



# EPIWELD® 9-N-10

## Two component structural adhesive epoxy

### Advantages:

- 100% solids
- Conforms to Florida Department of Transportation type A & B specifications
- Ideal for anchoring bolts, rebar, dowels, pins, etc.

### Coverage:

- Smooth surface – 100 ft<sup>2</sup> per gallon (2.5m<sup>2</sup> per liter)
- Rough surface – 60-80 ft<sup>2</sup> per gallon (1.5-2m<sup>2</sup> per liter)

**See Coverage section for full details**

### Packaging:

Two-component mix  
Part A: 2 gal (7.6L) can  
Part B: 1 gal (3.8L) can



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## Product Description

EPIWELD® 9-N-10 is an amber colored, 100% solids epoxy resin system. It is a structural adhesive that conforms to Florida DOT Type A & B specifications. It is supplied as a two-component product with a resin to hardener mixing ratio of 2 to 1 by volume. These two components when mixed are a heavy syrup consistency that is easily applied to horizontal surfaces.

EPIWELD® 9-N-10 is a liquid polymer epoxy concrete adhesive. It is not to be compared to latex polymer bonding adhesives. It forms a permanent moisture barrier as well as a permanent weld between the old concrete surface and the new concrete. Because there is no shrinkage, no differential in expansion and contraction of the concrete, and because it is thermal setting, it is the ideal solution to the repair of old concrete floors and roadways that are to have additional toppings, overlays, or other repairs. EPIWELD® 9-N-10 is also ideal for anchoring bolts, rebar, dowels, pins, etc.

EPIWELD® 9-N-10 is designed for bonding fresh or hardened concrete or a binder for epoxy aggregate grouts, mortars, concretes.

## 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

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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 completeness of substrate preparation and the care in application. Surfaces must be clean and sound. All concrete surfaces to be bonded coated or repaired should be dry for best results; however, a damp, surface-dry condition is acceptable. 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 etched with a solution (10%) of muriatic acid. New concrete must be permitted to age before an epoxy is applied. Adequate aging or curing time is generally 28 days or more.

### 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. A lightly abraded surface gives a better mechanical key.

### 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 prevalent in, on, or below grade application. Moisture passing through the substrate by pressure during application and curing of epoxy will cause bond failures.

### Test Areas

Test areas should always be applied when unfamiliarity of surface and/or product exist. This will determine if the surface is properly prepared, coverage, and best application

method. Do not apply to wet areas.

### **Mixing**

The individual components of EPIWELD® 9-N-10 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 (2 parts resin (A) to 1 part (B) by volume) for 3 to 5 minutes resulting in a homogenous and uniformly colored material. It is recommended that a slow speed drill (600-RPM max.) and paint paddle or a jiffy mixer be used for mixing. Hand mixing with paint paddle is also acceptable. EPIWELD® 9-N-10 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® 9-N-10 is recommended.

### **Caution**

Aggregate must be oven dried to avoid encapsulation of moisture. Temperature at time of application should be 50°F (10°C) and rising. Condition components to 60-70°F (15.5-21.1°C) prior to use. Epoxies stored below 60°F (15.5°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® 9-N-10 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. Temperatures of substrate will have similar results on pot life.

### **Application**

EPIWELD® 9-N-10 can be applied by brush, squeegee, trowel, or roller.

### **Bonding Fresh Concrete to Hardened Concrete**

Make sure sufficient coating of EPIWELD® 9-N-10 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 EPIWELD® 9-N-10 sets before the fresh concrete is placed, it may require removal. If poorly bonded. Under certain conditions recoating may be acceptable. The epoxy must be tacky when fresh concrete is poured to it. Porous concrete may absorb EPIWELD® 9-N-10 rapidly and leave surface dry with no surface film. Additional coat must then be applied. 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® 9-N-10. 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® 9-N-10 prevents migration of water from the new slab into the old concrete thus producing a stronger concrete. EPIWELD® 9-N-10 also becomes a moisture barrier preventing sub surface

water coming through the concrete. For proper strength development all components should be at temperatures of 50°F (10°C) and rising. Additional aggregate may be added (up to 4 parts sand to 1 part mixed epoxy) - 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 (6.4mm) 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® 9-N-10 prevents migration of water from the new slab into the old concrete thus producing a stronger concrete. EPIWELD® 9-N-10 also becomes a moisture barrier preventing sub surface water coming through the concrete. EPIWELD® 9-N-10 could be mixed with fine dry silica sand (40/140 or 20/30 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® 9-N-10 in the hole, insert the bolt, rebar, etc. with a twist action for maximum contact between epoxy and hardware and expulsion of any air voids. Position hardware with wedges, jigs, etc. until initial cure. For horizontal or overhead installations use Lambert's high modulus gel type epoxy.

### **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 1-inch (25.4mm) 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.

### **Limitations**

Temperatures should be 50°F (10°C) and rising at time of application. Substrate temperature must not be below 50°F (10°C) during application. New concrete or other materials being bonded should be placed while EPIWELD® 9-N-10 is still tacky. If it dries, a fresh coat must be applied. Do not apply to wet (surface saturated/"puddled") substrates. New concrete surfaces being bonded must be cured a minimum of 28 days. When used as a bonding medium for non-slip surfaces, apply EPIWELD® 9-N-10 to a dry substrate and use dry aggregates. Hardened EPIWELD® 9-N-10 is difficult to remove, clean tools and spillages while epoxy is still tacky with lacquer thinner, xylol, or toluol. Do not thin EPIWELD® 9-N-10. Solvent will prevent proper cure. Do not apply to wet areas. Exposure to temperature (after cure) above 200°F (93.3°C) not recommended.

## Technical Data

### Applicable Standards

- Florida Department of Transportation Spec- Epoxy Compounds Type A & B.

### DIRECT TENSION (Neat Epoxy)

- New Concrete Bonded to Old 398 PSI (2.7MPa)
- Vertical Shear 1157 PSI (8.0MPa)

### PULL OUT TEST (Neat Epoxy)

Cure Time	Rebar Size	Type Failure	Maximum Load
72 Hrs	#4	Rebar	13,318 lbs (6041kg)
72 Hrs	#6	Rebar	38,733 lbs (17569kg)
72 Hrs	#8	Concrete	63,100 lbs (28622kg)

### GROUT/MORTAR

#### 1- Part Mixed EPIWELD™ 9-N-10

#### 2 - Parts Clean Dry Sand - 40/140 Gradation

- Compressive Strength 2" Cubes 7917 PSI (54.6MPa)
- Modulus of Rupture Bonded Joint 611 PSI (4.2MPa)

## Coverage

### Estimated Concrete Coverage

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

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 <sup>2</sup> )	1/8" (3.2mm)
1 gal (3.8 liters)	8.6 (0.8m <sup>2</sup> )	3/16" (4.8mm)
1 gal (3.8 liters)	6.4 (0.6m <sup>2</sup> )	1/4" (6.4mm)
1 gal (3.8 liters)	4.3 (0.4m <sup>2</sup> )	3/8" (9.5mm)
1 gal (3.8 liters)	3.2 (0.3m <sup>2</sup> )	1/2" (12.7mm)
1 gal (3.8 liters)	1.6 (0.15m <sup>2</sup> )	1" (25.4mm)

## 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 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 polyamine 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.**