PRODUCT DESCRIPTION

Stonchem 658 is a 100% solids, high performance epoxy, heavy-duty lining system applied at a nominal thickness of 3mm. The base coat liquids are reinforced with a fiberglass woven cloth that reinforces the system to resist the stresses caused by cracks. The heavily broadcasted aggregate topcoat over the fiberglass woven cloth helps protect the fabric by providing a wear layer that adds durability and abrasion resistance to the system – more than a typical reinforced lining system. Stonchem 658 has excellent resistance to sulphuric acid at various concentrations at a maximum temperature of 38°C.

USES

- Process slabs
- Tank farms
- Chemical loading and unloading areas
- Spill containment areas
- Truck unloading areas

PRODUCT ADVANTAGES

- Excellent resistance to chemical attack
- Excellent abrasion and impact resistance
- Good thermal shock resistance
- Superior bonding qualities
- High cohesive strength
- Low permeability
- Low odour

TYPICAL PROPERTIES AT 25°C

Compressive Strength ASTM C579	110 MPa
Tensile Strength ASTM D638	58 MPa
Flexural Strength ASTM C580	89.9 MPa
Flexural Modulus of Elasticity ASTM C580	5 x 10^5 MPa
Hardness ASTM D2240, Shore D	75 to 85
Bond Strength ASTM D4641	>2 MPa (100% concrete failure)
Abrasion Resistance ASTM D4060, CS17	0.056 gm max weight loss
Thermal Coefficient of Linear Expansion, ASTM D531	11.1 x 10^{-5} mm/mm/°C
Colour	Red or Grey
VOC Content	20 g/l
Fire Resistance ASTM 65	Self extinguishing Extent of burning 6mm max
Volume Solids	100%

NOTE: The above physical properties were measured in accordance with the referenced standards. Samples of the actual floor system, including binder and filler, were used as test specimens. All sample preparation and testing is conducted in a laboratory, values obtained on the field applied materials may vary and certain test methods can only be conducted on lab-made test coupons.

CHEMICAL RESISTANCE

Stonchem 658 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).

PRECAUTION

Stonchem 600 series systems cannot withstand the exothermic reaction of water, dew or rain falling on pooled concentrated acids. The temperatures of the acid can reach 160°C and if maintained, will destroy the lining. Pump and pipe maintenance, the use of drip trays, slopes to sumps, roof protection and good housekeeping practice is critical in avoiding the explosive properties encountered when water is added to acids.

NOTE: Staining may occur depending on length of exposure time, chemical concentration and temperature.

PACKAGING AND COVERAGE

Primer, Stonprime 786 OPR: 5lt Kit Part A + B: Approximately 3m²/lt/coat
Basecoat / Topcoat, Stonchem 658: 5lt Kit Part A + B: Approximately 2lt/m²
Acid-resistant Woven Cloth: 1 Roll SC-GSC 450 (50 x 1,5m)
Broadcast Aggregate: 25kg Medium Texture # 6222, Approximately 2kg/m²

VERTICAL MORTAR

7,5kg (5lt) Medium Texture # 6222 per 5lt Stonchem 658
Yields 8lt per kit: approximately 3m²/kit

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.

REFERENCE SAMPLE

A trial reference sample should be installed by the applicator prior to start of contract to ensure correct coverage and workmanship.

STORAGE CONDITIONS

Store all components between 10-24°C in a dry area. Keep out of direct sunlight. Avoid excessive heat and do not freeze.

SHELF LIFE

The shelf life is 1 year in the original, unopened container.

PLACEMENT GUIDELINES

SCOPE OF WORK (BOQ)

Prepare surfaces and apply Stonchem 658 heavy duty, woven cloth reinforced, acid lining system.

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 grinding. Other contaminants may be removed by scrubbing with a heavy-duty industrial detergent (Carboclean 250 and Carboclean 252) and rinsing with clean water. Previously contaminated substrates should be neutralized and thoroughly rinsed clean with potable water. pH checks with litmus paper should be carried out to confirm neutral substrates. The surface must show open pores throughout with main aggregate in concrete exposed and have a sandpaper texture. Substrate moisture content prior to coating should be below 5% and substrate tensile strength above 2 MPa. For recommendations or additional information regarding substrate preparation, refer to surface preparation data sheet or contact StonCor Africa Technical Service Department.

SUBSTRATE REPAIR, REPROFILING AND "NEGATIVE SIDE" WATERPROOFING

Reinstatement of damaged or defective concrete should be carried out using Euclid Concrete Repair products as per the product data sheets. The minimum depth repair should be no less than 10mm and perimeter edge cuts should be made perpendicular to the surface to avoid feather edging (for trafficable areas, minimum 25mm).

Reprofiling of uneven surfaces and controlling rising moisture should be carried out using Euclid Cement-based Waterproofing products applied as a dense 3mm layer using steel trowels, as per the product data sheet.

JOINT TREATMENT PRIOR TO LINING

All joints should be profiled such that they are raised and liquids flow away from the joints and not along the joint. If this has not been catered for in the design, an epoxy mortar consisting of 1 litre Stonprime 786 OPR mixed with 6kg Pro-Struct 622 graded aggregate should be screeded 100mm on either side of the joint to create a wedge shape at least 5mm high at the joint, screeded down to 1mm on the perimeter. Allow to cure and re-cut the joint to the width specified by the engineer to cater for slab movement. Applicator must ensure that no ponding will occur behind raised joint, depending on the direction of fall.

Apply Stonchem 658 lining system over the epoxy mortar up to the raised joint and when cured, recut the joint to give clean, sound edges. Prime the cut sides with Stonprime 639 and place a backing cord to a minimum depth of 10mm. Install Pro-Struct 849 sealant tooling level with the lining system, ensuring depressions are not left in the sealant to harbour chemical attack.

CRACK TREATMENT

The joint or crack to be treated must be filled with Pro-Struct 849 prior to the application of Stonflex CR9. Pro-Struct 849 must be allowed to cure for a minimum of 12 hours at 21°C. Mix and apply Stonflex CR9 by brush over the crack at a thickness of 500 microns, 30mm either side of the crack.

Using pre-cut 50mm wide non-woven 110 to 120gm/m^2 geotextile fabric (pre-approved by StonCor Africa), centre the geotextile fabric lengthwise over the joint, firmly press and embed it into the Stonflex CR9 whilst still wet. Use a non-stick roller, squeegee or trowel to embed the geotextile fabric.

Apply a further coat, ensuring full saturation of the fabric. Allow to cure. Exposed fabric fibres or edges or other discontinuities shall not be accepted. Apply a further coat at 250μm.

APPLICATION PROCEDURE

Vertical Surfaces:

- Prime the prepared substrate with Stonprime 786 OPR using a medium nap roller to achieve 300 microns dry film thickness (theoretical coverage at 3.3m^2 per litre). Whilst still wet, broadcast Stonhard 6222 aggregate into the primer to create a rough profile. Allow to cure for 4 to 6 hours, but no longer than 12 hours, prior to installing the balance of the system, or the area will require re-priming.
- Mix a 5 litre kit of Stonchem 658 Part A and B together for 2 minutes using a mechanical mixer fitted with a spiral impeller mixer, then add a 5 litre measure of Stonhard 6222 aggregate to form 8 litres of trowelable mortar. Using a steel 10mm square shaped notch trowel, skim the mortar to the primed tops and sides of the bund walls to achieve 2.6mm dry film thickness (theoretical coverage 0.35m^2 per litre of mortar). Whilst the mortar is still wet, place the pre-cut 450g per m^2 acid resistant woven fiberglass scrim cloth into the wet Stonchem 658, overlapping seams by 50mm as the installation proceeds. Using a steel float, flatten and embed the fiberglass cloth into the resin, ensuring total saturation of the cloth, leaving no cloth left exposed.

- Within 6 to 18 hours, using a medium nap roller, apply a seal coat of Stonchem 658 resin to achieve 300 microns dry film thickness (theoretical coverage 3.3m² per litre). The curing time may vary depending upon ambient and surface conditions.
- The coated area may be put back into service after 36 hours at 25°C. Ultimate physical characteristics will be achieved in 7 days.

Horizontal Surfaces:

- Prime the prepared substrate with Stonprime 786 OPR using a medium nap roller to achieve a 300 micron dry film thickness (theoretical coverage at 3.3m² per litre). Allow to cure for 4 to 6 hours, but no longer than 12 hours, prior to installing the balance of the system, or the area will require re-priming.
- Mix the Stonchem 658 Base and Activator thoroughly for 2 minutes using a mechanical mixer fitted with a spiral impeller. Pour onto the primed area and spread with a 3mm notched rake to achieve 1.2mm dry film thickness (theoretical coverage 0.83m² per litre).
- Place the pre-cut 450 gram per m² acid resistant woven fiberglass cloth into the wet Stonchem 658, overlapping seams by 50mm as the installation proceeds. Using a steel float, flatten and embed the fiberglass cloth into the resin, ensuring total saturation of the cloth, leaving no cloth or cavity exposed.
- Immediately broadcast the Stonhard 6222 aggregate at a theoretical coverage rate of 2kg per m² or until a dry layer is achieved on the surface. Allow the resin to cure for a minimum of 6 hours at 25°C, then sweep off the excess aggregate, denib and vacuum off all loose material.
- Within 6 to 18 hours, apply a topcoat of Stonchem 658 resin to the cured system to achieve 380 microns dry film thickness (theoretical coverage 2.6m² per litre). More product may be needed to meet the finish texture and the 3mm thickness required by the job specification. The surface of Stonchem 658 will be tack-free in 12 to 18 hours at 25°C. The coateing may be put back into service in 36 hours at 25°C. Ultimate physical characteristics will be achieved in 7 days. The curing time may vary depending upon ambient and surface conditions.
- **Do not attempt to install material if temperature of components and substrate are not within 16 to 30°C. Application properties, cure time and chemical resistance of the material is severely affected.**

RECOMMENDATIONS

- Apply only on clean, sound, dry and properly prepared substrates.
- Minimum ambient and surface temperature is 16°C at the time of application.
- Maximum surface temperature should not exceed 30°C during application. **Substrate temperatures above 38°C will drastically affect the working time of the product**.
- Substrate temperature should be greater than 3°C above dew point.
- Material should not be applied if humidity is above 85%.
- Application and curing times are dependent upon ambient and surface conditions. Consult StonCor Africa Technical Service Department if conditions are not within recommended guidelines.

PRECAUTIONS

- Avoid contact with Stonchem 658 amine and resin as they may cause skin, respiratory and eye irritation.
- Carboline Thinner # 2 or Carboline Thinner # 10 are recommended for clean-up of Stonchem 658 resin and amine 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 NIOSH/MSHA approved respirators using an organic vapor / acid gas cartridge is highly recommended.
- The selection of proper protective clothing and equipment will significantly reduce the risk of injury. Body coverage apparel, safety goggles and impermeable gloves are highly recommended.
- In the event of accidental eye contact, rinse eyes immediately with water.
- If material is ingested, immediately contact a physician. **DO NOT INDUCE VOMITING.**
- Use only with adequate ventilation. Inhalation of vapors may cause severe headaches, nausea and possibly unconsciousness.

NOTES

- Refer to the material safety data sheets regarding individual components. Material safety data sheets are available on request.
- Specific information regarding the chemical resistance of Stonchem 658 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's products.
- Requests for technical literature or service can be made through local sales representatives and offices, or corporate offices located worldwide.