

ETI-SLV

Super-Low-Viscosity Structural Injection Epoxy

SIMPSON

Strong-Tie

®

CSI Specification: 03 01 00 Maintenance of Concrete

DESCRIPTION

ETI-SLV Super-Low-Viscosity Structural Injection Epoxy is a two-component, high-solids, moisture-tolerant epoxy specially designed for pressure injection of concrete cracks and gravity-feed flood-coat crack-filling applications. ETI-SLV is available in side-by-side cartridges and bulk packaging.

SPECIFICATION COMPLIANCE

Meets the requirements of ASTM C881 Type I and IV, Grade 1.

ASSESSMENT

WHERE TO USE

- As a super-low-viscosity epoxy (350 cps) for repair of hairline cracks and cracks up to ¼ in. (6 mm)
- For structural repairs
- For underwater pressure-injection applications
- For gravity-feed flood-coat crack filling on horizontal decks
- To bond steel plates

FEATURES

- Penetrates the smallest cracks
- Chemically bonds with the concrete to provide a structural repair. ETI-SLV seals the crack from moisture, protecting rebar in the concrete from corrosion.
- Moisture-tolerant, can be used on dry and damp surfaces
- Formulated for maximum penetration under pressure
- Suitable for pressure injection or gravity-feed applications
- Excellent load-transfer capability
- Non-shrink and resistant to oils, salts and mild chemicals
- Can be used with metered pressure-injection equipment, or applied by brush, roller, or spray

PRODUCT DATA

All testing performed at 73°F (23°C) and 50% R.H.

Generic Description

Epoxy resin

Packaging

16 fl. oz. (475 mL) dual cartridge (ETI-SLV)

3 US gallon (11.4 L) kit (ETI-SLVKT2) contains:

- (2) 1 US gallon (3.8 L) cans of Component “A” (ETI-SLV-1A)
 - 1 US gallon (3.8 L) can of Component “B” (ETI-SLV-1B)
- 15 US gallon (56.8 L) kit (ETI-SLVKT15) contains:
- (2) 5 US gallon (18.9 L) pails of Component “A” (ETI-SLV-5A)
 - 5 US gallon (18.9 L) pail of Component “B” (ETI-SLV-5B)
- 150 US gallon (567.8 L) kit (ETI-SLVKT150) contains:
- (2) 50 US gallon (189 L) drums of Component “A” (ETI-SLV-50A)
 - 50 US gallon (189 L) drum of Component “B” (ETI-SLV-50B)

Color

Mixed Epoxy: Black

Mixing Ratio

2A:1B by volume

Product Yield

231 in.³/US gal. (0.001 m³/L)

For flood-coat applications

150–200 ft.²/US gal. (3.6–4.9 m²/L) depending on surface profile and porosity

Cure Times

Initial Cure 24 hours

Full Cure 7 days

Storage

Store dry between 45° and 90°F (7°–32°C).

Shelf Life

2 years in unopened packaging

VOC

23 g/L (mixed)

TECHNICAL INFORMATION

All testing performed at 73°F (23°C) and 50% R.H., unless noted

Viscosity

ASTM D2393

350 cps

1,400 cps @ 50°F (10°C)

Bond Strength

(moist cure)

ASTM C882

2 days 3,100 psi 21.4 MPa

14 days 3,900 psi 26.9 MPa

Tensile Strength, 7 days

ASTM D638

10,200 psi 70.3 MPa

Tensile Elongation

at Break

ASTM D638

2.1%

Compressive Yield

Strength, 7 days

ASTM D695

16,500 psi 113.8 MPa

Compressive Modulus

ASTM D695

569,000 psi 3,923.1 MPa

Flexural Strength

ASTM D790

12,000 psi 82.7 MPa

Flexural Modulus

ASTM D790

550,000 psi 3,792.1 MPa

Deflection Temperature

ASTM D648

140°F (60°C)

Water Absorption, 24 hours

ASTM D570

0.25%

Linear Coefficient of Shrinkage

ASTM D2566

0.0035

Gel Time, 60 gram mass

ASTM C881

14 minutes

35 minutes @ 50°F (10°C)

Weight per Gallon

ASTM D1475

Component “A” 9.4 lbs.

Component “B” 8.1 lbs.

Mixed 9.0 lbs.

Chemical Resistance

Very good to excellent against distilled water, inorganic acids, and alkalis. Fair to good against organic acids and alkalis, and many organic solvents. Poor against ketones.

PLANNING

LIMITATIONS

- For optimal product performance, do not apply to surfaces below 40°F (4°C) or above 90°F (32°C)
- Material is a vapor barrier after cure
- Not for use on exterior slab on-grade coating applications
- For use in non-moving cracks only
- Product may discolor if exposed to direct sunlight
- Not for use in actively leaking or seeping cracks
- Remove active hydrostatic pressure before attempting injection
- Not recommended for large exterior repairs
- or applications subject to large thermal change when used as a repair mortar
- For cracks wider than ¼ in. (6 mm), consult a qualified engineer
- When used in cracks greater than ¼ in. (6 mm), pre-placed aggregate should be used to dissipate heat generated during the cure process
- Do not apply as a coating when relative humidity exceeds 90%
- Maximum in service temperature should not exceed 120°F (49°C)

Please note: This product has not been evaluated for resisting long-term sustained loads in anchor applications. Refer to the current *Anchoring and Fastening Systems for Concrete and Masonry* catalog or strongtie.com for code-listed structural anchoring adhesives.

PREPARATION

SURFACE PREPARATION

Concrete must be sound, clean, and free of all contaminants that could impair product adhesion or performance. Concrete should be a minimum of 28 days old and fully cured prior to application.

Pressure Injection: Prepare surface area around crack by abrasive blasting or other mechanical means, taking care not to impact any debris into the crack. Blow out the crack with 80 psi (min.) oil-free, compressed air to remove any visible debris. For surface mounted ports, use a suitable paste-over material such as SET, CIP or FX-763 to adhere the ports to concrete surface. For drill-in ports, drill the appropriate sized hole and set. Paste over and seal the entire crack, and port bases using a putty knife. Apply the paste-over material at a minimum thickness of 3/16 in. (4.7 mm) and 1 in. (25 mm) wide. Cover port bases with a minimum thickness of ¼ in. (6 mm) and extend the paste-over at least 1 in. (25 mm) beyond the base of the port. If possible, seal the backside of the crack. Allow paste-over material to fully cure before injecting.

MIXING

For optimal product performance, condition individual components to 70°F (21°C) and stir thoroughly prior to use. Do not prepare more material than can be used within the pot life of the product.

For Neat Resin: Proportion components at a 2A:1B ratio by volume into calibrated mixing equipment. Ensure a uniform mix prior to injection ETI-SLV.

Dual Cartridges: Hold cartridge upright, unscrew retaining nut and remove plugs. Attach Simpson Strong-Tie EMNO22 mixing nozzle (included) to the top of cartridge and secure with retaining nut. Insert cartridge into dispensing tool. When using a pneumatic dispensing tool, regulate air pressure to 80–100 psi. **IMPORTANT:** Cartridge must be equalized prior to use. Failure to follow these instructions can result in product not properly curing. To ensure proper mixing ratio, orient the cartridge and tool in an upward direction so any entrapped air can escape into the mixing nozzle. Begin by squeezing the trigger on the tool until the mixing nozzle is completely full. Once full, re-orient the cartridge and tool to the side and dispense 3 full trigger pulls (approximately ½ fl. oz./30 mL) and insure all air bubbles are out of the cartridge before beginning the injection process. Repeat if necessary. Dispose of unmixed adhesive in accordance with local regulations. When properly mixed, ETI-SLV will be a uniform black color. Modification or improper use of mixing nozzle may impair adhesive performance. To store partially used cartridges, leave hardened nozzle in place. To re-use, attach new nozzle. Adhesive will start to gel in the nozzle if allowed to stand beyond the listed pot life. Adhesive will gel faster at higher temperatures. Material under pressure can blow out the back of the cartridge if the adhesive in the nozzle hardens.

EXECUTION

APPLICATION

Do not apply in direct sunlight and protect from large temperature variations for 48 hours following installation.

For pressure injection: With all ports open, begin injecting ETI-SLV at the lowest port and work your way up. For horizontal applications, choose one end of the affected site and work your way to the other end. Begin pumping ETI-SLV into the first port to establish flow. If the next port shows material, close that port and continue pumping until the first port refuses material. If the first port refuses material prior to showing at the next port, close the first port and re-establish flow at the second port. Repeat until all ports refuse material. When injection is complete, and following initial set time, remove installation ports and seal holes with FX-922 Plug and Fast Set or FX-763 Low-Modulus Trowel-Grade Epoxy. Remove cured paste-over epoxy by mechanical means.

For flood-coat/gravity-feed applications: Pour properly mixed ETI-SLV onto surface to be treated and spread evenly with a squeegee, roller, or brush. Continue to work material to ensure all voids and cracks are filled, taking care not to leave puddles. Immediately broadcast 12 lb. (5.4 kg) of FX-701 per 100 sq. ft. (9.3 m²) to create a non-slip surface. Allow to dry, then sweep off any excess sand.

SAFETY

WARNING

Resin: WARNING! Causes skin irritation. Causes serious eye irritation. May cause an allergic skin reaction. Toxic to aquatic life with long-lasting effects.

Hardener: DANGER! Combustible liquid. Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Toxic to aquatic life with long lasting effects.

Protective Measures: The use of safety glasses and chemical-resistant gloves is recommended. Use appropriate clothing to minimize skin contact. The use of a NIOSH-approved respirator is required to protect respiratory tract when ventilation is not adequate to limit exposure below the PEL. Refer to Safety Data Sheet (SDS) available at strongtie.com/sds for detailed information.

FIRST AID

Eye Contact: Hold open eyes under running water for 15 minutes. Seek medical advice.

Skin Contact: Wash skin with soap and water. Seek medical advice if irritation develops.

Inhalation: Remove victim to fresh air. If necessary, use artificial respiration. Seek medical advice.

Ingestion: If product is swallowed, call physician or poison control center. Do not induce vomiting, or give diluents to someone who is unconscious, having convulsions, or who cannot swallow. Seek medical advice.

CLEAN-UP

Spills: Construct a dike to prevent spreading. Soak up with absorbent material such as clay, sand, or other non-reactive material. Place in leak-proof containers. Keep out of sewers, storm drains, surface waters, and soils.

Surface Area: Wipe up uncured material with cotton cloths. If desired, scrub area with abrasive, water-based cleaner and flush with water. If approved, solvents such as FX-Epoxy Cleaner, ketones (MEK, acetone, etc.), or adhesive remover can be used. Cured material can only be removed by mechanical means.

Tools and Equipment: Remove uncured material with FX-Epoxy Cleaner, ketones (MEK, acetone, etc.), or adhesive remover. Cured material can only be removed by mechanical means.

Skin: Use a non-toxic, pumice-based soap, citrus-based hand cleaner or waterless hand-cleaner towel. Never use solvents to remove product from skin.

Disposal: Dispose of container and unused contents in accordance with federal, state, and local requirements. Containers may be recycled; consult local regulations for exceptions.

LIMITED WARRANTY

This product is covered by the Simpson Strong-Tie RPS Product One-Year Limited Warranty, which is available at strongtie.com/limited-warranties or by calling Simpson Strong-Tie at (800) 999-5099.

Distributor

IMPORTANT INFORMATION

It is the responsibility of each purchaser and user of each product to determine the suitability of the product for its intended use. Prior to using any product, consult a qualified design professional for advice regarding the suitability and use of the product, including whether the capacity of any structural building element may be impacted by a repair. As jobsite conditions vary greatly, a small-scale test patch is required to verify product suitability prior to full-scale application. The installer must read, understand and follow all written instructions and warnings contained on the Limited Warranty, product label(s), Product Data Sheet(s), Safety Data Sheet(s) and the strongtie.com website prior to use. For industrial use only by qualified applicators. KEEP OUT OF REACH OF CHILDREN!

⚠ WARNING! Cancer and reproductive harm — www.P65Warnings.ca.gov.