

S-400 SETTING & GROUTING EPOXY

(TCA FORMULA AARII-HT EPOXY MORTAR & GROUT)

PRODUCT DESCRIPTION:

S-400 is a Tile Council of America formula AARII-HT, epoxy mortar and grout that meets or exceeds requirements of ANSI A118.3 and is USDA approved. S-400 is a two-part 100% solids epoxy system designed to resist attacks by many acids, alkalis and other chemical compounds that normally break down cement mortars and grouts. S-400 is sag resistant and should be specified for setting or grouting ceramic tile on any wall or floor installation. S-400 has exceptional bond strength and will remain rigid and cohesive at temperatures up to 350°F.

Floor brick may be installed and grouted with S-400 in accordance with chemical resistance chart. NOTE: When more stringent chemical resistance is required, S-4000 Furan or S-5000 Epoxy should be used.

USES:

S-400 is recommended for use in distilleries, refineries, chemical laboratories, breweries, dairies and food processing plants.

LIMITATIONS:

Surface temperature of substrate should be above 50°F during tile installation. Continuous exposure of cured S-400 above 350°F is not recommended.

TECHNICAL DATA Physical Properties:

Hardness (Shore D) 7 days	70-80
Hardness (Shore D) 28 days	80-90
Linear shrinkage, %	0.01
Compressive strength, psi (ASTM C-109)	greater than 6000
Shear bond strength, psi (ANSI-A118.3)	1200
Tensile strength	1200 psi
Pot life at 72°F, hrs.	1
Cure time at 72°F, hrs.	12-16
Temperature limitation, °F	350
Working time, min. at 72° F	60
Sag using 6" x 6" x 1/2" quarry tile	0.00

INSTALLATION:

Substrate: S-400 is recommended for use on *cured* concrete, plaster, drywall, masonry surfaces, cementitious backerboard and plywood. Substrate shall be prepared in accordance with ANSI A108.4.

Surface to receive S-400 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 "Handbook for Ceramic Tile Installations" for specific setting descriptions.

Mixing: S-400 is furnished in 2 parts and exact proportions and thorough mixing of the parts with one another is absolutely essential for satisfactory curing and performance. Empty contents of Part A (liquid portion) into mixing bucket, add Part B (solid portion) gradually and mix thoroughly using either hand tools or a slow speed power mixer. *Care should be taken to avoid whipping air into the mix.* Mix until smooth and free of lumps. It is highly recommended that complete units be mixed, however, if necessary to split a unit, weigh out 3 parts of Part B to 1 part of Part A. Clean tools with warm water immediately after use.

Working Characteristics: S-400 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-400 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-400 must be stored at 60-90°F for 24 hours prior to use.

Temperature	Pot Life	Open Time	Clean-Up Time	Set Time
60°F (16° C)	1½ hrs.	3½ hrs.	1½ hrs.	24-30 hrs.
75°F (24° C)	1 hrs.	2¼ hrs.	1 hr.	16-20 hrs.
90°F (32° C)	30 min.	1½ hrs.	30 min.	12-14 hrs.

APPLICATION:

As a Setting Mortar: Spread mixed S-400 with a notched trowel, then set tile. Use a 1/8" notched trowel for ceramic mosaics to achieve a 1/16" bed. Use a 1/4" notched trowel for smooth or shallow ribbed pavers providing a finished bed of 1/8". Use a 1/4" x 3/8" square notched trowel for heavy ribbed backed tile such as Quarry Tile.

SETTING:

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.

Once the S-400 begins to set, it should be discarded, as proper bonding will not be accomplished. Allow 16 hours to elapse before grouting tile.

As a Grout: With a firm, straight edge rubber trowel (Grout Master) force as much S-400 into joints as possible, using sufficient pressure and flow to avoid air pockets or voids. Before the S-400 loses its plasticity, remove excess with rubber trowel 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 and a lot of clean water. Avoid water migration into ungrouted joints. Warm water with a few drops of a mild soap added will speed clean-up. Change cleaning water often to avoid leaving a sticky film on the tile. Do not leave standing water on uncured epoxy joints after initial cleaning. Perform final clean up after 10 hours but before 24 hours. Use a white scrub pad and soap and water. Clean completely, as S-400 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 and plywood after final clean up to protect from other construction debris during cure period.

CAUTION:

Protect from dirt and all traffic for 16 hours, heavy traffic and dirt for 48 hours. Do not grout in direct sunlight. Cure S-400 a minimum of seven days at 70°F before chemical exposure.

COVERAGE:

Setting: Sq. ft./gallon unit using 1/4" x 1/4" sq. notch trowel 18-20

Grout Coverage: *S-400

Tile Size	*S-400 Joint Width		
	1/8"	1/4"	1/2"
4" x 8" x 1/2"	79	40	20
4" x 8" x 3/4"	53	27	13
4" x 8" x 1"	40	20	10
4" x 8" x 1 1/16"	33	17	8
4" x 8" x 1 3/8"	29	15	7
4" x 8" x 1 1/2"	26	13	7
4" x 8" x 2 1/4"	18	9	5
4" x 12" x 1/2"	97	49	24
6" x 6" x 1/2"	84	42	21
6" x 6" x 3/4"	56	28	14
6" x 9" x 3/4"	69	35	17
5" x 10" x 3/4"	66	33	17
5" x 10" x 1 1/2"	33	17	8
8" x 8" x 3/8"	149	75	37
8" x 8" x 1/2"	112	56	28
8" x 8" x 1"	56	28	14

*Epoxy coverage is in sq. ft. per gallon.

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 3/4" thick plywood protection over Kraft paper to protect floors before installation materials have fully cured.

PACKAGING:

S-400 is available in 1-, 3-gal. unit sizes.

COLORS:

Palomino 917, Morel 929, Brownstone 931, Sand Beige 934, Brown 945, Confederate Gray 958, Gray 961, Black 991, Red 998. Custom colors are available with minimum quantity.

SPECIFICATIONS:

Material: Setting mortar and tile grout shall be S-400, a two-component mix consisting of specially graded silica aggregate (#7 on M.O.H. Scale of Hardness), color-fast pigments, a special blend of activating hardeners and liquid epoxy resin, and free of water and organic solvents; as manufactured by Summitville Tiles, Inc., Summitville, Ohio. The material in the mixed state shall not allow tile to sag on vertical surfaces and in the reacted state shall remain rigid and cohesive in temperatures up to 350°F. Acid and alkali resistant epoxy mortar and grout shall meet or exceed ANSI A118.3 and Tile Council of America AARII-HT, as approved by the United States Department of Agriculture.

Color: Color shall be # _____.

CHEMICAL RESISTANCE GUIDE FOR S-400 & S-400 QS

CHEMICAL	S-400 (AARII-HT)	S-400QS (Quick Setting Epoxy)	CHEMICAL	S-400 (AARII-HT)	S-400QS (Quick Setting Epoxy)	CHEMICAL	S-400 (AARII-HT)	S-400QS (Quick Setting Epoxy)	CHEMICAL	S-400 (AARII-HT)	S-400QS (Quick Setting Epoxy)	CHEMICAL	S-400 (AARII-HT)	S-400QS (Quick Setting Epoxy)
Acetic Acid, Glacial	N	N	Barium Hydroxide	R	R	Calcium Chloride	R	R	Formic Acid Glacial	N	N	Potassium Hydroxide 5%	R	R
Acetic Acid 10%	C	C	Beer	R	R	Calcium Hydroxide	R	R	Formic Acid 10%	C	C	Potassium Persulfate 50%	R	R
Acetic Acid 3%	R	R	Benzyl Acetate	C	C	Carbon Disulfide	C	C	Hydroiodic Acid 20%	R	R	Pyridine 20%	C	C
Acetic Anhydride	N	N	Benzyl Alcohol	N	N	Carbon Tetrachloride	R	R	Hydrobromic Acid 10%	R	R	Saturated Sugar Solution	R	R
Acetone	C	C	Benzaldehyde	N	N	Chloroacetic 50%	N	N	Hydrochloric Acid 37%	R	R	Sodium Carbonate	R	R
Ammonia (household)	R	R	Benzene	N	N	Chloroacetic 10%	N	N	Hydrochloric Acid 10%	R	R	Sodium Hydroxide 35%	R	R
Ammonium Bromide 30%	R	R	Bromine Water	R	R	Chlorobenzene	N	N	Lactic Acid 3%	C	C	Soy Sauce	R	R
Alcohol	R	R	Butanol	R	R	Chlorine Water (bleach)	R	R	Lactic Acid 10%	N	N	Sulfuric Acid 10%	R	R
Aniline	N	N	Butyl Acetate	C	C	Chromic Acid 10%	R	R	Lactic Acid 30%	N	N	Sulfuric Acid 45%	R	R
						Citric Acid 20%	R	R	Nitric Acid 50%	N	N	Sulfuric Acid 95%	N	N
						Cooking Grease	R	R	Nitric Acid 10%	R	R	Tetrahydrofuran	N	N
						Cresol	N	C	Nitrobenzene	N	N	Trisodium Phosphate	R	R
						Ethyl Bromide	N	C	Nitrotoluene	R	R	Vegetable Oil	R	R
						Ethylene Glycol Monobutylate	R	R	Phenol	N	N	Wine	R	R
						Ferric Chloride	R	R	Phosphoric Acid 10%	R	R			

R = Recommended
N = Not Recommended

C = Conditional
Contact Summitville Tiles, Inc. before installation



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