

GUIDE SPECIFICATION FOR REZI-WELD™ LV STATE: ULTRA LOW-VISCOSITY INJECTION EPOXY

SECTION 03 64 23

EPOXY INJECTION GROUTING

Specifier Notes: This guide specification is written according to Construction Specifications Institute (CSI) MasterFormat. The section must be carefully reviewed and edited by the architect or engineer to meet the requirements of the project. Coordinate this section with other specification sections and the drawings.

Specifier Notes: W.R. MEADOWS® REZI-WELD LV STATE is an ultra-low viscosity, two-component, 100% solids, rapid setting, epoxy-based, structural injection resin. It is a solvent-free, low odor, high strength, high modulus, moisture-insensitive, ultra-low viscosity epoxy resin system. REZI-WELD LV STATE resists most chemicals and forms a structural, monolithic bond with typical concrete. Its low surface tension facilitates deep penetration into hairline to medium-sized cracks. The 100% solids formulation is volumetrically stable, ensuring a solid bond to both sides of the crack.

REZI-WELD LV STATE is designed for gravity feeding or pressure injecting. It is available in two cartridge sizes for ease of use. It is also available in bulk units and may be injected using two-component metering pumps. It is suitable for injecting fine, non-moving structural cracks in concrete and wood for long-term repairs. REZI-WELD LV STATE makes an economical, easy-to-use epoxy mortar for patching or repairing defects in concrete substrates.

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Application of an ultra-low viscosity, rapid-setting, penetrating, epoxy compound.

1.02 RELATED SECTIONS

Specifier Notes: Edit the list of related sections as required for the project. List other sections dealing with work directly related to this section.

- A. Section 03 01 00 - Maintenance of Concrete.
- B. Section 03 30 00 - Cast-in-Place Concrete.

1.03 REFERENCES

- A. AASHTO M 235 - Standard Specification for Epoxy Resin Adhesives.
- B. ASTM C881 - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete.
- C. ASTM C900 - Methods of Calorific Value of Gaseous Fuels by the Water-Flow Calorimeter.
- D. ASTM D570 - Standard Test Method for Water Absorption of Plastics.
- E. ASTM D638 - Standard Test Method for Tensile Properties of Plastics.
- F. ASTM D695 - Standard Test Method for Compressive Properties of Rigid Plastics.
- G. ASTM D882 - Standard Test Method for Tensile Properties of Thin Plastic Sheeting.

- H. ASTM D790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- I. ASTM D2240 - Standard Test Method for Rubber Property—Durometer Hardness.
- J. ASTM D2566 - Test Method for Linear Shrinkage of Cured Thermosetting Casting Resins During Cure.

1.04 SUBMITTALS

- A. Comply with Section 01 33 00 - Submittal Procedures.
- B. Submit manufacturer's product data and application instructions.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Store materials in a clean dry area in accordance with manufacturer's instructions.
- C. Store epoxy at temperatures between 40° F (4° C) and 95° F (35° C).
- D. Do not warm epoxy over direct heat. If warming is required, use the double-boiler method or store material in a warm room, prior to application.
- E. Protect materials during handling and application to prevent damage or contamination.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Material must be between 60° F - 85° F (16° C - 29° C) at time of mixing.
- B. Do not apply epoxy when the concrete temperature is below, or will drop below 40° F (4° C) within 24 hours.
- C. Do not apply on exterior surfaces as a coating as it is not resistant to ultraviolet rays.
- D. Do not use epoxy for sealing cracks while under hydrostatic pressure.
- E. Ensure all concrete surfaces to be bonded to should be at least 28 days old, due to continued shrinkage of new concrete for 28 days.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. W. R. MEADOWS, INC., PO Box 338, Hampshire, Illinois 60140-0338. (800) 342-5976. (847) 683-4500. Fax (847) 683-4544. Website www.wrmeadows.com.

2.02 MATERIALS

- A. Low viscosity epoxy: Epoxy shall be a moisture insensitive, low viscosity, high modulus, high strength, structural injection resin.
 - 1. Performance Based Specification: Pre-Packaged epoxy injection kit shall have the following characteristics after 7 Day Cure @ 77° F (25° C):
 - a. Tensile Strength, ASTM D638: 7,200 psi (49.6 MPa).
 - b. Elongation, ASTM D638: 8.8%.
 - c. Shore D Hardness, ASTM D2240: 85.
 - d. Flexural Strength, ASTM D790: 8,500 psi (55.2 MPa).
 - e. Compressive Yield Strength, ASTM D695: 12,000 psi (82.7 MPa).

- f. Compressive Modulus, ASTM D695: 260,000 psi (1,800 MPa).
- g. Bond Strength, ASTM D882: 2 days: 2,100 psi (14.4 MPa).
7 days: 3,000 psi (20.6 MPa).
- h. Absorption, ASTM D570: 0.23% (24 hours).
- i. Linear Coefficient of Shrinkage, ASTM D2566: 0.004.

- 2. Proprietary Based Specification: REZI-WELD LV STATE Injection Epoxy by W. R. MEADOWS.

B. ACCESSORIES

High Viscosity Epoxy: REZI-WELD GEL PASTE by W. R. MEADOWS.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine surfaces to receive epoxy. Notify architect or engineer if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.

3.02 SURFACE PREPARATION

- A. Clean and prepare surfaces to receive epoxy in accordance with manufacturer's instructions.
- B. Do not apply epoxy to surfaces unacceptable to manufacturer.
- C. Mechanically abrade or grit blast all surfaces to a sound and profiled condition.
- D. Sandblast exposed steel to white metal and vacuum clean. Alternatively use sandpaper or wire brush to obtain white metal finish.
- E. Ensure all surfaces must be free of standing water, clean, and void of all contaminants.
- F. Prior to injection, clean all cracks either by blowing out with oil free compressed air. Alternatively, vacuum to remove all contaminants and loose particles.

3.03 MIXING AND PREPARATION

- A. Condition cartridge to 60° F to 85 °F (16° C to 29° C) for 24 hours prior to use.
- B. Shake the cartridge vigorously for 60 seconds then stand the cartridge upright for 60 seconds.
- C. Ensure static mixer nozzle is free of obstructions.
- D. Remove nose cap and nose plug.
- E. Insert static mixer onto cartridge nose.
- F. Slide retaining nut (located in sealed bag) down static mixer shaft and tighten retaining nut onto cartridge nose.
- G. Load into standard dual cartridge dispenser tool.
- H. Dispense and discard approximately a 3" (73.2 mm) bead of material until a uniform amber color is achieved.

3.04 APPLICATION

Specifier Notes: Select application A, B, C or D based on project requirements.

- A. Injection [1/8" (3.2 mm) maximum]
 - 1. Set injection ports and surface seal the crack to be injected with high viscosity epoxy. Allow to cure.
 - 2. Insert mixing nozzle into injection port located at the lowest point along the crack and pressure inject ultra-low viscosity epoxy into this port.
 - 3. Observe injection port above and once epoxy begins to appear, remove mixing nozzle from first port and cap off.
 - 4. Insert mixing nozzle into this next port and repeat procedure.
 - 5. Continue process moving up the crack until all ports are filled.
 - 6. Inject a small amount of epoxy into top port to ensure crack is completely filled.
 - 7. Cap last port and allow epoxy to cure.

- B. Gravity Feed
 - 1. Ensure underside of crack to receive epoxy is sealed.
 - 2. Pour epoxy from the container and fill to the top of the crack.
 - 3. Allow gravity to pull epoxy into the void.
 - 4. Top off with more epoxy and finish.
 - 5. Repeat this procedure if necessary to ensure void is completely full.

- C. Interior, Non-Skid Topping
 - 1. Apply epoxy at a rate of 100 ft.²/gal. (2.66 m²/L).
 - 2. Apply layer of sand or grit over epoxy and allow to set.
 - 3. Blow excess sand away.

- D. Epoxy-Resin Mortar
 - 1. Combine clean, dry aggregates with freshly mixed epoxy in a ratio of 1 part epoxy to 1 to 4 parts, by volume, of graded aggregates according to manufacturer's instructions.
 - 2. Apply epoxy-resin mortar in lifts not exceeding 1.5" (50.5 mm) per lift.

END OF SECTION