

Bonding Agents



Strong Bond

Strong Bond is a ready to use, high solids acrylic latex emulsion that is non-reemulsifiable, non-oxidizing and ultraviolet stable. White in color, but dries clear.

Strong Bond is a one-part film-forming adhesive that becomes an integral part of the interface between cementitious material and the surface to be bonded. Apply with brush, roller or sprayer. Do not let dry. Immediately apply cementitious materials.

Applicable Standards

- Corps of Engineers CE 204.01
- GSA specification for bond adhesive
- Complies with MIL-B-19235A (docks)

Coverage

200-300 sq. ft. per gal. Available in 5-gal. pails and 55-gal. drums.

Spec Bond 50

Spec Bond 50 is a 50% solids, two-component, high modulus, moisture tolerant structural epoxy bonding adhesive. Primary use is for bonding fresh concrete to hardened concrete and for bonding steel to fresh concrete.

Spec Bond 50 has excellent adhesion to most construction materials. Apply by brush, roller or spray, and work into the substrate. While Spec Bond 50 is still tacky, apply fresh concrete. Do not let dry.

Applicable Standards

ASTM C-881, Type I, II, IV and V, Grade 1, Classes B & C

Coverage

80 sq. ft. per gal. Available in 1-gal., 3-gal. and 15-gal. units.



Spec Bond 100

Spec Bond 100 is a 100% solids, two-component, high modulus, moisture tolerant structural epoxy bonding adhesive. Primary use is for bonding fresh concrete to hardened concrete and for bonding steel to fresh concrete. Spec Bond 100 can also be used for the anchoring of bolts, dowels and reinforcing steel in concrete.

Spec Bond 100 has excellent adhesion to most construction materials. Apply by brush, roller or spray, and work into the substrate. While Spec Bond 100 is still tacky, apply fresh concrete. Do not let dry.

Applicable Standards

ASTM C-881, Type I, II, IV and V, Grade 2, Classes B & C

Coverage

80 sq. ft. per gal. Available in 1-gal., 2-gal. and 10-gal. units.

Weldtight

Weldtight is a general purpose rewettable bonding agent, for use when delayed timing is necessary to apply new concrete, stucco, plaster or cementitious repair mortars to existing concrete and masonry surfaces. Use only on dry interior areas. Apply with brush, roller or sprayer, and work into surface. Dry-time is usually 2 to 3 hours.

Applicable Standards

ASTM C-1059, Type I

Coverage

200-400 sq. ft. per gal. Available in 5-gal. pails and 55-gal. drums.

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The weakest portion of patched concrete is usually the bond line between the original concrete and the patching material. To ensure a durable patch, a bonding agent should be used to strengthen the adhesion of cement-based patching materials to existing concrete. A variety of bonding agent options are available, including scrub coats of the patching product, re-dispersible emulsions such as Hornweld and multi-purpose epoxy adhesives such as Duralbond or Duralprep AC. Consult the Technical Data Sheets for these products for additional information.

Hornweld® Redispersible Latex Bonding Agent for Concrete

Description: Hornweld is a ready to use, high build, film forming, reemulsifiable, liquid bonding agent and polymer modifier for cement mortars. As a bonding agent, Hornweld bonds new cementitious materials to existing surfaces. When fresh cementitious materials are applied to a Hornweld coated surface, the Hornweld rewets and develops a tenacious mechanical and chemical bond between the new material and the existing surface. As a polymer modifier, Hornweld increases the strength and durability of cementitious mortar when compared with the unmodified mix.

Coverage: 200-250 square feet per gallon on dense surfaces (4.9 to 6.1 square meters per liter). On porous surfaces, more material may be required. Do not exceed 300 square feet per gallon (7.3 square meters per liter).

Hornweld meets the following specification: ASTM C-1059, Type I.

Available in 1 gallon and 5 gallon pails.

Duralbond Epoxy Bonding/Grouting Compound

Description: Duralbond is a multi-purpose, two part, 100% solids, moisture insensitive epoxy bonding/grouting adhesive compound.

Uses: Duralbond is used to bond fresh plastic concrete to hardened concrete, brick, heavyweight concrete block or steel. It is ideal for use in bonding extensions to concrete, pavements, coating rebars and as a general purpose adhesive to bond concrete, wood or metal. It can be used neat or with aggregate to grout bolts, dowels or pins in concrete. It can also be used to grout horizontal cracks in concrete.

Compliance: Duralbond meets or exceeds the following standards:

AASHTO M235-88, Type II
ASTM C881-90, Type I, II, IV, V
Grade 2, Class B & C
Federal Specification MMM-A-001993, Type I.

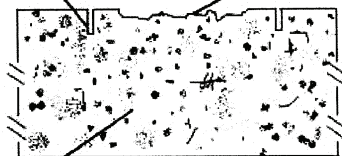
Coverage: As bonding compound for fresh to old concrete 80-90 sq. ft./gal. For anchoring, 1 neat gal. yields 231 cu. in. of grout. 1 gal. neat Duralbond with 1 gal dry 20-40 mesh silica sand will yield approximately 410 cu. in. of mortar. Coverage will vary depending on surface texture, porosity and temperature.

Available in 4 gallon case, 10 gal. unit.

Preparation

Preparation of the area to be patched is a critical part of the restoration procedure.

2 INCH SAW CUT SCALED SURFACE



CONCRETE

The first step should be a 2-inch saw cut around the perimeter of the patch.

The distressed concrete should be moved using chipping hammers, bush hammers, abrasive blasting or mechanical abrasion until a sound surface is found.

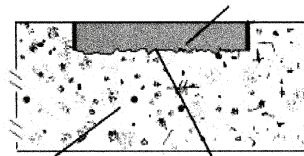
PREPARED SURFACE



CONCRETE

The area to be patched should then be cleaned using compressed air or water to remove all loose or foreign materials. It is important that the surface is completely clean to ensure adhesion of the patching material.

PATCHING MATERIAL



CONCRETE

BONDING AGENT

All bonding agents should be sprayed or scrubbed into the surface with a stiff brush. Do not allow excess bonding agent to accumulate in the patch. All the bonding agents should be used within their "open time", otherwise the bonding agent may actually weaken the bond. Bonding agents should not be applied to any surface that the new patch should not bond to, for example at a control joint.

Bonding Agents



Sika Armatec® 110 EpoCem®

Description: Sika Armatec 110 EpoCem is a 3-component, solvent-free, moisture-tolerant, epoxy-modified, cementitious product specifically formulated as a bonding agent and an anti-corrosion coating.

Where to Use:

- As an anti-corrosion coating for reinforcing steel in concrete restoration.
- As added protection to reinforcing steel in areas of thin concrete cover.
- As a bonding agent for repairs to concrete and steel.
- As a bonding agent for placing fresh, plastic concrete to existing hardened concrete.

Advantages:

- Excellent adhesion to concrete and steel.
- Acts as an effective barrier against penetration of water and chlorides.
- Long open time – up to 16 hours.
- Not a vapor barrier.
- Can be used exterior on-grade.
- Contains corrosion inhibitors.
- Excellent bonding bridge for cement or epoxy based repair mortars.
- High strength, unaffected by moisture when cured.
- Spray, brush or roller application.
- Non-flammable, solvent free.

Coverage: **Bonding agent:** minimum (theoretical) on smooth, even substrate 80 sq. ft./gal. (= 20 mils thickness). Coverage will vary depending on substrate profile and porosity.
Reinforcement Protection: 40 sq. ft./gal. (= 20 mils thickness) (2 coat application).

Packaging: 3.5 gal. unit (47.6 fl. oz. Comp. A + 122.1 fl. oz. Comp. B + 46.82 lb. Comp. C) Comp. A + B in carton, Comp. C in multi-wall bag.
1.65 gal. unit. (22.7 fl. oz. A + 57.6 fl. oz. B + 4 bags @ 5.5 lb.) Factory-proportioned units in a pail.

Sikadur® 32, Hi-Mod

Description: Sikadur 32, Hi-Mod is a multi-purpose, 2-component, 100% solids, moisture-tolerant structural epoxy adhesive. It conforms to the current ASTM C-881 and AASHTO M-235 specifications.

Where to Use:

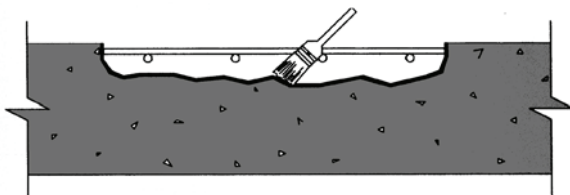
- Bond fresh, plastic concrete to hardened concrete and steel.
- Grout bolts, dowels, and pins, etc.
- Grout horizontal cracks in structural concrete and wood by gravity feed.
- Machinery and 'robotic' base-plate grout.
- Structural adhesive for concrete, masonry, metal, wood, etc.

Advantages:

- Super-strength bonding/grouting adhesive.
- Tolerant to moisture before, during and after cure.
- Excellent adhesion to most structural materials.
- Convenient easy-to-mix ratio A:B = 1:1 by volume.
- Easy-to-use for bonding/grouting applications.
- Fast initial set; rapid gain to ultimate strengths.
- USDA-certifiable for use in food plants.

Coverage: **Bonding Adhesive** - 1 gal. covers approximately 80 sq. ft. on smooth surface.
Base Plate Grout - 1 gal. mixed with 1.5 parts oven-dried aggregate by loose volume yields approximately 420 cu. in. of grout.
Adhesive and anchoring grout - 1 gal. yields 231 cu. in. of grout.

Packaging: 2 and 4 gal. units; 1 kg. unit (25.6 fl. oz.), 6/case, 75/pallet; 2.5 kg. unit (63.8 fl. oz.), 2/case, 90/pallet.



Sika Armatec 100 - apply by stiff-bristle brush or broom. Spray apply with Goldblatt Pattern Pistol or equal equipment. Work the bonding slurry well into the substrate to ensure complete coverage. Apply the patching mortar or concrete with the recommended open time.

Sikadur 32, Hi-Mod - apply by brush, roller, broom or spray. Place concrete while Sikadur 32, Hi-Mod is still tacky.

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Epoxies



Sikadur® 22, Lo-Mod

Description: Sikadur 22, Lo-Mod is a two-component, 100% solids, moisture-tolerant, epoxy resin binder. It conforms to the current ASTM C-881 and AASHTO M-235 specifications.

Where to Use: Use neat as the binder resin for a skid-resistant broadcast overlay. Use also as the binder resin for epoxy mortar and concrete for patching and overlays.

Coverage: 1 gal. yields 231 cu. in.
Mortar Binder - 1 gal. of mixed Sikadur 22 Lo-Mod with the addition of 5 gal. by loose volume of an overdried sand, yields approximately 808 cu. in. of epoxy mortar.

Packaging: 4 gal. units.

Sikadur 31®, SBA

Description: Sikadur 31, SBA is a unique high-modulus, two-component, moisture-tolerant, solvent-free, epoxy resin system available in three application temperature ranges. A unique high-modulus structural adhesive for bonding hardened concrete to hardened concrete for segmental bridge construction. The mixed material has the consistency of paste and is a concrete gray color. It conforms to the current ASTM C-881, Type VI requirements, and ASBI guidelines.

Coverage: Approximately 12 sq. ft./gal. or 36 sq. ft./3 gal. unit.

Packaging: 3 gal. units.

Sikadur® 31, Hi-Mod Gel

Description: Sikadur31, Hi-Mod Gel is a two-component, 100% solids, moisture-tolerant, high-modulus, high-strength structural epoxy paste adhesive. It conforms to the current ASTM C-881 and AASHTO M-235 specifications.

Where to Use:

- Structural bonding of concrete, masonry, metals, woods, etc. to a maximum glue line of 1/8" (3 mm).
- Grout bolts, dowels, pins, vertical and overhead, etc.
- Seals cracks and around injection ports prior to pressure-injection grouting.
- Interior, vertical and overhead repair of concrete as an epoxy mortar binder.
- As a pick-proof sealant around windows, doors, lock-ups etc., inside correctional facilities.

Coverage: 1 gal. yields 231 cu. in. of epoxy paste adhesives and grout. 1gal. mixed with 1 gal. by loose volume of oven-dried aggregate yields approximately 346 cu. in. of epoxy mortar.

Packaging: 3-gal. units; 12 fl. oz. units, 12/case.

Sikadur® 33

Description: Sikadur 33 is a two-component, 100% solids, moisture-tolerant, high-modulus, high-strength, structural smooth-paste epoxy adhesive. It conforms to the current ASTM C-881 and AASHTO M-235 specifications, except for gel time.

Where to Use:

- To seal cracks and to secure injection ports in structural concrete and wood trusses prior to pressure-injection grouting.
- Anchor grouting of bolts, dowels, pins and special fasteners.

Coverage: 1 gal. yields 231 cu. in. of paste adhesive.

Packaging: 2 gal. unit.

Sikadur® 35, Hi-Mod LV

Description: Sikadur 35, Hi-Mod LV is a two-component, 100% solids, moisture-tolerant, low-viscosity, high-strength, multi-purpose epoxy resin adhesive. It conforms to the current ASTM C-881 and AASHTO M-235 specifications.

Where to Use:

- Pressure-injection of cracks in structural concrete, masonry, wood, etc.
- Grouting bolts, dowels, pins, etc.
- Gravity-feed of cracks in horizontal concrete and masonry.
- Epoxy resin binder for epoxy mortar patching and overlay of interior, horizontal surfaces.
- Seal interior slabs and exterior above-grade slabs from water, chlorides and mild chemical attack; also improves wearability.

Coverage: 1 gal. yields 231 cu. in. of adhesive and grout. 1 gal. of adhesive, when mixed with 5 gal. by loose volume of oven-dried aggregate, yields approximately 808.5 cu. in. of epoxy mortar.

Packaging: 3 gal units; 1 gal. units, 2/case; 12 fl. oz. units, 12/case.

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Epoxies



Sikadur Epoxy Resins for ASTM C881-90 Specification

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Type I	Grade 1	Sikadur 35, Hi Mod LV
	Sikadur 35, Hi Mod LV LPL
	Sikadur 52 (1)
	Grade 2	Sikadur 32, Hi Mod
	.....	Sikadur 32, Hi Mod LPL (2)
	Grade 3	Sikadur 31, Hi Mod Gel
.....	Sikadur Injection Gel	
.....	Sikadur 33 (1)	
Type II	Grade 1	Sikadur 35, Hi Mod LV
	.....	Sikadur 35, Hi Mod LV LPL
	.....	Sikadur 52 (1)
	Grade 2	Sikadur 32, Hi Mod
	.....	Sikadur 32, Hi Mod LPL (2)
	Grade 3	Sikadur 31, Hi Mod Gel
.....	Sikadur Injection Gel	
.....	Sikadur 33 (1)	
Type III	Grade 2	Sikadur 22, Lo Mod (3)
Type IV	Grade 1	Sikadur 35, Hi Mod LV
	.....	Sikadur 35, Hi Mod LV LPL
	.....	Sikadur 55 SLV
	Grade 3	Sikadur 31, Hi Mod Gel
	.....	Sikadur Injection Gel
.....	Sikadur 33 (1)	
Type V	Grade 1	Sikadur 35, Hi Mod LV
	.....	Sikadur 35, Hi Mod LV LPL
	Grade 3	Sikadur 31, Hi Mod Gel
.....	Sikadur Injection Gel	
Type VI .....	.....	Sikadur 31, SBA
	.....	(3 Temp. Ranges)
Type VI .....	.....	Sikadur 31, Slow Set SBA
.....	.....	(3 Temp. Ranges)

Definitions

Type I - For use in non-load bearing applications for bonding hardened concrete to hardened concrete and other materials, and as a binder in epoxy mortars or epoxy concretes.

Type II - For use in non-loaded bearing applications for bonding freshly mixed concrete to hardened concrete.

Type III - For use in bonding skid resistant materials to hardened concrete, and as a binder in epoxy mortars or epoxy concretes used on traffic bearing surfaces (or surfaces subject to thermal or mechanical movements).

Type IV - For use in load bearing applications for bonding hardened concrete to hardened concrete and other materials and as a binder for epoxy mortars and concretes.

Type V - For use in load bearing applications for bonding freshly mixed concrete to hardened concrete.

Type VI - For bonding and sealing segmental precast elements with internal tendons and for span-by-span erection when temporary post tensioning is applied.

Type VII - For use as a non-stress carrying sealer for segmental precast elements when temporary post tension is not applied as in span-by-span erection.

Grade 1 - Low viscosity

Grade 2 - Medium viscosity

Grade 3 - Non-sagging consistency

(1) Except for Gel time 20 minutes vs. 30 minutes (required).

(2) Except for Tensile Strength 4,800 psi vs. 5,000 psi (required).

(3) Except for Tensile Elongation 22.7% vs. 30% (required) and Compressive Modulus 140,000 psi vs. 130,000 psi (required).

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