

S-5000 HIGH CHEMICAL RESISTANT EPOXY

PRODUCT DESCRIPTION:

S-5000 is a highly chemical resistant epoxy mortar and grout that meets or exceeds requirements of ANSI A118.3 (Epoxy) and ANSI A118.5 (Furan). S-5000 is a three part 100% solids epoxy compound for setting and grouting of floor brick, quarry tile, pavers, porcelain tile and ceramic mosaics. S-5000 is designed to be used in many applications where furan grout has been required in the past. It is designed to resist attacks by many acids, alkalis, and other chemical compounds that normally break down cement mortars and standard 100% epoxy grouts. S-5000 resists chlorine and nitric acid which destroys furan. It is recommended for use in distilleries, refineries, chemical laboratories, breweries, dairies, food processing plants, etc. S-5000 is sag resistant and should be specified for setting or grouting ceramic tile on any wall or floor installations. S-5000 not only has exceptional bond strength (greater than 1000 P.S.I.), but it will remain rigid and cohesive at temperatures up to 350°F.

USES:

S-5000 is recommended for use in distilleries, refineries, laboratories, food processing plants and commercial kitchens, including fast-food restaurant applications.

ANSI A118.3 Epoxy Requirements

Property	S-5000 Typical Value	Requirement
Water Cleanability	Pass	80 min.
Initial Setting Time	Pass	<2.0 hrs.
Service Setting Time	Pass	>7 days
Shrinkage	0.03%	<0.25%
Sag	Pass	.000 inches
Quarry Shear Bonds	1000 PSI (6.9 MPa)	>1000 PSI (6.9MPa)
Compressive Strength	12,500 PSI (87 MPa)	>3500 PSI (24MPa)
Tensile Strength	2000 PSI (14 MPa)	>1000 PSI (6.9MPa)
Thermal Shock	550 PSI (3.8MPa)	>500 PSI (3.4MPa)

ANSI A118.5 Requirements for Silica Filled Furan Grout

Property	Test Method Value	S-5000 Typical	Required Silica Grout Value
Compressive Strength	ASTM C579	12,500 PSI (87 MPa)	3000 PSI (21 MPa)
Tensile Strength	ASTM C307	2000 PSI (14 MPa)	400 PSI (2.75 MPa)
Absorption	ASTM C413	0.12%	Max. 1%
Modulus of Rupture	ASTM C580	5000 PSI (3.5Pa)	600 PSI (4.1 MPa)
Initial Set, Hours	ASTM C308	2	Max. 5
Final Set, Days	ASTM C308	2	Max. 7
Linear Shrinkage	ASTM C531	0.05%	Max. 1%
Working Time Minutes	ASTM C308	45	Min. 10
Bond Strength	ASTM C321	Pass	150 PSI (1MPa)

LIMITATIONS:

Surface temperature of substrate should be above 50°F during tile installation and cure. Continuous exposure of cured S-5000 above 350°F is not recommended.

INSTALLATION:

Substrate: S-5000 is recommended for use on cured concrete, plaster, drywall, masonry surfaces, cement backer units (CBU) and plywood. Substrate shall be prepared in accordance with ANSI A108.4. The surface to receive S-5000 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-5000 is furnished in 3 parts. Exact proportions and thorough mixing of parts "A" and "B" with one another is absolutely essential for satisfactory curing and performance. A 3 gallon unit requires about 28 lbs. of part C powder. The final working viscosity can be altered by the amount of part "C" added. To "butter" brick for use in the "bricklayers" setting method, use approximately 28 lbs. of powder for a 3 gallon unit. For grouting using the "Tilersetters" method, use slightly less than 28 lbs. for a 3 gallon unit. Empty contents of Part A and B into mixing bucket and mix well. Then gradually add Part C powder and mix thoroughly using either hand tools or a slow spin powered mixer. Care must be taken to avoid whipping air into this mix. Continue to mix until smooth and free of lumps.

It is highly recommended that complete units be mixed at a time, however, if necessary to split a unit, weigh out 2 parts "A", 1 part "B" and about 8 parts "C". Clean tools with warm soapy water immediately after use.

Working Characteristics: S-5000 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-5000 until the temperature of the room and substrate is 50°F and rising. Maintain a temperature of 50°F or higher during the curing period. S-5000 must be stored at room temperature for at least 24 hours before use.

Working and Cure Times

Temperature	Pot Life	Open Time	Clean Up Time	Set Time
50°F (10°C)	1.5 hrs.	3.5 hrs.	2 hrs.	24-30 hrs.
70°F (21°C)	.75 hrs.	2 hrs.	1.5 hrs.	10-14 hrs.
90°F (32°C)	5 hrs.	1.5 hrs.	1 hrs.	8-10 hrs.

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.

APPLICATION:

As a Setting Mortar: Spread mixed S-5000 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.

Once the S-5000 begins to set, it should be discarded, as proper bonding will not be accomplished. Allow 16 hours at 70°F to elapse before grouting tile.

As a Grout: With a firm, straight edge rubber trowel (Grout Master) force as much S-5000 into joints as possible, using sufficient pressure and flow to avoid air pockets or voids. Before the S-5000 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-5000 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-5000 a minimum of seven days at 70°F before chemical exposure.

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:

3 Gallon Units, Gross Wt. = 41 lbs.

COLOR:

Color is #991 Black, #961 Gray. Custom colors available.

Chemical Resistance

Chemical	Continuous Exposure	Intermittent Exposure
Acids		
Acetic Acid 10%	R	R
Citric Acid 5%	R	R
Hydrochloric Acid 50%	R	R
Lactic Acid 10%	R	R
Nitric Acid 30%	R	R
Oleic Acid 10%	R	R
Sulfuric Acid 50%	R	R
Alkalies / Cleaners		
Sodium Hydroxide (saturated)	R	R
Sodium Hypochlorite (Bleach) 5%	R	R
Sodium Gluconate (Saturated)	R	R
Misc.		
Beer	R	R
Ethyl Alcohol	R	R
Mineral Spirits	R	R
Xylene	R	R
Toluene	R	R
Methylene Chloride	NR	NR
Phenol Alcohol	NR	R

COVERAGE:

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

Grouting: Sq. ft./gallon.

Grout Coverage: Epoxies

Tile Size	*S-5000 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.



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