PRODUCT DESCRIPTION

Stonchem 828 is a conductive, spark-proof, vinyl ester lining system applied at a nominal thickness of 140 mil/3.5 mm. The mortar, engineering fabric, and mortar sequencing provides a smooth, heavy-duty, and non-sparking chemical barrier which is resistant to thermal shock, thermal cycling, static cracks, permeation and abrasion. The Stonchem 828 system has excellent resistance to a broad base of chemicals, including hydrofluoric acid, strong organic acids, caustics, solvents and moderate to strong inorganic acids.

USES, APPLICATIONS

- Pumping stations
- Trenches
- Truck ramp containment
- Pulp liquor storage
- Heavy-duty chemical process flooring
- Tanker loading/unloading areas

PRODUCT ADVANTAGES

- Carbon filled mortar and mortarcoat
- Mortarcoat for added abrasion resistance
- Engineering fabric resists cracking
- Factory proportioned units for easy application
- Non-sparking and conductive

CHEMICAL RESISTANCE

Stonchem 828 is formulated to resist a variety of chemical solutions. Refer to the Stonchem 800 Series Chemical Resistance Guide, which lists reagent concentration and temperature recommendations for each product.

PACKAGING

Stonchem 828 is packaged in units for easy handling. Each unit consists of:

Mortar

3.25 cartons of Stonchem 800/820 Resin
A carton contains:
2 cans of Resin
3.25 cartons of Peroxide (700/800 PRIMER-700/800/820 LIQUIDS-BPO)
A carton contains :
2 jars of Peroxide
6.5 bags of 820 Mortar aggregate

Engineering Fabric

1 roll @ 200 sq. ft./18.58 sq. m roll

Saturant

0.7 carton of Stonchem 800/820 Resin
A carton contains:
2 cans of Resin
0.7 cartons of Peroxide (700/800 PRIMER-700/800/820 LIQUIDS-BPO)
A carton contains :
2 jars of Peroxide

Mortarcoat

1.5 cartons of Stonchem 800/820 Resin
Acarton contains:
2 cans of Resin
1.5 cartons of Peroxide (700/800 PRIMER-700/800/820 LIQUIDS-BPO)
A carton contains :
2 jars of Peroxide
3 bags of 820 Mortarcoat aggregate

PHYSICAL CHARACTERISTICS

Compressive Strength (ASTM C-579)	11,000 psi
Tensile Strength (ASTM D-638)	2,800 psi
Flexural Strength (ASTM C-580)	8,000 psi
Flexural Modulus of Elasticity (ASTM C-580)	1.0 x 10^6 psi
Hardness (ASTM D-2240, Shore D)	85-90
Abrasion Resistance (ASTM D-4060, CS-17)	0.10 gm weight loss
Thermal Coefficient of Linear Expansion (ASTM C-531)	1.2 x 10^{-5} in./in.˚F
Color	Conductive Gray
Cure Rate (@70F˚/21˚C)	1 hour tack-free 24 hours chemical service
VOC (ASTM D-2369, Method E)	820 Topcoat 97 g/l 800/820 Liquids 53 g/l

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 environment, values obtained on field applied materials may vary and certain test methods can only be conducted on lab-made test coupons.

Topcoat
1 carton of Stonchem 820 Topcoat Conductive Gray Resin
A carton contains:

2 cans of Resin
1 carton of Peroxide (700/800 SF/COND TPCT-BPO)
2 jars of Peroxide
1 carton containing:
2 bags of Stonchem X20 Topcoat Part C

COVERAGE
Each unit of Stonchem 828 will cover approximately 180 sq. ft./16.72 sq. m at a thickness of 140 mil/3.5 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 6 months in the original, unopened container. Store all engineering fabric in a clean and dry area.

SUBSTRATE
Stonchem 828, with 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 PM8. 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. For existing coated surfaces, the coating must be completely removed back down to an intact mortar or substrate. Once the coating is removed, prime the prepared surface with Stonchem Epoxy Primer and broadcast with silica aggregate to refusal. Remove any excess silica aggregate prior to system overlayment. Omitting these steps could result in uncured material. Questions regarding substrate preparation should be directed to your local Stonhard representative or Technical Service.

STATIC CONTROL PROPERTIES

Stonchem 828 has been specifically designed to comply with the ANSI/ESD S20.20 specification for the protection of electrical and electronic parts, assemblies, and equipment.

Surface Resistance ..... <1.0 megohms (ESD-S7.1)
Body Voltage Generation ..... <100 volts* (ESD STM97.2)

* Body Voltage Generation is not solely a function of flooring conductivity but is a combination of many factors, including footwear and environmental conditions. Your specific environment and choice of footwear may yield slightly different results.

Electrostatic Discharge (ESD) flooring has a variety of applications from microchip manufacturing to military ordinance. Therefore, each facility may have unique resistance requirements based on their individual ESD programs. It is important to identify the resistance requirements and test method used for each project prior to installing any ESD flooring.

ELECTRICAL TESTING

The floor must be tested 24 hours after the application of Stonchem 828. Point-to-point and point-to-ground readings should be taken. All values must fall below 1.0×10^6 ohms(Ω).

Note: Stonhard tests all floors in accordance with the ESD S7.1 test method. Various other ESD standards and test methods are available, and they each have their own unique parameters. Contact Stonhard's Technical Service Department if you wish to use a different test method.

APPLICATION GUIDELINES
For optimal working conditions, substrate temperature must be between 60 to 80˚F/15 to 27˚C. Cold areas must be heated until the slab temperature is above 55˚F/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 (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. 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.

GROUNDING
Set ground plates over the Stonchem 700/800 Primer after the material is cured. Grind the area where the foot of the ground plate will be placed to ensure it sits flush with the primer. You can adhere the grounding plates to the primer using hot glue or five-minute epoxy. These should be placed in close proximity to the grounding device (outlet, structural steel, conduit ordinance ground, etc.). There should be one ground per 1,000 sq. ft./93 sq. m and a minimum of two for any isolated area less than 1,000 sq. ft./93 sq. m. After the Stonchem 828 installation and proper cure times, ground wires can be attached into the set screw provided on the ground plate.

Grounding Plates are available in three heights:
2 in. - Standard (Product #88057)
4.5 in. - For use with 4 in. Cove Base (Product #88058)
8 in. - For use with 6 in. Cove Base (Product #88050)

FIELD GEL TESTS
Due to the unique nature of the 800 Series resins, their reactivity is affected by storage conditions and age; therefore, it is important to test the cure of the materials prior to application. Gel tests should be performed for each lot of each product shipped to a job to prevent problems related to material curing. Field gel test kits are included in every shipment of 800 Series material. One gel test contains directions and all of the necessary materials to conduct the testing. Test all lots of material prior to use.

PRIMING

Vacuum the surface before priming, and make sure the concrete substrate is dry. The use of Stonchem 700/800 Series Primer is necessary in all applications of Stonchem 828.This ensures maximum product performance. (See the Stonchem 700/800 Series Primer Product Data sheet for details.

Note: Stonchem 700/800 Series Primer must be wet during installation of the Mortar.

APPLYING

Mortar

Pre-mix the peroxide 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 150 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 reinforcement.

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 and allow the wet mortar to begin saturation of engineering fabric. Overlap adjacent fabric 1 in./26 mm.

Saturant

Mix the peroxide 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 container. Always work from the bucket. Do not pour the saturant directly onto the glass. This will decrease the saturant's coverage. The use of plastic mixing buckets will increase the pot life of the material during warmer working conditions. 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 (usually 2 to 4 hours) before proceeding.

Mortarcoat

Lightly sand the engineering fabric/saturant layer in areas with protruding fibers. Pre-mix the peroxide and resin in a 5-gallon mixing container with a heavy-duty, slow-speed drill (400 to 600 rpm) with a Jiffy Mixer for one minute. Next, gradually add the mortarcoat aggregate while mixing for an additional 2 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 surfaces, 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

After allowing the Mortarcoat to cure, lightly grind areas where ridges or imperfections exist. Vacuum the area completely. Premix the can of resin for 30 seconds using a heavy-duty, slow-speed drill (400 to 600 rpm) with a Jiffy Mixer and one-gallon Jiffler mixer to suspend settled material. Empty the entire contents of one can of resin and one bag of Stonchem X20 Topcoat part C into a 5-gallon mixing container and mix for one minute. Next, add peroxide and mix for an additional minute. Pour the material on to 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 surfaces, pour a bead of material along the base of the wall. Using a medium nap roller, roll the material up onto the wall. The wet film thickness of the coating is 10 to 12 mil/250 to 300 microns. Check the thickness with a wet film gauge.

ELECTRICAL TESTING

Testing the floor should be complete and detailed. The testing results must be documented and approved by the customer. Use the Static Control Flooring Installation Report to certify that the floor has been tested and approved by the customer. Any additional diagrams must be included with the report. A copy of the results must be given to the customer and a copy should be kept in your job file.

- Make a map of the floor with grids in order to locate the spots tested. (100 sq. ft./9.3 sq. m grids are recommended depending on the size of the area.)
- Stonhard typically tests according to the ESD S7.1 test method. Other test methods can be utilized, including ASTM F-150.
- Using a megohmmeter, place the two, 5-pound electrodes 3 ft./91 cm apart and test at 100 volts.
- Take a minimum of ten tests per 1,000 sq. ft./93 sq. m and mark the locations on the map.
- The average values should fall between:
- 0.025 - 1.0 megohms for Stonchem 828

Remember, the installation is not complete until the floor has been cleaned, tested and approved in writing by the customer.

CURING

The surface of Stonchem 828 will be tack-free in one hour. Area may be returned to dry service after 4 hours and full service after 48 hours of cure at 70°F/21°C. Ultimate physical characteristics will be achieved in 7 days. Specific information regarding the chemical resistance of Stonchem 828 is available in the Stonchem 800 Series Chemical Resistance Guide.

PRECAUTIONS

- Avoid contact with Stonchem 828 resin (vinyl ester resin and styrene monomer) and peroxide (catalyst/organic peroxide), as they may cause skin, respiratory and eye irritation.
- Acetone is recommended for cleanup of Stonchem 828 resin (vinyl ester resin and styrene monomer) and peroxide (catalyst/organic peroxide) 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 approved respirators using an organic vapor/acid gas cartridge is mandatory.
- The selection of proper protective clothing and equipment will significantly reduce the risk of injury. Body covering apparel, safety goggles or safety glasses and impermeable gloves are required.
- In case of contact, flush area with 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. Inhalation of vapors may cause severe headaches, nausea and possibly unconsciousness.

NOTES

- Safety Data Sheets for Stonchem 828 are available online at www.stonhard.com under Products or upon request.
- Specific information regarding chemical resistance of Stonchem 828 is available in the Stonchem 800 Series Chemical Resistance Guide.
- A staff of technical service engineers is available to assist with installation or to answer questions related to Stonhard products.
- Requests for literature 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.

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