

520

E-BOND 520 LO-MOD LV EPOXY



FORMULATED AND LABELED FOR PROFESSIONAL USE ONLY
NOT FOR SALE TO OR USE BY THE GENERAL PUBLIC

PRODUCT DATA

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E-BOND 520 LO-MOD LV EPOXY

DESCRIPTION

E-BOND 520 LO-MOD LV is a 100% solids, solvent-free two-component **MOISTURE INSENSITIVE** epoxy resin system. It has a unique **Lo- Modulus of Elasticity**, which allows for variations in stress and temperature. With proper aggregate loading, E-Bond 520 provides an epoxy mortar/concrete with a co-efficient very close to that of Portland-Cement concrete.

E-BOND 520 LO-MOD CONFORMS TO ASTM-C-881, TYPE III, GRADE 1, CLASS B & C, AASHTO-M235-91

FEATURES:

- Easy mix ratio of 1 Parts A to 1 Part B by Volume
- Fast Setting and provides a high early strength within 24 hours
- Insensitive to moisture before, during and after cure
- Exterior epoxy mortar/concrete repairs resist thermal movement
- Excellent adhesion to most structural materials
- Low temperature cures – As low as 40°F (4°C)
- Zero VOC - Fully Reactive, No low boiling constituents

PHYSICAL PROPERTIES

Material & curing conditions@ 75°F and 50% RH

Type:	Moisture Insensitive & Low Temperature Cure Low Modulus, Low Viscosity Epoxy	
Color:	Part A Resin	Light Straw
	Part B Hardener	Brown
	Admix	Brown
Mixing Ratio:	Component A/B	1:1 by volume
Viscosity:	ASTM-D-2393 cps (Pas)	
	Part A Resin	15 poises max. (1.5 Pa.S)
	Part B Hardener	7 poises max. (.7 Pa.S)
	Ad Mix	9 poises max. (.9 Pa.S)
Pot Life:	ASTM C 881 Modified	30 – 55 minutes @ 75°F (24°C)
Tack-Free Time:	(Thin Film)	4 - 6 hours @ 75°F (24°C)

NEAT BINDER

Tensile Properties:

Tensile Strength, PSI (Mpa) ASTM D-638 2000 – 3500 (14-24)

Tensile Elongation ASTM D-638 Min – 30%

Compressive Properties:

Compressive Strength, PSI (Mpa) ASTM D-695 5500 min. (38)

Compressive Modulus, PSI (Mpa) ASTM D-695 120,000 (827)

EPOXY MORTAR

1 Part Mixed Epoxy to 3½ Parts loose aggregate by volume

Compressive Strength, PSI (Mpa) ASTM C-579 Method B

24 Hrs. 3000 min. (21)

3 days 5000 min. (48)

7 days 7000 min. (51)

Shelf Life: 1 year in original unopened container

Storage: Store Dry at 40°F (4.4°C)-95°F(35°C) .
Condition to 65°F (18°C) -75°F(24°C) before using.
Protect from inclement weather and freezing.

For Best Performance

- Precondition the components to 70°F (23°C) to 80°F (27°C) for 24 hours before use.
- Minimum ambient, surface, aggregate and epoxy temperatures should be 50°F (10°C) and rising at the time of application.
- Store at 55°F to 90°F (15°C to 32°C).
- Apply When Slab is Cooling; near the end of day.
- Protect from freezing.
- Do not add solvents or water to epoxy material.
- Do not alter or change the recommended proportions when blending the components.



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SURFACE PREPARATION:

All surfaces must be structurally sound, clean and free of dirt, dust, oil, grease or any contaminant that would adversely affect the bond. Surfaces may be dry or damp, but free of standing water.

Epoxy concretes and mortar generally bond very well to properly prepared concrete. It is essential that the surface to which the epoxy is to be applied be sound and clean. Dirt, oil, grease, laitance or other surface deposit can interfere with the bond of the epoxy to the substrate.

It is necessary to determine the surface preparation requirements prior to the application of the epoxy.

Chain drags, hammer sounding, infrared thermography, radar, cores, ultra sound, and other evaluation methods may be used to determine the extent of the deteriorated concrete that must be removed and replaced. This evaluation should determine the presence of laitance, curing compound, patching compounds, sealers, etc., that must be removed.

Weak, delaminated areas should be removed using chipping hammers, scarifiers, scabblers, hydrodemolition, other techniques may be used especially where more extensive concrete removal is necessary. The method used to remove deteriorated concrete should not weaken or crack the surrounding sound concrete. A saw cut around the area to be removed is recommended to reduce edge spalling and provide a sound surface in which to place the patching material.

Additional cleaning is necessary to remove any debris remaining after the removal of unsound concrete. Sandblasting, shotblasting, a scabber, grinding or high pressure water jet can be used to clean surface contaminants from the deck before the epoxy is placed.

Oil-free compressed air may be used to remove any dust or debris immediately prior to the application of the epoxy.

STEEL: Sandblast to white metal finish.

MIXING:

Pre-mix each component separately. Place in a clean container, 1 part by volume of Component A (Resin) and then add 1 part of Component B (Hardener). Container should have a flat wall and flat bottom. Stir and mix until material is thoroughly blended. Mixing should be completed after 2 minutes of thorough blending.

The importance of thorough mixing and blending cannot be over emphasized. The two components must be thoroughly mixed and mated. If you are mixing correctly, bubbles will be whipped

into the mixture. Do not be concerned; this is a sign that you are mixing well. Improper mixing can result in soft or sticky spots.

It is recommended, to eliminate problems of improper mixing, that you use two mixing containers. Mix thoroughly in one container. After you feel it is thoroughly mixed, scrape all the material from one container to the second container. After material has been placed in the second clean container, thoroughly mix for an additional 1 to 1½ minutes.

With this double type of mixing, any material that might not have been thoroughly mixed from the sides or the bottom of the first container will be easily placed in the second container and thus will receive thorough mixing at that time. Mix only that quantity that can be used within its working time.

APPLICATION:

BROADCAST OVERLAY: Spread the properly mixed E-Bond #520 LV on the surface using squeegees at the rate of 40 to 50 sq. ft. per gallon. A pre-marked area will serve as a guide to obtain the recommended coverage. Allow materials to level: At temperatures above 70° F (21 °C) materials should level immediately. At cooler temperatures a waiting period will be required.

Broadcast aggregate, while epoxy is still wet and tacky, in such a manner as to permit the aggregate to fall vertically into the wet epoxy. Aggregate should be broadcast **UNIFORMLY** to completely cover the epoxy surface. No wet spots should be visible. Apply a slight excess amount. Aggregate is usually broadcast at the rate of 1 to 1½ Lbs. per sq. ft. (A hand held lateral type mechanical fertilizer may be used.) After initial set of the epoxy, **EXCESS AGGREGATE MUST BE REMOVED.** Brooming or a high powered vacuum is recommended.

For TOUGH INDUSTRIAL AREAS a second coat is recommended.

Apply SECOND APPLICATION of mixed E-BOND 520 LV at the rate of 20-30 sq. ft. per gallon (depending on aggregate size). Broadcast at the rate of 1 ½ - 1 ¾ Lbs. per sq. ft.

Aggregate for non-skid high friction surfaces should be angular grain silica minimum MOH hardness of 7, washed, kiln dried and free of dirt, clay, asphalt and other organic materials. For TOUGH INDUSTRIAL applications consider emery aggregate with a high % of aluminum oxide.

AGGREGATE SIZE: For light wear, with a minimum anti-skid properties consider an aggregate size of 40-90 sieve. For decorative finish apply a thin pigmented coating of a high solids epoxy or urethane to the properly cured epoxy. Check compatibility of finish coat with E-Bond 520 LV.

For TOUGH INDUSTRIAL applications and bridge decks to obtain best skid resistance consider using a blend of aggregate from 100% passing a #4 sieve to a minimum % passing a #16 sieve.

EPOXY MORTAR/CONCRETE:

MIXING EPOXY/MORTAR: To properly mix E-Bond 520 add the required amount of round grain silica washed, kiln dried and free of dirt, clay, asphalt, and other organic materials. Mix thoroughly for a minimum of 3 to 5 minutes with a paddle on slow speed drill (400 to 800 rpm) until all aggregate is thoroughly mixed and a uniform consistency is obtained.

EPOXY MORTAR/CONCRETE PATCHING & OVERLAYS:

To properly mixed E-Bond 520, add the required amount of round angular grained silica (fine aggregate) and coarse aggregate, washed, kiln dried and free of dirt, clay, asphalt and other organic materials. Mix thoroughly for a minimum of 3-5 minutes with a paddle or slow speed drill until all the aggregate is thoroughly mixed and uniform consistency is obtained. Prime surface with properly mixed E-Bond 520 at the approximate rate of 80 to 100 sq. ft. per gallon depending on porosity. Apply with stiff bristle brush and work into surface. Apply PROPERLY mixed epoxy mortar while epoxy primer is still tacky (usually within 15 minutes @ 75° F (24°C). Finish with steel trowels and screeds. Wipe trowel lightly with a damp rag for a smooth finish. On applications where the patch must resemble that of the adjacent concrete, is recommended to lightly sprinkle water on the tacky epoxy patch; sprinkle

Portland Cement onto the wet epoxy surface. Slightly dampen trowel with water and trowel to a smooth finish.

EPOXY MORTAR/CONCRETE BLENDS:

The following suggestions for aggregate loading with E-Bond 520 are to produce an epoxy mortar/concrete with a CO-EFFICIENT OF EXPANSION similar to PORTLAND CEMENT CONCRETE.

The epoxy Mortar/Concrete must have a uniform consistency, not dry, not overly wet (should not have a resin float on the surface of the patch or overlay) If the epoxy patch or overlay is not dense (is porous), a sealer coat of 540 or 520 is recommended after cure.

Types of aggregate will vary from source to source. The percentage of loading of aggregate with E-Bond 520 will also vary for the individual requirements and the source of aggregate. Recommended ratio and size of aggregate are suggested as a starting mix and guideline only. The mix must be verified by the applicator in the field for this application and conditions. CONSULT E-BOND TECHNICAL SERVICES FOR MIX DESIGN AND PROCEDURES.

EPOXY MORTAR AT A THICKNESS OF 1/4" to 3/4"

1 gallon of E-Bond 520 will require approximately 3 1/2 to 4 gallons of proper aggregate sieve size of 20 to 30.

EPOXY MORTAR/CONCRETE AT A THICKNESS OF 3/4" TO 1 3/4"

<u>SIEVE DESIGNATION</u> <u>U.S. STANDARD SQ. MESH</u>	<u>CUMULATIVE % BY WEIGHT</u> <u>PASSING INDIVIDUAL SIEVE</u>
3/8 INCH	100
NO. 4	94-90
NO. 8	80-90
NO. 16	60-80
NO. 30	30-60
NO. 50	5-10

SIEVE SIZE #50 TO 1/4"

A two gallon mix of E-Bond 520 LV will require approximately 90 to 115 Lbs. of aggregate of the above sizes to produce approximately .75 to .85 cu. ft. (see note 1)

EPOXY MORTAR/CONCRETE AT A THICKNESS OF 1 3/4" +

<u>SIEVE DESIGNATION</u> <u>U.S. STANDARD SQ. MESH</u>	<u>CUMULATIVE % BY WEIGHT</u> <u>PASSING INDIVIDUAL SIEVE</u>
3/4 INCH	100
1 1/2 INCH	80-100
3/8 INCH	40-70
NO. 4	60-80
NO. 12	40-60
NO. 20	10-30

A two gallon mix of E-Bond 520 LV will require approximately 100 to 120 Lbs. of the above size aggregate to produce approximately .75 to .85 cu. ft. (see note 1)

NOTE: When using a coarse aggregate a greater % by weight of aggregate to epoxy is used. Ratio is normally 8-10 to 1 by wt. The sieve sizes are to be blended to obtain a dense and uniform consistency.

ADDITIONAL MIXING INSTRUCTIONS: Add coarse aggregate to mixer and then add the correctly mixed epoxy resin. When coarse aggregate has been coated, add fine aggregate and mix until uniformly blended. When using coarse aggregate with epoxy at a ratio of 8 or greater to 1 of aggregate to resin epoxy lifts of 4-5 inches may be done in one installation.

Impregnation Sealer or Primer: Due to the limited work life of this product it is wise to dump the material from the mixing container on the surface, allow to penetrate. Squeegee off excess while still a liquid. For priming apply with broom, brush or long-handled 1/4" nap roller. If desired, broadcast a slight excess of fine granules into wet epoxy to create a non-slip surface.

Injection: Ideal for grouting of non-moving cracks in concrete. Recommended that the resin and hardener be maintained at 90° (32°C) prior to mixing for lowest possible viscosity. Cooler temperatures have a tendency of thickening the resin mix rapidly. Mix only that amount of LV you can use in the limited working time of the elevated temperatures.

Gravity: "Vee" out cracks. Blow and clean out thoroughly with oil-free compressor air. Pour pre-mix LO-MOD LV until cracks are filled. More than one application may be required.

Pressure: 520 LV may be forced into cracks by polyethylene one-way valves, copper tubing or black iron bushings with alemite fitting. Drill holes and place fittings every 6": to 2' along length of crack. WEE" out cracks, fill and seal surface and anchor fittings with Rapid Set Epoxy Gel. Allow to cure. Force mixed 520 LV into lowest fitting with caulking or alemite gun with slow, steady pressure until epoxy reaches next fitting. Crimp fitting and move to next fitting using same procedure along length of crack. If epoxy penetrates through slab, seal other side. After cure, apply direct flame to fittings and remove. Patch holes with epoxy gel.

CLEAN UP:

Clean all equipment and tools prior to initial set up of the epoxy system. A lacquer solvent or xylene can be used for this purpose. (Lacquer solvents and xylene are highly flammable, use caution as required by the manufacturer of these solvents.) Mortar mixers and tools often can be cleaned up with hot water and soap prior to the epoxy becoming tacky. Add hot water and soap to mixer, add pea rock and allow the mixer to turn permitting the pea rock and hot water to remove the epoxy resin.

DO NOT THIN E-BOND 520 LO-MOD- SOLVENTS WILL PREVENT PROPER CURE.

NOTE: For bonding fresh plastic Portland Cement - Concrete to Hardened Concrete, use E-Bond 580 HI-MOD.

CAUTION - For professional use only; not for sale to or use by the general public. E-Bond's epoxies contain alkaline amines. Strong sensitizer; MAY CAUSE SKIN SENSITIZATION or allergic response ranging from a mild wheezing to a severe asthmatic type attack. Avoid contact with skin or eyes. IN CASE OF CONTACT immediately wash

skin with soap and water. Flush eyes with water and obtain medical attention. Wear protective clothing, goggles, and barrier cream on all exposed skin.

LIMITED WARRANTY NOTICE: E-BOND EPOXIES, INC warrants this product to be free from manufacturing defects and to meet the technical properties on the current Technical Data Guide, if used as directed within the shelf life of one (1) year from manufacture date. Satisfactory results depend not only on quality products but also upon many factors beyond our control. The purchaser must examine the product when received and promptly notify E-BOND EPOXIES, INC in writing of any nonconformity before the product is used and no later than 30 days after such non-conformity is first discovered. If E-BOND, in its sole discretion, determines that the product breached the above warranty, it will, in its sole discretion, replace the non-conforming product, refund the purchase price or issue a credit in the amount of the purchase price. This is the sole and exclusive remedy for breach of this warranty.

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