

Statguard ESD 104

Conductive grade ESD flooring



TYPE 5 EFNARC GUIDELINE

FLOW APPLIED FLOORING

Description

Statguard ESD 104 system is as an epoxy based resinous flow applied, conductive flooring. Statguard ESD 104 have been designed for the areas to impart a static conductive flooring system where the surface resistivity is within the range of 1×10^4 - 1×10^6 ohms. Statguard ESD 104 system includes a primer, copper tape, conductive middle coat and a self smoothing carbon fibre induced top coat.

Uses

- Ammunition plants
- Storage silos
- Electronics manufacturing
- Automobile Paint Booth
- Hospital OT
- Solvent Handling areas
- Aircraft Hangar

Key features

- Durable and low maintenance
- Superior chemical resistance
- Seamless
- Available in attractive shades
- Conductive in nature

Properties

Type	: Epoxy	Mixing ratio	: Pre-weighed packs
Finish	: Glossy	Colour	: Desired shade
Pot life @ 27°C ASTM D 2471	: ≥ 70 min	Solids content by wt ASTM D 2369	: 95%
Drying time ASTM D 1640		Recommended DFT ASTM D 7091	: 1000 microns
Surface dry	: ≥ 2.30 hrs	Application	: By notched trowel and spike roller
Tack free dry	: ≥ 8 hrs	Shelf life	: 12 months in the unopened container
Hard dry	: ≥ 24 hrs		
Recommended thinner	: PUT 502 (Clean up)		

Performance data

The mandatory performance parameters as per FeFRA and EFNARC guidelines for resin flooring system

Pull of adhesion test ASTM D 7234-2022	: ≥ 2 MPa for M20 grade concrete or Concrete failure
Abrasion resistance ASTM D 4060	Max 15 mg loss (in 1000 cycles)
Impact resistance ASTM D 2794-1993	: 9.8 Joule
Slip resistance BS 8204	: 36 PTV - moderate risk of slip
Surface resistivity ASTM F 150	: 10^4 - 10^6 ohms

Other mechanical properties

Flexural strength ASTM D 790-2017	: 10 N/mm ²
Tensile strength ASTM D 638-2014	11 MPa
Elongation ASTM D 638-2014	: 1.6%
Hardness, Shore D ASTM D 2240	: 73
Resistance to spread of Flame : EN ISO 11925-2	: Class B _{f1} s1
Critical flux EN ISO 9239-1	: 13 kW/mm ²

Note : The typical physical properties given above are derived from testing in a controlled laboratory environment. Results derived from testing field-applied samples may vary, dependent on actual site conditions

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Chemical resistance

Excellent resistance is observed against distilled water, detergent solutions, alkalis and acids. Chemical spillages should always be wiped up as quickly as possible and not be allowed to concentrate up by evaporation. The data on the list of the chemicals found resistant to this product during our lab study is available on request.

Application instruction

Surface preparation : The long-term durability of the applied Statguard ESD 104 is dependent upon the adhesive bond achieved between the flooring material and substrate. It is most important therefore, that substrate surfaces are correctly prepared prior to application. Ensure that the residual moisture level in the concrete is below 5%. All substrates should be sound and free from contamination such as mortar and paint splashes, curing compound residue, oil, grease. Excessive laitance should be removed by light mechanical scrubbing, grinding or grit blasting. Oil and grease contamination must be completely removed by grinding down to sound, clean concrete. Alternatively, blasting techniques can be used to provide the required substrate. All concrete surface to be prepared using shot blasting machine or grinding to achieve CSP 3-4.

Priming : Cipoxy 17 / 18 Resin and Cipoxy 17/18 Hardener is supplied separately in 20 ltrs packing. Mix Resin and Hardener in equal proportions. Solvent or thinners should not be added. A forced action mixer with a paddle fitted into a heavy duty, slow speed electric hand drill is recommended for mixing. The material is poured onto the prepared substrate and spread to the required thickness with a roller. Allow to cure overnight. Porous floors may require two coats of primer. Overcoating window time should not exceed 24 hours. In case overcoating window exceeds 24 hours, recoating of primer is necessary.

Application of Copper Tape : 50mm wide copper tape (Preferably from 3M) to be fixed over the primed surface along the length and breadth of the surface and a grid size of 4-9 sq.m to be created depending of the room size. Copper tape to be terminated at earthing

points properly. All the copper tape should be fixed properly with the surface.

Application of ESD Undercoat layer : After application of copper tape, ESD undercoat, like Aquoxy ESD, having resistance of $1 \times 10^3 - 1 \times 10^4$ ohms, to be applied over the entire surface, covering all the copper tapes, with coverage of 7.5 sq.m / Ltr.

Mixing & Application : Statguard ESD 104 is supplied in pre-weighed packs ready to use on site. Solvent or thinners should not be added. PART A of the product to be taken in a bucket and pigment to be added and forced action mixer with a paddle fitted into a heavy duty, slow speed electric hand drill is recommended for mixing. Carbon fiber to be added in the mix and to be mixed for a minute before we add PART B into it and continue to mix for 30 seconds to 1 minute. The powder part to be added in the mix slowly and mix till the homogenous mix achieved. The material is poured onto the primed substrate and spread to the required thickness with a notched trowel. Deaerate the layer by a spike roller and allow to cure for 24 hours.

Packaging and theoretical coverage

Primer : Cipoxy 17 / 18 is available in 20 litre packing, having a coverage of 5 sqm / litre @ 200 microns

Middle coat : Aquoxy ESD is available in 20 litre packing, having a coverage of 7.5 sqm / litre.

Top coat : Statguard ESD 104 (clear) is available in 16.011 kg pre weighed kits. 1 set covers 10 sqm @ 1mm.

Pigment for top coat : available in 400 gms packing to be mixed with Statguard ESD 104

Limitations

Self-smoothing is a term used in the flooring industry to describe a composition which after being spread to a uniform layer of appropriate thickness, develops a smooth, resin-rich surface. This self-smoothing action is very localized and does not eradicate irregularities of level present in the original substrate. It is most important, therefore, that adequate surface preparation and repair is undertaken prior to application. It is not compatible for application over asphalt, unmodified sand-cement screeds or PVC tiles and sheets. STATGUARD ESD 104 will be scratched due to nails or sharp objects protruding from machinery, packings, or trolleys moving on the floor. Presence of sand will also cause abrasion. The product is not advised to be applied below 15 °C as the flow reduces. While applying the product above 35 °C, there can be a problem of low pot life etc., and it will be difficult to apply the material. Cured product is not suitable for exposure to sub-zero temperatures and above 65 °C. When there is not enough material in a given area, roller marks caused due to spiked rolling may not close which will result in an undesirable finish. The product is not suitable for areas exposed to direct sunlight.

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Do's

- Clean regularly
- Remove aggressive chemical spillage immediately
- Maintain wheel for proper rolling, should not get dragged.
- Handle heavy material gently and cautiously
- Clean any oil or any liquid which may cause accident during people's movement

Don't

- Drag any sharp and heavy object
- Expose to fire or welding spark
- Expose to very high temperature than recommended by Manufacturer
- Drop down and heavy material on the floor
- Expose to highly corrosive chemicals

Storage and handling

The product should be stored in accordance with national regulations. It should be kept in a cool, well ventilated area, away from heat, direct sunlight, sparks and children. Handle with care.

Health and safety precautions

Please refer to MSDS. Observe reasonable care and employ ordinary hygienic principles such as washing the hands with soap and water before eating or smoking. It is recommended to wear gloves, goggles and nose masks while application. Incase of splashes on the skin, dampen the cloth with thinner PUT 503 and wipe the hands with the cloth. Wash then with soap and water. Dried film is non toxic. Incase of contact with eyes, rinse with plenty of water and seek medical advice. Incase of continuous exposure to vapour, the applicator should be immediately moved to get fresh air. The disposal of excess or waste material should be carried out in accordance with the local legislations.

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