PRODUCT DESCRIPTION

Stonclad ESD is a four-component, conductive, spark-proof epoxy mortar system. The system consists of an epoxy resin, amine curing agent, selected graded non-silica aggregates and conductive elements. It is sealed with a black conductive epoxy sealer. The system is conductive and spark-proof throughout. The standard thickness for Stonclad ESD is a nominal 1/4 in./6 mm. Stonclad ESD cures to an extremely hard, conductive, spark-proof, impact-resistant surface that exhibits excellent abrasion, wear and chemical resistance.

USES, APPLICATIONS

Stonclad ESD can be used in any application where static electricity must be controlled. It is designed for explosive environments such as munitions manufacture and storage where static build-up and sparks may present operating hazards.

SYSTEM OPTIONS

Waterproofing

Where the total system must be waterproof, use of Stonhard's Stonproof ME7 is required with strict adherence to application instructions.

Cove Base

To provide an integral seal at the joint between the floor and the wall, cove bases in heights from 2 to 6 in./5 to 15 cm are available.

Pigmented Topcoat

Stonkote AT5 may be used to provide a tough, abrasion-resistant coating in 10 dynamic colors.

PACKAGING

Stonclad ESD is packaged in units for easy handling. Each unit consists of:
2 cartons, each containing:
6 foil bags of Amine
6 poly bags of Resin
12 individual bags of Part C (aggregate)
12 individual bags of Part C-1 (conductive elements)
1 carton of Stonclad ESD Sealer containing:
2 foil bags of Amine
(2) 1 gallon cans of Resin

PHYSICAL CHARACTERISTICS

Compressive Strength (ASTM C-579)	9,500 psi after 7 days
Tensile Strength (ASTM C-307)	1,700 psi
Flexural Strength (ASTM C-580)	4,800 psi
Flexural Modulus of Elasticity (ASTM D-790)	2.0 x 10^6 psi
Hardness (ASTM D-2240, Shore D)	75 to 80
Abrasion Resistance (ASTM D-4060, CS-17)	0.08 gm max weight loss*
VOC Content (ASTM D-2369)	10 g/l 80 g/l - sealer
Flammability (ASTM E-648)	Class 2
Slip Resistance Index (wet) (ASTM F-1679)	0.66
Thermal Coefficient of Linear Expansion (ASTM C-531)	5.0 x 10-5 in./in.˚C
Water Absorption (ASTM C-413)	3.0%
Cure Rate (@ 77˚F/25˚C)	8 hours for foot traffic 24 hours for normal operations

* Test samples are finished with two coats of high-solids epoxy coating.

STATIC CONTROL PROPERTIES

Surface Resistance (Test Method, ESD-S7.1)	0.025 to 1.0 megaohms
Spark Generation (NFGS-09965)	No visible sparks

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.

COVERAGE

Each unit of Stonclad ESD will cover approximately 200 sq. ft./18.6 sq. m of surface at a nominal 1/4 in./6 mm thickness.

STORAGE CONDITIONS

Store all components of Stonclad ESD between 60 and 85˚F/16 to 30˚C in a dry area. Avoid excessive heat and do not freeze. The shelf life is 3 years in the original, unopened container.

COLOR

The standard color for Stonclad ESD is black. A pigmented topcoat is optional. Stonkote AT5 may be applied and is available in 10 standard colors. The lightest color available for AT5 topcoat is Pewter. Refer to the Stonclad Color Sheet. Custom colors available upon request.

SUBSTRATE
Stonclad ESD is suitable for application over properly prepared concrete, wood or steel surfaces. It is not recommended for use over asphalt, mastic, gypsum-based products, brick or painted surfaces. These must first be removed by mechanical means to expose the substrate prior to overlayment.

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.

PRIMING
The use of Stonset Primer is necessary for all applications of Stonclad ESD over all substrates. The Stonset Primer must be tacky during the application of Stonclad ESD. If the primer becomes tack-free, the area must be re-primed prior to continuing the application.

MIXING
Empty the entire contents of one foil bag of amine (liquid) and one poly bag of resin (liquid) into a 5 gallon mixing pail.

Place this mixing pail on a JB Power Blender and activate the timer to start the one minute blending cycle. After 30 seconds, add the conductive element Part C-1.

When the blender stops, reactivate the timer and immediately pour the entire contents of one bag of Part C into the rotating pail. Allow the contents to mix for the complete one minute cycle.
When the blender stops, scrape off excess from the mixing blade and remove the pail, delivering it to the floor area for application.

POT LIFE
After mixing, Stonclad ESD has a working time of approximately 20 minutes at 70˚F/21˚C.The working time will vary depending upon ambient and surface conditions.

APPLYING
Material must be used immediately after mixing.

A Screed Applicator is used to apply the mixed Stonclad ESD to the floor. Steel finishing trowels are used to compact and smooth the surface of the material to the required 1/4 in./6 mm.

Two coats of ESD Sealer are required to seal the Stonclad ESD surface. After the Stonclad ESD has cured, grind and vacuum the surface, then apply the Stonclad ESD Sealer. Once the first coat of Stonclad ESD Sealer has cured approximately 6 to 8 hours at 77˚F/25˚C, apply the second coat.

When the pigmented topcoat option (Stonkote AT5) is chosen, the Stonclad ESD must be sealed with one coat of ESD Sealer and followed by the Stonkote AT5. This will ensure that the proper electrical properties are maintained.

Note: No wax or finish should be applied to the Stonclad ESD surface. This will result in a loss of conductivity.

ELECTRICAL TESTING
After the Stonclad ESD Mortar has cured overnight, it should be tested for surface resistance. This testing must be conducted before application of the first coat of ESD Sealer and all tests must fall below $1x10^5$ ohms. Once the first topcoat has been applied and has been allowed to cure overnight, the floor must again be tested for surface resistance before the second coat of ESD Sealer or Stonkote AT5 is applied. All readings should once again fall below $1x10^5$ ohms. After the second coat of ESD Sealer or Stonkote AT5 has been allowed to cure overnight, the system should be tested one final time. Record all results on a Static Control Flooring Report and have the customer sign off on the readings. Take a minimum of 10 readings per 1,000 sq. ft./93 sq. m and mark the locations on the map. All readings should fall below $1.0x10^6$ ohms.

GROUNDING
When using grounding plates, the plate should be placed in the wet mortar either directly below the grounding device (outlet, piping, etc.) or as close as possible to avoid obstacles.

RECOMMENDATIONS

- DO NOT attempt to install material if the temperature of the Stonclad ESD components and substrate are not within 60 to 85˚F/16 to 30˚C. The cure time and application properties of the material are severely affected.
- DO NOT use water or steam in the vicinity of the application. Moisture can seriously affect the working time and other properties.
- The use of safety glasses and impervious gloves is required during application.
- Avoid contact with all liquid amine and resin as they may cause skin and/or eye irritation. Workmen should cover hands with rubber gloves.
- Use only with adequate ventilation.

NOTES

- Procedures for maintenance of the flooring system during operations are described in the Stonkleen Floor Cleaning Procedures Brochure.
- Specific information regarding chemical resistance is available in the Stonclad ESD Chemical Resistance Guide.
- Safety Data Sheets for Stonclad ESD are available online at www.stonhard.com under Tech Info or upon request.
- A staff of technical service engineers is available to assist with installation or to answer questions related to Stonhard products.
- Requests for technical service or 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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