



S-500 SETTING & GROUTING EPOXY

PRODUCT DESCRIPTION:

S-500 is an epoxy mortar and grout that meets or exceeds requirements of ANSI A118.3 and is USDA approved. S-500 is a three-part 100% epoxy solids system for setting and grouting of floor brick, quarry tile, pavers, porcelain tile and ceramic mosaics. It is designed to resist attacks by many acids, alkalis and other chemical compounds that normally break down concrete mortars and grouts. S-500 has a unique filler system, which has been designed to make grouting clean up easier. It is recommended for use in distilleries, refineries, chemical laboratories, breweries, dairies, food processing plants, etc. where high exposure levels of organic acids are not present. S-500 is sag resistant when mixed and installed properly, and should be specified for setting or grouting ceramic tile on any wall or floor installations. S-500 not only has exceptional bond strength (greater than 1200 P.S.I.) but it will remain rigid and cohesive at intermittent temperatures up to 350°F.

USES:

S-500 is recommended for use in residential and commercial floors, walls and counters, distilleries, refineries, laboratories, food processing plants and commercial kitchens, including fast-food restaurant applications. NOTE: When more stringent chemical resistance is required, use S-5000, or S-5100 series epoxies, or S-4000 Furan.

LIMITATIONS:

Surface temperature of substrate should be above 50°F during tile installation. Continuous exposure of cured S-500 above 350°F is not recommended.

TECHNICAL DATA: Physical Properties

Hardness (Shore D) 7 days	70 to 80
Hardness (Shore D) 28 days	80 to 90
Linear shrinkage, %	0.01
Compressive Strength, psi (ASTM C-109)	Greater than 6000
Shear bond strength, psi (ANSI-A118.3)	1200 psi
Tensile strength	1200 psi
Pot life at 30°F, mins.	60 to 90
Cure time at 72°F, hrs.	12 to 16
Temperature limitation, °F	350
Working time, min.	Greater than 60
Sag using 6" x 6" x ½" quarry tile	0.00

INSTALLATION:

Substrate: S-500 is recommended for use on cured concrete, plaster, drywall, metal, fiberglass, glass, masonry surfaces, cementitious backerboard and plywood. Substrate shall be prepared in accordance with ANSI A108.6.

Surface to receive S-500 must be structurally sound, dry, free of sealers, coatings, oil, dirt and dust. New masonry surfaces should be sufficiently cured, dimensionally stable and free from cracks. It is advisable to brush all surfaces with a stiff brush to remove any loose material that may be encountered. Consult the Tile Council of North America Handbook for Ceramic, Glass, and Stone Tile Installations, ANSI A-108, and any other applicable standards for specific setting descriptions.

Mixing: S-500 is furnished in 3 parts. Exact proportions and thorough mixing of the parts with one another is absolutely essential for satisfactory performance. A 1.5 gallon unit requires one bag of part C powder. A three-gallon unit requires two bags of part C powder. Before weighing from containers, mix each part thoroughly to ensure uniformity within the part. Empty contents of parts A and B into mixing bucket and mix to uniform color and consistency. Gradually add part C powder and mix thoroughly using either hand tools or a slow spin power mixer. (e.g. bucket mixer). Mix until all part C is uniformly wetted,

smooth and free of lumps. *Care must be taken to avoid whipping air into this mix.* It is recommended that complete units be mixed at a time; however, if necessary to split a unit, weigh out three parts A, one part B and 8 parts C by weight, not by volume. Clean tools with warm soapy water immediately after use.

VERTICAL SURFACES:

All vertical work must be completed within 20 minutes of mixing product at 70°F. Lower temperatures may result in longer work times and higher temperatures will result in shorter work times.

If manufacturer's date is over 1 year, S-30 should be added. If necessary, add up to 0.2 lbs of S-30 per 3-gallon unit. Mix S-30 into part A of the epoxy a minimum of 8 hours before use.

WORKING CHARACTERISTICS: S-500 is ideally installed at temperatures from 70° to 80°F. At higher temperatures, the pot life, open time and clean-up time are reduced; however, it is more fluid and easier to work. At lower temperatures, these factors are reversed. Working surface temperature can vary from room temperature and should be taken into consideration. Do not begin application of S-500 until the temperature of the room and substrate is above 50°F and rising. Maintain a temperature of 60°F or higher during the curing period. S-500 may be stored at low temperatures. Before use, S-500 must be stored at approximately 70°F for at least 24 hours.

Temperature	Pot Life	Open Time	Clean-Up Time	Set Time
60°F (16° C)	1 ½ hours	3 ½ hours	1 ½ hours	24-30 hours
75°F (24° C)	1 hours	2 ¼ hours	1 hours	16-20 hours
90°F (32° C)	30 minutes	1 ½ hours	30 minutes	12-14 hours

High humidity and/or narrow/shallow grout joint size inhibits cure speed.

APPLICATION:

As a setting Mortar: Spread mixed S-500 with a notched trowel, then set tile. Use a 1/8" notched trowel for ceramic mosaics to achieve a 1/16" bed. Use a ¼" notched trowel for smooth or shallow ribbed pavers providing a finished bed of 1/8". Use a ¼" x 3/8" square-notched trowel for heavy ribbed backed tile such as Quarry tile. Once the S-500 begins to set (lose tackiness and or becomes stiff), it should be discarded, as proper bonding will not be accomplished. Allow 16 hours to elapse before grouting tile. Full coverage of the setting material on the back of the tile is desirable to prevent broken and cracked tile. The National Tile Contractors Association recommendation to accomplish full coverage is as follows: Apply mortar to substrate using the flat side of the trowel to fill any voids and "key" the material to the substrate. Using the proper sized notched trowel, comb the mortar evenly in one direction only. Do not "swirl". Set the tile in the mortar with the edge of the tile parallel to the comb lines. To remove air voids, push the tile back and forth in the mortar perpendicular to the comb lines. Per ANSI guidelines, check for proper bond by removing a freshly set tile from the mortar and verifying proper adhesive transfer and coverage every few tiles.

As a Grout: With a firm, straight edge rubber float (*Gundlach GK-2, Barwalt UFF 1B or similar*) force as much S-500 into joints as possible, using sufficient pressure and flow to avoid air pockets or voids. Before the S-500 loses its plasticity, remove excess with rubber float in a squeegee fashion working diagonally to joints to facilitate removal without pulling material from joints.

CLEAN-UP:

For initial clean up: Use a white plastic scrub pad or an epoxy sponge and a sufficient amount of clean water. Avoid water migration into un-grouted joints. Warm water with a small amount of SL-86 added will speed clean up. Change cleaning water and scrub pads/sponges often to avoid leaving a sticky film on the tile. Do not leave standing water on uncured epoxy joints after initial cleaning. At 70°F, perform final clean up after 10 hours but before 24 hours. Use cure time chart to estimate and adjust accordingly for other temperatures. Use a white scrub pad or epoxy sponge, SL-86 and water. Clean completely, as S-500 is difficult to remove after it cures for over 24 hours. Wide tile joints may have a slight concave appearance after grout cure. Cover with Kraft paper after final clean up to protect from other construction debris during cure period. SL-100 may be used to remove cured epoxy residue. If steam cleaning S-500 from waxed brick/tile, allow 48 hours minimum cure time at 70°F before removal of wax by steam cleaning.

COVERAGE:

Setting: square feet/gallon: using

¼" x ¼" square notch trowel

18 to 20 sq. ft./gallon

¼" x 3/8" square notch trowel

12 to 15 sq. ft./gallon

Please Refer to Grout Coverage Tables for Grouting Coverage**PROTECTING NEW TILEWORK:**

To avoid damage to finished tilework, schedule floor installations to begin only after all structural work, building enclosure and overhead finishing work, such as ceilings, painting, mechanical and electrical work are completed. Keep all traffic off of finished tile floors until it has fully cured or provide up to ¾" thick plywood protection over Kraft paper to protect floors before installation materials have fully cured.

PACKAGING:

S-500 is available in 1.5 gallon and 3 gallon unit sizes, which include resin and hardener; filler powder is sold separately. A 1.5 gallon unit requires one 12.5 pound bag of part C powder; a 3 gallon unit requires two 12.5 pound bags of part C powder. Colors can be mixed to create "multi-color" effects.

COLORS:

Snow White 913, Red S2063, Plum S2163, Green S3033, Cayman Green S3143, Brown S4013, Black S5013, Tan S6023, Buff S6073, Smoke S7133, Grey S7043, Blue S8043, White S9073. Custom colors are available with minimum quantity.

SPECIFICATIONS:

Material: Setting mortar and tile grout shall be S-500, a three-component mix consisting of specially graded silica aggregate (#7 on M.O.H. Scale of Hardness), colorfast pigments, a special blend of activating hardeners and liquid epoxy resin. It shall be free of water and organic solvents; as manufactured by Summitville Tiles, Inc., Summitville, Ohio. The material when properly mixed and applied shall resist sag on vertical surfaces. In the reacted state, S-500 shall remain rigid and cohesive in intermittent temperatures up to 350°F. Acid and alkali resistant epoxy mortar and grout shall meet or exceed ANSI A118.3.

Chemical Resistance Guide for S-500

Chemical	S-500	Chemical	S-500	Chemical	S-500	Chemical	S-500
Acetic Acid, Glacial	N	Butyl Acetate	C	Formic Acid Glacial	N	Soy Sauce	R
Acetic Acid 3%	R	Calcium Chloride	R	Hydriotic Acid 20%	R	Sulfuric Acid 45%	R
Acetic Acid 10%	C	Calcium Hydroxide	R	Hydrobromic Acid 10%	R	Tetrahydrofuran	N
Acetic Anhydride	N	Carbon Disulfide	C	Hydrochloric Acid 37%	R	Trisodium Phosphate	R
Acetone	C	Carbon Tetrachloride	R	Lactic Acid 3%	C	Vegetable Oil	R
Ammonia (household)	R	Chloroacetic 10%	N	Nitric Acid 10%	R	Wine	R
Ammonium Bromide 30%	R	Chlorobenzene	N	Nitrobenzene	N		
Alcohol	R	Chlorine water (bleach)	R	Nitrotoluene	R		
Aniline	N	Chromic Acid 10%	R	Phenol	N		
Barium Hydroxide	R	Citric Acid 20%	R	Phosphoric Acid 10%	R		
Beer	R	Cooking Grease	R	Potassium Hydroxide 5%	R		
Benzyl Acetate	C	Cresol	N	Potassium Persulfate 50%	R		
Benzyl Alcohol	N	Ethyl Bromide	N	Pyridine 20%	C		
Benzaldehyde	N	Ethylene Glycol Monobuturate	R	Saturated Sugar Solution	R		
Bromine Water	R	Ferric Chloride	R	Sodium Carbonate	R		
Butanol	R	Formic Acid 10%	C	Sodium Hydroxide 35%	R		

R= Recommended

N= Not Recommended

C= Conditional Contact Summitville Tiles, Inc.