



S-5000 LT (LOW TEMPERATURE) HIGH CHEMICAL RESISTANT EPOXY

PRODUCT DESCRIPTION:

S-5000 LT 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 LT is a three part 100% solids epoxy compound that allows setting and grouting of floor brick installations as low as 35° F under proper conditions for, quarry tile, pavers, porcelain tile and ceramic mosaics. S-5000 LT 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 LT 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 LT is sag resistant and should be specified for setting or grouting ceramic tile on any wall or floor installations. S-5000 LT 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 LT is recommended when a low temperature formula is required in distilleries, refineries, laboratories, coolers and freezer rooms, food processing plants and commercial kitchens, including fast-food restaurant applications.

ANSI A118.3 Epoxy Requirements

Property @ 73° F ± 3°	S-5000 LT Typical Value	Requirement
Water Cleanability	Pass	80 minutes
Initial Setting Time	Pass	< 2.0 hours
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 (6.9 MPa)
Compressive Strength	12,500 PSI (87 MPa)	> 3500 PSI (24 MPa)
Tensile Strength	2000 PSI (14 MPa)	> 1000 PSI (6.9 MPa)
Thermal Shock	550 PSI (3.8 MPa)	> 500 PSI (3.4 MPa)

ANSI A118.5 Requirements for Silica Filled Furan Grout

Property @ 73° F ± 3°	Test Method Value	S-5000 LT 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 (3.5 MPa)	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 (1 MPa)

LIMITATIONS:

Surface temperature of substrate should be above 35°F during tile installation and cure. Contact Summitville for technical guidance for lower temperature installations. Continuous exposure of cured S-5000 LT above 350°F is not recommended.

INSTALLATION:

Substrate: S-5000 LT is recommended for use on cured concrete, plaster, drywall, masonry surfaces, cement baker units (CBU) and plywood. Substrate shall be prepared in accordance with ANSI A108.6. The surface to receive S-5000 LT must be structurally sound, dry and 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-5000 LT 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 pounds 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 pounds of powder for a 3-gallon unit. For grouting using the “tile setters” method, use slightly less than 28 pounds 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; 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 LT is ideally installed at temperatures from 35° to 50°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 LT until the temperature of the room and substrate is 35°F or higher during the curing period. **S-5000 LT and uninstalled brick/tile must be stored at 70° F ±5° for at least 24 hours before use. Depending upon storage and packaging practices, normalizing time of materials to 70°F may be significantly longer. All three parts of the product and the brick/tile must be warmed to 70°F internal temperature before installation for best handling characteristics and cure times. Extremely cold surfaces may need to be warmed using IR heat. Forced air heaters are inefficient for heating floors.**

Working and Cure Times

Temperature	Pot Life	Open Time	Clean Up Time	Set Time
35°F (-1°C)	45-60 minutes	2 hours	45-60 minutes	6-8 hours
40°F (4.4°C)	35-45 minutes	1 hour	35-45 minutes	4-6 hours
50°F (10°C)	10-15 minutes	30 minutes	10-15 minutes	2-4 hours

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

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 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 LT 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. NOTE: For cold surfaces where epoxy will curl, backbutter warm tiles/bricks instead of floating epoxy on cold surface. Once the S-5000 LT begins to set, (becomes non-sticky and/or starts to stiffen) it should be discarded, as proper bonding will not be accomplished. Allow 16 hours at 30°F to elapse before grouting tile.

As a grout: With a firm, straight edge rubber float (*Gundlach GK-2, Barwalt UFF 1B or similar*) force as much S-5000 LT into joints as possible, using sufficient pressure and flow to avoid air pockets or voids. Before the S-5000 LT loses its plasticity, remove excess with rubber float in a scraping or squeegee fashion working diagonally to joints to facilitate removal without pulling material from joints.

VERTICAL SURFACES:

All vertical work must be completed within 20 minutes of mixing product. 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-31 should be added. If necessary, add up to 0.2 lbs of S-31 per 3-gallon unit. Mix S-31 into part A of the epoxy a minimum of 8 hours before use.

CLEAN-UP:

For low temperature installation, Summitville recommends installing S-5000 LT over waxed brick or tile as water cleanup at 35-40 degrees is extremely difficult. Wax must be removed by steam cleaning. If steam cleaning S-5000 LT from waxed brick/tile, allow 24 hours minimum cure time at 70°F before removal of wax by steam cleaning. Should you choose to perform water clean up in lieu of installing over waxed brick or tile, follow these instructions: initial clean up: Use a white plastic scrub pad or an epoxy sponge and a sufficient amount of warm clean water. Adding SL-100 to water will aid in cleaning. Avoid water migration into un-grouted joints. 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. Perform final clean up after 10 hours depending upon temperature 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-5000 LT 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.

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 LT a minimum of seven days at 30°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 finished 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:

3 Gallon Units, Gross Wt. = 41 pounds

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
Alkalis/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: 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

Refer to Grout Coverage Calculator at www.summitville.com for Grouting Coverage