

EPIWELD® 4 CRACKS

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Supersedes all previous publications



Product Description

EPIWELD® 4 CRACKS is a clear, amber colored, high-modulus, epoxy resin system. It is a specially designed epoxy that has a very low application viscosity, making it ideal for concrete crack repair and sealing, concrete bonding, bolt setting, and many other concrete restoration type projects. It can provide lasting horizontal structural strength crack bonding and repair by either gravity feeding or by pressure injection into sealed cracks. It can also be used to seal non-pressured water and air leaks and other applications where a very thin epoxy is desirable. **EPIWELD® 4 CRACKS** is packaged in a convenient to use dual cartridge as two parts of resin to one part hardener. This 2 to 1 ratio is necessary to achieve the ultra low viscosity of this product.

Unlike many other chemical epoxy systems **EPIWELD® 4 CRACKS** uses the latest polymer technology, has no strong offensive odor, is environmentally gentle, and is considered non-carcinogenic. It does not contain styrene, which is hazardous to the environment (ozone layer) and your health, or any volatile chemicals. It is not flammable and is safe to handle. **EPIWELD® 4 CRACKS** has a high modulus of elasticity, which allows it to perform well when exposed to vibrations or shocks, and allows for structural bonding to dry and damp concrete surfaces which are free of standing water or hydrostatic water pressure.

EPIWELD® 4 CRACKS is packaged in a pre-measured, 16.5 fl. oz. (488 ml) dual cartridge set which dispenses the epoxy from a specially made caulking type dispensing gun at a 2:1 ratio. Cartridge sets are molded with the strongest plastics available to help ensure that you will not experience leaking problems or broken sets. Inside diameters have extremely tight tolerances to ensure a positive seal between the cartridge and the plastic plungers. The cartridge sets are translucent allowing you to see how much epoxy is remaining. As the epoxy flows through a mixer nozzle, both components are thoroughly mixed. The mixing nozzles are designed with mixing elements to thoroughly combine the components of the dual cartridge automatically. This process allows partial use of a cartridge, since the components are housed separately until they pass into the mixing nozzle. The reusable mixing nut is sized to attach and hold the mixing tubes. The **EPIWELD® DISPENSING GUN** is made of heavy gauge steel for heavy-duty use and designed with a torque screw system with stabilizing rods to exert pressure equally to both chambers of the dual cartridge system.

Pressure injection or gravity feed of cracks in concrete and other types of substrates. Used as a surface sealer of cracks. May be used for anchoring units in concrete or bonding new concrete to old.

Installation

Before using this product, please refer to the Material Safety Data Sheet for additional information. Proper handling precautions MUST be followed. The conditions of use, handling, and application of this product and information (whether verbal or written), including any suggested formulations and recommendations, are beyond Lambert Corporation's control. Therefore, it is imperative that testing be performed to determine satisfaction and suitability for intended use and health, safety, and environmental issues. The following information is meant as a guideline of best industry practices. While Lambert Corporation does suggest adherence to these guidelines, unforeseeable variables and/or developed successful installer practices may cause variation in methods and/or results.

Surface Preparation-Concrete

The success of any adhesive application is directly proportional to the extent of substrate preparation and the care in application. Surface must be clean and structurally sound. All concrete surfaces to be bonded or repaired should be dry for best results; however, a damp, surface-dry condition is acceptable. Concrete must be free of standing water. Mechanical scarifying to remove laitance and expose sound, coarse aggregate will result in optimum bond. New concrete must be permitted to age before an epoxy is applied. Adequate aging or curing time is generally 28 days or more.

Cautions

Due to many variables in bonding to damp or dry surfaces, be certain to test application under the same conditions as the full-scale work. When bonding to damp or slightly wet surfaces, be certain to test if dampness or moisture is caused by hydrostatic pressure. Moisture passing through the substrate by pressure during application and curing of epoxy will cause bond failures.

Application

Prior to using the **EPIWELD® 4 CRACKS** remove setting nut, remove plugs, install static mixing head and secure firmly with setting nut. Cut off tip at desired opening. Dispense small quantity of **EPIWELD® 4 CRACKS** in a separate container to ensure the flow and color is clear-no streaks. Be sure both sides flow evenly. For ease of dispensing at temperatures below 70°F (21.1°C), warming is necessary. Use **EPIWELD® DISPENSING GUN** for cartridge epoxy dispensing. When finished dispensing, RELEASE THE PRESSURE AND REMOVE NUT AND STATIC MIXING HEAD. Replace correct plugs in A & B and replace the holding nut. Allow a minimum of 8 to 24 hours for full cure of the epoxy.

Crack Repair

Drill port locations at a distance equal to the thickness of the concrete. Drill 1-inch (25.4 mm) into the widest part of the crack at each location.

Clean the crack with a soft bristle brush or blow out with air to remove dust and loose debris. Place plastic port into the drilled hole and bond it into place with epoxy completely sealing the crack and port. Completely seal the entire crack with epoxy. Make sure there are no air leaks. If the crack goes through to the other side it must be sealed there too. This is the only way to keep the epoxy from running off. Begin injecting at the bottom or end port and work your way along the crack. When the epoxy drips out of the next port place a plug in the port being injected and move to the next port. Continue until all ports are injected. When the injection is done allow 12 hours to harden then cut off the ports and grind smooth.

Limitations

EPIWELD® 4 CRACKS should not be used at temperatures below 35°F (1.7°C) or over 110°F (43.3°C). During cold periods, temperatures should be 35°F (1.7°C) and rising at time of application. Do not apply to wet, "puddle" areas. New concrete surfaces being bonded must be cured a minimum of 28 days, which reduces substrate shrinkage and potential bond failure.

	<p>Packaging:</p> <p>Dual-Cartridge (12/Case)</p> <p>Mixer nozzles, nuts, guns, retainers, ports and plugs sold separately</p>
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Condition **EPIWELD® 4 CRACKS** components to 70°F (21.1°C), prior to use. Temperatures below 70°F (21.1°C) will cause the epoxy to thicken substantially making it difficult to blend the two components and obtain the proper mating of resin and hardener. If the epoxy is below 70°F (21.1°C) at time of dispensing the epoxy becomes thicker. When this occurs, the epoxy will not properly flow. The tubes may rupture or the epoxy may flow out of the bottom of the set rather than the nozzle. The excessive force needed to start the epoxy flow may also damage the dispensing gun rods. **EPIWELD® 4 CRACKS** may be heated by: the sun, heat gun, truck heater, or engine hood. Be careful not to melt the plastic tubes with concentrated high temperature heat.

Working time of mixed **EPIWELD® 4 CRACKS** at 75°F (23.9°C) is about 15 minutes. Set-time is dependent upon material temperature and quantity catalyzed. The greater the mass the shorter the set-time. Increased mass and temperature result in higher exothermic and shorter set-time. Higher temperatures decrease set-time; lower temperatures lengthen set-time. Temperatures of substrate will have similar effect on set-time.

SHELF LIFE

One year in unopened, damaged-free cartridges stored in a dry environment between 50-90°F (10-32.2°C).

Technical Data

- Mixing Properties: 2 parts A to 1 part B (by volume)
- Mixed Color: Amber
- Resin Viscosity : 200-250 CPS
- Minimum substrate temperature during application 35°F or warmer

CURED PROPERTIES

SLANT SHEAR STRENGTH

- ASTM C881/882 3,500 PSI (24.1MPa)
(concrete failure, all tests)

COMPRESSIVE STRENGTH

- ASTM D-695 10,500 PSI (72.4MPa)

BOND STRENGTH

- To concrete AASHTO T-237 500-600 PSI (3.4-4.1MPa)
- To steel (sandblasted) 5,000 PSI (34.5MPa)

HEAT DEFLECTION TEMPERATURE

- ASTM D - 648 130°F (54.4°C)

TENSILE STRENGTH - ASTM D-638

- 7 day cure room temperature > 4,500 PSI (31.0MPa)
- Tensile elongation at break 1% Max

Cure Schedule

Concrete Temp	Gel Time	Load Time*	Full Cure
90°F (32°C)	10 Mins	36 Hrs	24 Hrs
75°F (24°C)	15 Mins	5 Hrs	40 Hrs
35°F (1.7°C)	35 Mins	72 Hrs	72 Hrs

* Working Time - Amount of time to work with mixed epoxy before gelling occurs.

** Load Time - Time to obtain standard load strength. Epoxy may continue to cure and gain chemical resistance for up to 7 days.

Coverage

Dual Cartridge - yields 16.5 fl. oz. (488 ml)

Clean-Up

Clean all tools and equipment immediately after use with lacquer thinner. Do not allow epoxy to harden on tools or equipment. Soap and hot water may be used in some cases.

First Aid

Avoid breathing possible fumes, mists and vapors that can cause severe respiratory damage. Use of NIOSH approved breathing apparatus is required for more than minimal exposure. Always work in areas with adequate ventilation to allow dissipation of amines and other chemical fumes, and where applicable, solvent fumes. Use of goggles, protective garments, rubber gloves, protective creams is required. If material gets into eyes, flush thoroughly with clean water for (20) minutes; then seek medical treatment. Avoid skin contact. Material can cause contact dermatitis. Always wash exposed areas immediately, using warm water and soap, followed by rinsing with clean water. Observe all safety precautions. It is important when using solvent-based materials or solvents to keep away from open flame or ignition source.

**KEEP OUT OF REACH OF CHILDREN.
FOR INDUSTRIAL USE ONLY.**