



## S-500 ULTRA MAX COLOR SETTING & GROUTING ONE SOLUTION

### USES:

S-500 Ultra Max provides accurate repeatable superior color to other grout with no need for a sealer because it is not porous. S-500 Ultra Max will not support mold growth. It supplies the wear resistance of commercial strength grouts and unparalleled ease of installation. S-500 Ultra Max is easier to install than cement and it creates no dust. S-500 Ultra Max provides an accurate cured color that is unaffected by the air temperature or relative humidity that plagues the final color of cement products. S-500 Ultra Max can be installed in joints as narrow as 1/16" and as wide as 1/4" or wider in some cases. S-500 Ultra Max gives ample work and cleaning time and cures faster than cement products. S-500 Ultra Max also provides higher mortar bond strength than cement mortars. S-500 Ultra Max is so strong that the concrete substrate will fail before the cured mortar will release. Use one product, S-500 Ultra Max, to set and grout. One product means no confusion on the job.

S-500 Ultra Max is recommended for use in residential and full commercial floors, walls, countertops, backsplashes, ceilings, and fountains. S-500 Ultra Max is so durable, Summitville also recommends it for use in hospitals distilleries, refineries, laboratories, food processing/packaging plants and commercial kitchen applications including fast-food restaurants. NOTE: When more stringent chemical resistance is required, use S-5000, or S-5100 series epoxies, or S-4000 Furan.

### PRODUCT DESCRIPTION:

S-500 Ultra Max is an epoxy mortar and grout that meets or exceeds requirements of ANSI A118.3. S-500 Ultra Max 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 cement mortars and grouts. S-500 Ultra Max has a unique filler system, which has been designed to make grouting clean-up easier. It is recommended for use in hospitals, distilleries, refineries, chemical laboratories, breweries, dairies, food processing plants, etc. where high exposure levels of organic acids are not present. S-500 Ultra Max 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 Ultra Max not only has exceptional bond strength (greater than 1000 P.S.I.) but it will remain rigid and cohesive at intermittent temperatures up to 350°F.

### LIMITATIONS:

Surface temperature of substrate should be above 50°F and cured during tile installation. Continuous exposure of cured S-500 Ultra Max 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)	6000 psi
Shear bond strength, psi (ANSI-A118.3)	1200 psi
Tensile strength	1200 psi
Pot life at 30°F, hours.	1
Cure time at 72°F, hrs.	12 to 16
Temperature limitation, °F	350
Working time, min.	60
Sag using 6" x 6" x 1/2" quarry tile	0.00

**INSTALLATION:**

**Substrate:**

S-500 Ultra Max is recommended for use on cured concrete, plaster, drywall, metal, fiberglass, glass, masonry surfaces, cementitious backerboard, tile over tile, and plywood. Substrate shall be prepared in accordance with ANSI A108.6. Surface to receive S-500 Ultra Max 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 Installation, ANSI A-108, and any other applicable standards for specific setting descriptions.

**Mixing:**

S-500 Ultra Max 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 10 parts C by weight (as supplied), not by volume. A ratio of three parts A, one part B and 8 parts C by weight may be used for horizontal setting and grouting applications down to 1/8 inch. S-500UM may be used to grout 1/16 inch joints on floors using a ratio of 3A:1B:6C by weight. However, use the ratio as supplied for wall work. Caution: when grouting, excess wash/clean up water will slow the cure speed. For narrow joints allow 48 hours cure before any foot traffic. Mixing with less part C than supplied in the kit will reduce unit per square foot coverage. 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 must be added for vertical work. 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 Ultra Max 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 Ultra Max 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 Ultra Max may be stored at low temperatures. Before use, S-500 Ultra Max 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 hours	1 ½ hours	24-32 hours
75°F (24° C)	1 hours	2 hours	1 hours	12-16 hours
90°F (32° C)	30 minutes	1 hour	30 minutes	6-8 hours

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

**APPLICATION:**

**As a setting Mortar:**

Spread mixed S-500 Ultra Max 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 Ultra Max 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 (e.g. *Gundlach*) force as much S-500 Ultra Max into joints as possible, using sufficient pressure and flow to avoid air pockets or voids. Before the S-500 Ultra Max 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-35 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-35 and water. Clean completely, as S-500 Ultra Max 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.

**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 Ultra Max 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 15 pound bag of part C powder; a 3 gallon unit requires two 15 pound bags of part C powder.

**COLORS:**

511 Arctic White, 519 Castle, 531 Brownstone, 541 Seashore, 547 Walnut, 552 Fudge, 566 Gunpowder, 567 Burlap, 568 Silhouette, 570 Silver Gray, 593 Wild Rose. Custom colors are available with minimum quantity.

**SPECIFICATIONS:**

Material: Setting mortar and tile grout shall be S-500 Ultra Max, 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 Ultra Max 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.

**SETTING 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

**GROUTING COVERAGE:** square feet/gallon

Tile Size	Joint Width		
	1/16"	1/8"	1/4"
1" x 1" x 1/4"	54	27	13.5
2 x 2 x 1/4"	108	54	27
3 x 3 x 1/4"	162	81	40.5
4 x 4 x 1/4"	216	108	54
4-1/4 x 4-1/4 x 5/16"	154	77	38.5
6 x 6 x 1/4"	324	162	81
6 x 8 x 1/4"	374	187	93.5
6 x 8 x 3/8 "	250	125	62.5
8" x 8" x 1/4"	432	216	108
8" x 10" x 1/4"	482	241	120.5
8" x 10" x 3/8"	322	161	80.5
8" x 12" x 1/4 "	530	265	132.5
10" x 12" x 1/4"	592	296	148
10" x 12" x 3/8"	394	197	98.5
12" x 12" x 3/8"	432	216	108
12" x 12" x 1/2"	324	162	81
16" x 16" x 3/8"	576	288	144
16" x 16" x 1/2"	432	216	108
16" x 16" x 3/8"	578	290	147
18" x 18" x 5/16"	650	326	165
18" x 24" x 3/8"	742.5	372.5	188
24" x 24" x 5/16"	1038	521	262
24" X 48" X 3/8"	1153	578	290
48" x 48" x 1/2"	1296	649	325

**Chemical Resistance Guide for S-500 ULTRA MAX**

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.