



EPIWELD® 560

Two component gray-colored gel epoxy resin system

Advantages:

- Moisture insensitive
- 100% solids
- Solvent-free
- Gel viscosity

Coverage: Estimated

- Smooth Surface –
100 ft² per gallon
(2.5m²/liter)(16mils)
- Rough Surface – 60
ft² per gallon
(1.5m²/liter)(16mils)

**See Coverage
section for full
details**

Packaging:

2 gallon (7.6 liter) Unit – 1
gallon (3.8liter) each part,
A & B
½ gallon (1.9liter) Unit – 1
quart (0.95 liter) each
part, A & B

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publications

Product Description

EPIWELD® 560 is a solvent-free, epoxy adhesive and binder for bonding concrete/masonry and steel. It is a two-component epoxy product with component (A) cream/white in color and component - (B) black in color. Correctly mixed the color is a uniform gray. EPIWELD® 560 is a gel viscosity, moisture insensitive, epoxy conforming to ASTM C-881-90 specifications. It has a low modulus of elasticity that allows for the variation in stress and temperature. Addition of aggregate results in a gel consistency for easy trowel ability. EPIWELD® 560 also becomes a moisture barrier preventing sub surface water coming through the concrete.

Used neat as an adhesive in bonding new concrete to old, hardened concrete, a binder in aggregate filled epoxy mortars or grouts, and bonding skid-resistant materials to hardened concrete. Produces a gel like consistency as a gap filling material for bonding irregular concrete, wood, or steel.

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

Success of any adhesive application is directly proportional to the completeness of substrate preparation and the care in application. Surface must be clean and structurally sound. All concrete surfaces to be bonded coated 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. Non-porous, dense or glassy type concrete surfaces must be roughened by sandblasting or be etched with a solution of muriatic acid and neutralized. New concrete must be permitted to age. Adequate aging or curing time is generally 28 days or more.

Cautions

Due to many variables in bonding to damp or dry concrete 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 prevalent in, on, or below grade application. Moisture passing through the concrete substrate by pressure during application and curing of epoxy will cause bond failures.

Surface Preparation

Steel exposed rebar, anchor bolts, etc. to be bonded must be free of rust, paint, oil, and dirt. Metals should be sanded or sandblasted to a commercial blast finish. If mechanical cleaning is impractical, chemical cleaning should be used, such as a 10% solution of muriatic acid followed by a water rinse and neutralization. An abraded surface gives a better mechanical key.



Mixing

The individual components of EPIWELD® 560 should be thoroughly stirred before the two are mixed together. The resin (part-A) and hardener (part-B) should then be mixed in the proper ratio (1 part resin (A) to 1 part (B) by volume) for 3 to 5 minutes resulting in a homogenous and uniformly gray colored material. It is recommended that a slow speed drill (600-RPM maximum) and paint paddle or a "jiffy" mixer be used for mixing. Hand mixing with paint paddle is also acceptable but a uniform gray color must be achieved. EPIWELD® 560 is designed for application both neat and as a grout or mortar. Proportion of aggregate to 1 part mixed epoxy varies with proposed end use. 2 to 3 parts aggregate to 1 part mixed EPIWELD® 560 is a good general recommendation.

Application

EPIWELD® 560 can be applied by brush, squeegee, trowel, or roller. Spray application is difficult.

Bonding Fresh Concrete to Hardened Concrete

Make sure sufficient coating of EPIWELD® 560 is applied to the surface to coat all voids and crevices. Only an area of which fresh concrete will be placed within the cure time should be coated. If epoxy sets before the fresh concrete is placed, it will have to be removed and reapplied. Under certain conditions recoating may be acceptable. The epoxy must be tacky when fresh concrete is poured. Porous concrete may rapidly absorb EPIWELD® 560 and leave surface dry. A prime coat may be needed in this case. Thickness of topping or patch should be sufficient to maintain its own structural strength.

Bonding Hardened Concrete to Hardened Concrete

Brush coat each of the mating surfaces with a liberal amount of EPIWELD® 560. Allow 10 minutes for penetration. It is important that the epoxy be tacky when mating surfaces are placed together. Bonded parts should be left undisturbed for at least 24 hours. Support pressure may be required during cure time.

Binder for Epoxy Aggregate Grout, Mortar, Concrete

To produce a sand filled grout add 2 to 3 parts by volume of clean, dry silica sand to 1 part mixed EPIWELD® 560. For proper strength development all components should be at temperatures of 50°F (10.0°C) and rising. Additional aggregate may be added (up to 5 parts sand to 1 part EPIWELD® 560), however, strengths will be reduced slightly. Grout mixes should be placed from one side only to avoid air entrapment.

Anchoring Bolts, Rebar, Dowels, and Pins

Used as neat epoxy. For efficient transfer of stress, the hole should be no greater in diameter than 1/4-inch (6.4 mm) larger than the bolt, rebar, dowel, pin to be embedded. Depth of embedment is 10 to 15 times the bolt, rebar, etc. diameter. Where possible, EPIWELD® 560 could be mixed with fine dry silica sand (40/140 gradation) at a 1 to 1 ratio for further economy and to increase the modulus of elasticity.

Hole Preparation

Holes should be clean and free of debris. Air or water flushed rotary percussive drilling equipment is recommended. Holes should be brushed with a nylon or wire brush to dislodge drilling debris. Use compressed air to clean out the hole. Diamond drilled holes are not recommended as they do not

provide a rough hole profile which establishes the epoxy anchorage. Concrete should be 28 days or older.

Bolt Placement

After placing EPIWELD® 560 in the hole, insert the bolt, rebar, etc. with a twist action for maximum contact between EPIWELD® 560 and hardware and expulsion of air voids. Position hardware with wedges, jigs, etc. until initial cure.

Patching Compound

After mixing parts A & B together as per instructions, thoroughly blend the selected aggregate into the mixture. For patches greater than 3/4-inch (19.1mm) in depth, coarse aggregate whose maximum size is 1/3 the thickness of the patch may be mixed with the sand used in the epoxy mortar. Deep patches should be applied in one inch increments with subsequent layers applied after the preceding one has cooled to touch but still tacky. Epoxy to aggregate ratios by volume are generally in the range of 1 part mixed epoxy to 2-3 parts aggregate.

New concrete or other materials being bonded should be placed while EPIWELD® 560 is still tacky. If it dries, a fresh coat must be applied. Do not apply to wet, "puddle" areas. New concrete surfaces being bonded must be cured a minimum of 28 days, which reduces substrate shrinkage.

When used as a bonding medium for non-slip surfaces, apply EPIWELD® 560 to a dry or slightly damp substrate and use only dry aggregates. Aggregate must be oven dried to avoid encapsulation of moisture.

Limitations

EPIWELD® 560 should not be used at temperatures below 40°F (4.4°C) or over 100°F (37.8°C). During cold periods, temperatures should be 40°F (4.4°C) and rising at time of application. Condition components to 60-70°F (15.6-21.1°C) prior to use. Epoxies stored below 60°F (15.6°C) will cause the epoxy to thicken substantially making it difficult to blend the two materials and obtain a proper mating of resin and hardener. Pot life of mixed EPIWELD® at 70°F (21.1°C) is about 30 minutes. Pot life is dependent upon material temperature and quantity catalyzed. The greater the mass, the shorter the pot life. Increased mass and temperature result in higher exothermic and shorter pot life. Higher temperatures decrease pot life, lower temperatures and the addition of aggregate lengthen pot life. Substrate temperatures will have similar results on pot life.

Technical Data**Neat Epoxy Binder**

- Mixing Properties: 1 part A to 1 part B (by volume)
- Color: Part A Resin Cream/White
Part B Hardener Black
- Viscosity: Neat Epoxy Gel
- Pot Life: Neat Epoxy 30-40 min.
- Tack Free Time: (thin film)

45°F (7.2°C)	14-16 hours
75°F (23.9°C)	2-4 hours
90°F (32.2°C)	1-2 hours

Bond Strength

ASTM C-882 Hardened to Hardened Concrete

- 2 day (dry cure) minimum 1950 PSI (13.4MPa)
- 14 day (moist cure) minimum 1780 PSI (12.3MPa)

Water Absorption: ASTM D-570

- 24 hours 0.5% max.

Compressive Strength: ASTM D-695

- 24 hours 4400 PSI (30.3 MPa) @ 75°F
5800 PSI (40.0 MPa) @ 90°F
- 3 days 5800 PSI (40.0 MPa) @ 75°F
5800 PSI (40.0 MPa) @ 90°F
- 7 days 6800 PSI (46.9 MPa) @ 75°F
6200 PSI (42.7 MPa) @ 90°F

Tensile Properties: ASTM D-638

- 14 days Tensile Strength 2400PSI (16.5MPa)
- Elongation at Break 35%

Modulus of Elasticity:

- 5.6 x 10⁵ PSI

Flexural Properties 14 Days: ASTM D-790

- Flexural Strength 3200 PSI (22.1 MPa)
- Tangent Modulus of Elasticity in Bending 5.6 x 10⁵ PSI (0.7MPa)

Coverage

Estimated Concrete Coverage

- Smooth surface - 100 sq. ft. per gallon (2.5 m²/litre) (16 mils)
- Rough surface – 60-80 sq. ft. per gallon (1.5-2 m²/litre) (16 mils)

Epoxy Grout/Mortar Yield per Gallon

Epoxy +	Aggregate =	Mortar/Grout
1 gal (3.8 liters)	1 gal (3.8 liters)	1.6 gal (6.1 liters)
1 gal (3.8 liters)	2 gal (7.6 liters)	2.2 gal (8.3 liters)
1 gal (3.8 liters)	3 gal (11.4 liters)	2.8 gal (10.6 liters)

*1 gallon (3.8 liter) of Lambert emery aggregate or silica sand weighs approximately 10 to 12 pounds (4.5 to 5.4 kg). All above figures will vary slightly according to aggregate mesh size and air.

Grout Coverage & Thickness

Binder & Aggregate	Square Feet	Thickness
1 gal (3.8 liters)	12.8 (1.2m ²)	1/8" (3.2mm)
1 gal (3.8 liters)	8.6 (0.8m ²)	3/16" (4.8mm)
1 gal (3.8 liters)	6.4 (0.6m ²)	1/4" (6.4mm)
1 gal (3.8 liters)	4.3 (0.4m ²)	3/8" (9.5mm)

Clean-Up & First Aid

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, which 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.

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