

### PRODUCT DESCRIPTION

Stonchem 678 is a highly cross-linked, novolac epoxy lining system applied at a nominal thickness of 3.5 mm. The mortar, engineering fabric, mortarcoat, mineral composite topcoat sequencing provides a smooth, heavy-duty chemical barrier which is resistant to thermal shock, thermal cycling, static cracks, permeation and abrasion. The Stonchem 678 system has excellent resistance to concentrated sulfuric acid, chlorinated solvents and caustics.

### USES, APPLICATIONS

- Secondary containment areas
- Tank farms
- Sumps and trenches
- Pump pads and pedestals
- Neutralization pits
- Process floors

### PRODUCT ADVANTAGES

- Excellent chemical resistance to most mineral acids, solvents and all caustics
- Engineering fabric aids in crack resistance
- Mortarcoat for added abrasion resistance
- Mineral composite topcoat for increased impermeability
- Factory-proportioned units for easy application

### CHEMICAL RESISTANCE

Stonchem 678 is formulated to resist a variety of chemical solutions. Refer to the Stonchem 600 Series Chemical Resistance Guide for lists of reagent concentrations and temperature recommendations.

### PACKAGING

Stonchem 678 is packaged in units for easy handling. Each unit consists of:

#### **Mortar**

1 carton of Stonchem 600/620 Liquids  
 A carton contains:  
 4 foil bags of Amine  
 4 poly bags of Resin  
 4 bags of Mortar Aggregate

#### **Engineering Fabric**

1 roll of Engineering Fabric 18.58 m<sup>2</sup> roll

#### **Saturant**

0.5 carton of Stonchem 600/620 Liquids  
 A carton contains:  
 4 foil bags of Amine  
 4 poly bags of Resin

#### **Mortarcoat**

0.5 carton of Stonchem 600/620 Liquids  
 A carton contains:  
 4 foil bags of Amine  
 4 poly bags of Resin  
 2 bags of Mortarcoat 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 678 will cover approximately 16.72 m<sup>2</sup> at a thickness of 3.5 mm.

Note: Coverage rates shown are theoretical. Actual coverage rates may vary. Make necessary allowances for the condition of the surface to be coated, working conditions, waste, spillage, experience level and skill of the installers, etc.

### PHYSICAL CHARACTERISTICS

Compressive Strength .....125 N/mm <sup>2</sup> (ASTM C-579)
Tensile Strength .....32 N/mm <sup>2</sup> (ASTM D-307)
Flexural Strength .....98 N/mm <sup>2</sup> (ASTM C-580)
Flexural Modulus of Elasticity .....13.1 x 10 <sup>3</sup> N/mm <sup>2</sup> (ASTM C-790)
Hardness .....85 to 90 (ASTM D-2240, Shore D)
Abrasion Resistance ..... 0.07 gm max. weight loss (ASTM D-4060, CS-17)
Thermal Coefficient of Linear Expansion .....2.2 x 10 <sup>-5</sup> m/mm °C (ASTM C-531)
Color .....Gray
Cure Rate ..... 4 to 6 hours tack-free (@21 °C) ..... 24 hours chemical service
VOC ..... 600/620 Liquids 20 g/l (ASTM D-2369, Method E) .....600 Series Topcoat - 68 g/l

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.

## STORAGE CONDITIONS

Store all components between 10 to 24°C in a dry area. Keep out of direct sunlight. When stored in the unopened containers at the proper temperatures, the shelf life is 3 years. Store all engineering fabric in a clean and dry area.

## SUBSTRATE

Stonchem 678, with the appropriate primer, is suitable for application over concrete and the following uncoated, newly-applied Stonhard mortars and grouts: GS, HT, UR, UT, TG6, TG8, CR5 and PM5. For questions regarding other possible substrates or an appropriate primer, contact your local Stonhard representative or Technical Service.

## SUBSTRATE PREPARATION

Proper preparation is critical to ensure an adequate bond and system performance. The substrate must be dry and properly prepared utilizing mechanical methods. Questions regarding substrate preparation should be directed to your local Stonhard representative or Technical Service.

## APPLICATION GUIDELINES

For optimal working conditions, substrate temperature must be between 15 to 27°C. Cold areas must be heated until the slab temperature is above 13°C to ensure the material achieves a proper cure. 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 at night. A warm substrate (15 to 27°C) will aid in the material's workability; however, a hot substrate (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. Substrate temperature should be greater than 3°C above dew point, during application and curing period.

Application and curing times are dependent upon ambient and surface conditions. Consult Stonhard's Technical Service Department if conditions are not within recommended guidelines.

## PRIMING

Vacuum the surface before priming and make sure the substrate is dry. The use of Stonchem Epoxy Primer is necessary in all applications of Stonchem 678. This ensures maximum product performance. (See the Stonchem Epoxy Primer product data sheet for details.)

Note: The Stonchem Epoxy Primer must remain tacky during installation of the Mortar.

## APPLYING

### **Mortar**

Mix the amine and resin in a 20 litre 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. For vertical applications, use Vertical Mortar aggregate.

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. If applying mortar on a vertical surface, use the same V-notched trowel to spread the material, then finish smooth with a flat steel finishing trowel. A smooth and even distribution of the material must exist on a vertical surface before embedding the engineering fabric.

### **Engineering Fabric**

Place the engineering fabric on the mortar immediately after the mortar is applied. Press the engineering fabric onto the mortar using a dry, medium nap roller. Overlap adjacent engineering fabric 13 mm. Immediately apply the saturant.

### **Saturant**

Mix the amine and resin in a 20 litre mixing container using a heavy-duty, slow-speed drill (400 to 600 rpm) with a mixing blade 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 engineering fabric; this will decrease the saturant's coverage.

Note: If working in warmer conditions, the use of plastic mixing buckets will increase the pot life of the material.

The engineering fabric is completely saturated when white strands are no longer present. When the engineering fabric is completely saturated, roll with a ribbed roller to release air pockets in the reinforcement and to embed the engineering 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, engineering fabric and saturant to cure (approximately 4 to 6 hours) before proceeding.

### **Mortarcoat**

Lightly sand the engineering fabric/saturant layer with a sanding disc attachment in areas with protruding fibers. Pre-mix the amine and resin in a 20 litre mixing bucket with a heavy-duty, slow-speed drill (400 to 600 rpm) with a mixing blade for one minute. Next, gradually add the Mortarcoat aggregate while mixing for an additional two minutes. For vertical applications, use Vertical Mortarcoat aggregate. Mixing is complete when no dry clumps of material exist. Pour the material onto the floor and spread out with a 15 mil notched squeegee. Backroll the area with a medium nap roller to remove squeegee lines. The material may appear rough at first but will level out to a smooth finish. For vertical applications, use a large steel trowel or knife to pull an initial coat of vertical material onto the wall, then finish smooth with a flat rubber squeegee.

### **Topcoat**

Lightly sand the mortarcoat in areas where protrusions exist. Vacuum the area completely. Mix the amine and resin in a 20 litre mixing container using a heavy-duty, slow-speed drill (400 to 600 rpm) with a mixing blade for one minute. Pour the material onto the floor and spread out with a 15 mil notched 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 applications, 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 250 to 300 microns. Check the thickness with a wet film gauge.

### **CURING**

The surface of Stonchem 678 will be tack-free in 4 to 6 hours at 21°C. The coated area may be put back into service in 24 hours at 21°C. Ultimate physical characteristics will be achieved in 7 days.

### **PRECAUTIONS**

- Avoid contact with Stonchem 678 amine and resin, as they may cause skin, respiratory and eye irritation.
- Acetone solvents are recommended for clean up of Stonchem 678 amine and resin material spills. Use these materials only in strict accordance with the manufacturers' recommended safety procedures. Dispose of waste materials in accordance with government regulations.
- The use of NIOSH/MSHA approved respirators 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 case of contact, flush the area with copious amounts of water for 15 minutes and seek medical attention. Wash skin with soap and water.
- If material is ingested, immediately contact a physician. **DO NOT INDUCE VOMITING.**
- Use only with adequate ventilation.

### **NOTES**

- Safety Data Sheets for Stonchem 678 are available upon request.
- Specific information regarding chemical resistance of Stonchem 678 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.
- The appearance of all floor, wall and lining systems will change over time due to normal wear, abrasion, traffic and cleaning.
- Generally, high-gloss coatings are subject to a reduction in gloss, while matte-finish coatings can increase in gloss level under normal operating conditions.
- Surface texture of resinous flooring surfaces can change over time as a result of wear and surface contaminants. Surfaces should be cleaned regularly and deep cleaned periodically to ensure no contaminant buildup occurs. Surfaces should be periodically inspected to ensure they are performing as expected and may require traction-enhancing maintenance to ensure they continue to meet expectations for the particular area and conditions of use.

## CE MARKING

The harmonized European Standard EN 1504-2 „Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality control and evaluation of conformity – Part 2: Surface protection systems for concrete” gives specifications for products and systems based on methods “hydrophobic impregnation”, “impregnation” and “coating” for the various principles presented under EN 1504-9.

Products which fall under this specification have to be CE labelled as per Annex ZA. I, Tables ZA 1a to ZA 1g according to the scope and relevant clauses there indicated, and fulfill the requirements of the given mandate of the Construction Products Regulation nr. 305/2011.

For flooring systems not dedicated to protect or reinstate the integrity of a concrete structure, EN 13813 applies. Products acc. EN 1504-2 used as flooring systems with mechanical loads also must fulfil EN 13813. Here below indicated are the performance classes achieved according to the standard. For the specific performance results of the product to the particular tests, please see the actual values above in the PDS.

	
Stoncor Europe Rue du Travail 9 1400 Nivelles, Belgium  21	
DOP.678.2021.25.6-7  EN 1504-2	
Surface Protection Product  Ingress Protection I.3(C) Physical Resistance 5.1(C)	
Cap. Absorption & Permeability to Water Vapor Water Permeability Permeability to CO <sub>2</sub> Adhesion Strength by Pull-Off Test Fire Resistance Abrasion Resistance Impact Resistance	W < 0.1 kg/m <sup>2</sup> ·h <sup>0.5</sup> Class III S <sub>d</sub> > 50 m  > 2.0 MPa B <sub>fi</sub> -s1 < 3000 mg Class III

### 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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