



PRODUCT DESCRIPTION

Stonchem 689 is a highly cross-linked novolac epoxy lining system applied at a nominal thickness of 200 mil/5 mm. The mortar, engineering fabric, mortar sequencing provides a smooth, heavy-duty, chemical barrier which is resistant to thermal shock, thermal cycling, static cracks, permeation and abrasion. The Stonchem 689 system has excellent resistance to concentrated sulfuric acid, chlorinated solvents and caustics.

USES, APPLICATIONS

- Pumping stations
- Tank farms
- Truck ramp containment
- Heavy-duty chemical process flooring
- Tanker loading/unloading areas

PRODUCT ADVANTAGES

- Excellent chemical resistance to concentrated sulfuric acid, caustics and most solvents
- Mineral composite topcoat for increased impermeability
- Engineering fabric resists cracking
- Factory proportioned units for easy application

CHEMICAL RESISTANCE

Stonchem 689 is formulated to resist a variety of chemical solutions. Refer to the Stonchem 600 Series Chemical Resistance Guide which lists reagent concentration and temperature recommendations for each product.

PACKAGING

Stonchem 689 is packaged in units for easy handling. Each unit consists of:

Base

- 1 carton of Stonchem 600 Series Mortar
- A carton contains:
 - 6 foil bags of amine
 - 6 poly bags of resin
- 6 bags of Mortar Aggregate

PHYSICAL CHARACTERISTICS

- Compressive Strength** 10,000 psi (ASTM C-579)
- Tensile Strength** 4,400 psi (ASTM D-638)
- Flexural Strength** 7,800 psi (ASTM C-580)
- Flexural Modulus of Elasticity** 2.4×10^6 psi (ASTM C-580)
- Hardness** 85 to 90 (ASTM D-2240, Shore D)
- Bond Strength** >250 psi (ASTM D-4541) (100% concrete failure)
- Abrasion Resistance** 0.12 gm max weight loss (ASTM D-4060, CS-17)
- Thermal Coefficient of Linear Expansion** 2.2×10^{-5} in./in. $^{\circ}$ C (ASTM C-531)
- Color** Gray

Note: The above physical properties were measured in accordance with the referenced standards. Samples of the actual system, including binder and filler, were used as test specimens.

Engineering Fabric

- 1 roll of Engineering Fabric
- 200 sq.ft./18.58 sq.m. roll

Saturant

- 0.4 cartons of Stonchem 600 Series Saturant
- A carton contains:
 - 6 foil bags of amine
 - 6 poly bags of resin

Mortar

- 1 carton of Stonchem 600 Series Mortar
- A carton contains:
 - 6 foil bags of amine
 - 6 poly bags of resin
- 6 bags of Mortar Aggregate

Topcoat

- 1 carton of Stonchem 600 Series Topcoat
- A carton contains:
 - 4 foil bags of amine
 - 4 poly bags of resin

COVERAGE

Each unit of Stonchem 689 will cover approximately 180 sq.ft./16.72 sq.m. at a thickness of 200 mil/5 mm.

STORAGE CONDITIONS

Store all components between 50 to 75°F/10 to 24°C in a dry area. Keep out of direct sunlight. Avoid excessive heat and do not freeze. The shelf life is 3 years in the original, unopened container. Store all engineering fabric in a clean and dry area.

SUBSTRATE PREPARATION

Proper preparation is critical to ensure an adequate bond. The substrate must be dry and free of all wax, grease, oils, fats, soil, loose or foreign materials and laitance. Laitance and unbonded cement particles must be removed by mechanical methods, i.e., abrasive blasting or scarifying. Other contaminants may be removed by scrubbing with a heavy-duty industrial detergent and rinsing with clean water. The surface must show open pores throughout and have a sandpaper texture. For recommendations or additional information regarding substrate preparation, contact Stonhard's Technical Service Department.

APPLICATION GUIDELINES

Before mixing and applying any material, make sure environmental conditions are satisfactory for application. For optimal working conditions, substrate temperature must be between 60°F/15°C and 80°F/27°C. Measure the surface temperature with a surface thermometer. Cold areas must be heated until the slab temperature is above 55°F/12.7°C. This will allow the material to achieve a proper cure. Also, a cold substrate will make the material stiff and difficult to apply. Warm areas or areas in direct sunlight must be shaded or arrangements made to work during evenings or night. A warm substrate (60 to 80°F/15 to 27°C) will aid in the material's workability; however, a hot substrate (80 to 100°F/27 to 37°C) or a substrate directly in the sun will shorten the material's working time and can cause other phenomenon such as pinholing and bubbling.

APPLYING

Priming

Vacuum the surface before priming and make sure the concrete substrate is dry. The use of HT Primer is necessary in all applications of Stonchem 689. This ensures maximum product performance. (See the HT Primer product data sheet for details.)

Note: HT Primer must be wet during installation of the mortar.

Mortar

Pre-mix amine and resin in a 5 gallon mixing bucket on a J.B. Blender for one minute. Next, gradually add the mortar aggregate while mixing for an additional 90 seconds. Mixing is complete when no clumps of dry material exist. Apply the mortar onto the substrate with a 3/8 in. x 3/8 in. V-notched trowel. To obtain the proper thickness, hold the trowel at approximately 45 degrees and keep the tips of the V-notches in contact with the substrate. The material must be applied evenly over the substrate with no clumps or ridges present before embedding the engineering fabric. The engineering fabric will not remove or hide any unevenness in the troweled mortar layer.

Engineering Fabric

Place the engineering fabric on the mortar immediately after the mortar is applied. Press the fabric onto the mortar using a dry, medium nap roller. Overlap adjacent fabric 1/2 in./12.7 mm. Immediately apply the saturant.

Saturant

Mix the amine and resin in a 5 gallon mixing container using a heavy-duty, slow-speed drill (400 to 600 rpm) with a Jiffy Mixer for one minute. Apply the saturant to the engineering fabric with a saturated medium nap roller. To wet the roller, dip it into the mixing bucket. Always work from the bucket. Do not pour the saturant directly onto the glass. This will decrease the saturant's coverage. If the air temperature is high, use of plastic mixing buckets will increase the pot life of the material. The fabric is completely saturated when white strands are no longer present. When the fabric is completely saturated, roll with a ribbed roller to release air pockets in the reinforcement and to embed the fabric into the mortar. To saturate the overlaps, roll several times over the length of the overlap with a saturated roller, then roll with a ribbed roller several times until the overlap is no longer visible. Allow the mortar, fabric and saturant to cure (usually 4 to 6 hours) before proceeding.

Mortar

Lightly sand the fabric/saturant layer with the sanding disc attachment in areas with protruding fibers. Pre-mix the amine and resin in a 5 gallon mixing bucket on a J.B. Blender for one minute. Next, gradually add the mortar aggregate while mixing for an additional 90 seconds. Mixing is complete when no clumps or dry material exist. Apply the mortar onto the substrate with a 3/8 in. x 3/8 in. V-notched trowel. To obtain the proper thickness, hold the trowel at approximately 45 degrees and keep the tips of the V-notches in contact with the substrate. Use a looped roller to roll the surface of the mortar until an even finish is achieved. Allow to cure 4 to 6 hours.

Topcoat

Lightly sand the mortar in areas where protrusions exist. Vacuum the area completely. Mix the amine and resin in a 5 gallon mixing container using a heavy-duty, slow-speed drill (400 to 600 rpm) with a Jiffy Mixer for two minutes. Pour the material onto the floor and spread out with a 15 mil squeegee. Backroll the area with a medium nap roller to remove squeegee lines, using long roll strokes to decrease the visibility of roller lines. For vertical surfaces, pour a bead of material along the base of the wall and, using a medium nap roller, roll the material onto the vertical surface. The wet film thickness of the coating is 10 to 12 mil. Check the thickness with a wet film gauge.

CURING

The surface of Stonchem 689 will be tack-free in 4 to 6 hours at 70°F/21°C. The coated area may be put back into service in 24 hours at 70°F/21°C. Ultimate physical characteristics will be achieved in 7 days.

RECOMMENDATIONS

- Apply only on clean, sound, dry and properly prepared substrate.
- Minimum ambient and surface temperatures are 55°F/13°C at the time of application.
- Maximum surface temperatures should not exceed 90°F/32°C during the time of installation.
- Substrate temperature should be greater than 5°F/3°C above dew point.
- Application and curing times are dependent upon ambient and surface conditions. Consult Stonhard's Technical Service Department if conditions are not within recommended guidelines.

PRECAUTIONS

- Avoid contact with Stonchem 800 Series Primer 600 Series resin and amine, as they may cause skin, respiratory and eye irritation.
- Toluene or Xylene solvents are recommended for clean up of Stonchem 689 material spills. Use these materials only in strict accordance with the manufacturer's recommended safety procedures. Dispose of waste materials in accordance with government regulations.
- The use of a NIOSH/MSHA approved respirator using an organic vapor/acid gas cartridge is recommended.
- The selection of proper protective clothing and equipment will significantly reduce the risk of injury. Body covering apparel, safety goggles and impermeable nitrile gloves are highly recommended.

- In the event of accidental eye contact, rinse eyes immediately with copious amounts of water and seek medical attention.
- If material is ingested, immediately contact a physician. **DO NOT INDUCE VOMITING.**
- Use only with adequate ventilation..

NOTES

- Material Safety Data Sheets on Stonchem 689 are available upon request.
- Specific information regarding chemical resistance of Stonchem 689 is available in the Stonchem 600 Series Chemical Resistance Guide.
- A staff of technical service engineers is available to assist with product application, or to answer questions related to Stonhard products.
- Requests for technical literature or service can be made through local sales representatives and offices, or corporate offices located worldwide.

IMPORTANT:

Stonhard believes the information contained here to be true and accurate as of the date of publication. Stonhard makes no warranty, expressed or implied, based on this literature and assumes no responsibility for consequential or incidental damages in the use of the systems described, including any warranty of merchantability or fitness. Information contained here is for evaluation only. We further reserve the right to modify and change products or literature at any time and without prior notice.

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