease, wax, oil or any other contaminants. Pour or dispense the Shep Poxy Roads & Highways MV into the crack and fill the entire area. Repeat application if necessary to completely fill crack.