PRODUCT DESCRIPTION

Stonclad UL ESD is a 5-component, conductive, self-levelling polyurethane mortar system. Stonclad UL ESD consists of a urethane-urea binder, pigments, conductive fibre and graded quartz aggregate. Stonclad UL ESD can be applied at a thickness ranging from 2mm to 3mm, depending on application requirements. Stonclad UL ESD is a high performance conductive, mortar that has a smooth, matte finish and exhibits excellent wear resistance, impact resistance and chemical resistance.

USES

Stonclad UL ESD can be used where static electricity needs to be controlled. It is especially applicable in electronics manufacturing, packaging, assembly and test facilities, and installation of highly sensitive electronic equipment.

PACKAGING AND COVERAGE

SL Primer:
20lt Kit consisting of:
1 x 5 litre SL Primer Activator
1 x 10 litre SL Primer Base
1 x 15kg SL Primer Fine Aggregate
60 to 70m²/20 litre kit (approximately 300 microns)

ATK Primer:
5lt Kit consisting of:
1 x ATK Activator
1 x ATK Base
30 to 40m²/kit (approximately 150 microns WFT)
12.5kg Stonhard 6227 Aggregate – 2.5kg/m²

Mortar:
15lt Kit Stonclad UL ESD consisting of:
1 x UL Activator
1 x UL Base
1 x UL Pigment Pack
1 x UL ESD Aggregate
1 x UL ESD Conductive Fibre

7.5m²/kit at 2mm
5m²/kit at 3mm

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.

TYPICAL PROPERTIES AT 25°C

Compressive Strength ASTM C-579	41 MPa after 7 days
Tensile Strength ASTM C-307	7 MPa
Flexural Strength ASTM C-580	14 MPa
Hardness ASTM D-2240, Shore D	75-80
Impact Resistance ASTM D-2794	> 18 Nm
Flammability ASTM E-648	Class I
Water Absorption ASTM C-413	< 1%
VOC Content	UL Mortar: 33 g/l
Cure Rate	8 Hours foot traffic 24 Hours normal operation
Heat Resistance Limitation	Continuous: 60°C Intermittent: 75°C

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.

NB: Product is not colour stable and may discolour over time when exposed to UV light.

STATIC CONTROL PROPERTIES

Surface Resistance ESD-S7.1	< 1.0 Mega-ohms
Body Voltage Generation ESD STM97.2	< 100 Volts

Electrostatic Discharge (ESD) flooring has a variety of applications from microchip manufacturing to military ordinance. Therefore, each facility might 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:
Once the ATK Primer is tack-free, it must be tested for proper conductivity. Point-to-point and point-to-ground readings must be taken and all values should fall below 0.5 x 10^6 ohms.

The floor must also be tested after application of Stonclad UL ESD. Once the Stonclad UL ESD is tack-free, point-to-point and point-t-ground readings should be taken. All values must fall below 1 x 10^6 ohms.

STORAGE CONDITIONS

Store all components of Stonclad UL ESD between 16 to 30°C in a dry area. Avoid excessive heat and do not freeze.

SHELF LIFE

The shelf life is 1 year for the isocyanate and polyol, and 6 months for the aggregate in their original, unopened containers.

PLACEMENT GUIDELINES

SCOPE OF WORK (BOQ)

Prepare Surfaces and apply SL Primer, ATK Primer and Stonclad UL ESD as a 3mm conductive, high impact and chemical resistant self-levelling polyurethane-urea mortar.

NOTE: Do not attempt to install this material unless application team is fully trained and understands the requirements of working with materials with short application times within the specified temperature range. Substrate and material temperature are to be within 16 to 30°C.

SUBSTRATE PREPARATION

Stonclad UL ESD, with its appropriate primer, is suitable over properly prepared concrete surfaces which are level and do not require renovation. The substrate must be dry and free of all wax, grease, oils, fats, loose or foreign materials and laitance. After cleaning, abrade the surface by vacu-blasting or scarifying to remove laitance, open all voids and expose the aggregate to a depth of 1 to 2mm. The surface must show open pores throughout and with main aggregate in concrete exposed, and have a coarse sandpaper texture. Retaining slots, 5mm x 5mm, must be cut running 150mm from and parallel to the walls, edges and joints. If weak, dusty substrates exist, they should be removed and repaired with appropriate Euclid Concrete Repair products. Product can be laid on 1 to 2 week old new concrete, provided a minimum tensile strength of 1.5 MPa has been achieved. For recommendations or additional information regarding substrate preparation, please consult StonCor Africa's "Surface Preparation Methods".

PRIMING AND PATCHING

The prepared substrate must be completely sealed and primed using SL Primer. Once the primer is cured, a coat of ATK Primer is installed. Broadcast Stonhard 6227 into the wet ATK Primer to rejection at approximately 2.5kg/m^2. Refer to the product data sheets for the correct installation procedures for ATK Primer.

JOINTS AND GROUNDING

Joints: To connect adjacent ESD flooring system panels across a joint, a conductive bridge between the panels must be installed to ensure conductivity across the joint. Make a perpendicular saw cut across the joint prior to applying the ATK Primer. The saw cut is then filled with ATK Primer during the application of the primer, after which a piece of 10 gauge (2.5mm thick) copper wire is placed into the saw cut whilst the primer is still wet. The placement of the copper wire and the conductive broadcast step should happen simultaneously. A piece of backer rod is placed on top of the copper wire to protect it. The perpendicular saw cut should be wide enough to accommodate the copper wire and deep enough so that it won't be broken when the joint is cut.

Grounding: If grounding plates are used, 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.

TESTING PRIMER

Once the ATK Primer is tack-free, it must be tested for proper conductivity.

- All readings must fall below 0.5 x 10^6 ohms

If the above reading is not obtained, contact StonCor Africa Technical Service Department.

MIXING

Mixing station must be set up to deliver a kit of material to the applicators every 3 minutes. A well-displayed clock or timer is necessary to ensure consistent supply. Remove all lids from resin components and open pigment packs and aggregate bags. Two 25 litre clean dry mixing drums and spiral impellers fitted to a high torque variable speed 550 rpm mixer should be used for thorough mixing.

Empty the entire contents of the Base and conductive fibre components into a 25 litre container and mix mechanically for 60 seconds. Once all the fibre has been wetted out and there are no signs of clumped fibre, add the entire contents of the activator component into the 25 litre container and mix for 30 seconds before adding the pigment pack. Continue mixing for a further 30 seconds. Pour in the aggregate and mix for another 90 seconds. Immediately send the mixed material to the application floor area and within 30 seconds start another mix in the second 25 litre container. Every 3 minutes a new batch should be made.

APPLICATION

1. The use of floor lights is critical during application to ensure even spread and levelling is achieved.
2. Divide the floor into panels not greater than 5m wide. This will ensure that fresh product is applied onto the wet edge of the previous kit.
3. Apply one kit of Stonclad UL ESD at 5m^2/kit by pouring the mixture in a line onto the floor and raking out a 7mm notched trowel, spreading evenly at a thickness of 3mm. This application should not take longer than 1 minute.
4. Ensure material is level before spike rolling the first kit for a full 5 minutes.

5. The spike rolling team wearing "spiked shoes" will be standing in the material, rolling backwards and forwards in a uniform direction, moving every 5 minutes from one applied kit to the next. Failure to follow a uniform spiking period will lead to an uneven appearance.
6. Do not re-roll material after 8 minutes of application.
7. Allow to cure for 12 hours at 25°C before re-cutting joints and seal with Pro-Struct 748 Non-moving sealant.

CURING

If temperatures are between 16 to 30°C, the coating system can be exposed to light traffic after 24 hours. Excessive traffic, aqueous cleaning and exposure to aggressive chemicals should only take place after 4 to 5 days, when full cure has been achieved.

ELECTRICAL TESTING

The floor must be tested after application of Stonclad UL ESD Mortar. Once the floor is tack-free, point-to-point and point-to-ground readings should be taken. All values must fall below 1.0 x 10^6 ohms (Ω).

COLOUR UNIFORMITY

Erratic periods of mixing and variable times of spike rolling will lead to an uneven colour and non-uniform appearance. The use of a well displayed clock and fully trained staff is essential.

RECOMMENDATIONS

- **DO NOT** attempt to install material if temperature of components and substrate are not within 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.
- Protect areas from dust and isolate access. Contamination between layers will affect the final appearance.
- Avoid contact with all liquid Parts A and B as they may cause skin and/or eye irritation. Workmen should cover hands with protective creams or rubber gloves and wear safety glasses.
- Use only with adequate ventilation.

NOTES

- Procedures for maintenance of the flooring system during operations are described in "StonCor Cleaning Procedures".
- Specific information regarding chemical resistance is available in the Chemical Resistance Guide for Stonclad UL.
- Material safety data sheets are available on request.
- A staff of technical service engineers is available to assist in installation or to answer questions related to our flooring products specifically or flooring problems in general.
- Requests for technical service or literature can be made through local sales representatives and offices, or corporate offices located throughout the world.

COLD CONDITIONS

Low temperatures decrease flow, delay set and affect water resistance and final appearance. Materials should be conditioned for 16 hours at 21 to 27°C; heaters should be utilised to warm floors.