Duracrete ESD 2000

5 Component PU Concrete for surface resistivity range 10^6 to 10^9

TYPE 5 EFNARC GUIDELINE

FLOW APPLIED FLOORING

Description

Duracrete ESD 2000 is a five component PU Concrete ESD flooring recommended for the most demanding application in the industry. Duracrete ESD Is a water based, polyurethane flooring system designed to provide an extremely abrasion and chemical resistant static dissipative floor topping. Durarcrete ESD 2000 is generally applied at a thickness of 2mm. Duracrete ESD is available in limited colours.

Uses

- Automobiles floors with heavy traffic movements.
- Waterhouses and loading docks
- Light and heavy engg. industries
- Chemical and fertilizer plants
- Foundries, iron and steel plants
- Steam cleaning areas in pharma
- Paints shops
- Hangars

Key features

- Static dissipative
- Water based and hence VOC compliant
- Fast setting
- Highly abrasion resistance
- Highly impact and chemical resistance
- More durable than most of the flooring systems

Certified

Properties

Type	:	PU Concrete	Mixing ratio	:	Pre-weighed packs
Finish	:	Matt	Colour	:	Limited colours available
Pot life @ 27°C ASTM D 2471	:	17 minutes	Volume Solids ASTM D 2697	:	≥ 95%
Drying time ASTM D 1640			Recommended thinner		PUT 502 (Clean up)
Surface dry	:	≥ 90 min			
Tack free dry	:	≥ 3.3 hrs	Shelf life	:	6 months in the unopened container
Hard dry	:	≥ 24 hrs			

Properties

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 / Concrete failure
Impact resistance ASTM D 2794-1993	:	9.81 N.m (Falling weight : 1 kg)
Abrasion resistance ASTM D 4060-2019	:	Max 25 mg loss
Slip resistance : Pendulum test BS 8204	:	52 PTV - low slip potential

Other mechanical properties

Flexural strength ASTM D 790-2017	:	10.8 N/mm^2
Tensile strength ASTM D 638-2014	:	8.5 N/mm^2
Elongation ASTM D 638-2014	:	1.4%
Shore D ASTM D2240-2015	:	74
Scratch resistance IS 101 Part-5 / Sec-2	:	Pass (No Rupture) - Upto 4 kg
Water absorption ASTM D 2247	:	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

Duracrete ESD 2000 offers excellent chemical resistance to varied chemicals: from acids to solvents. Duracrete ESD 2000 is resistant to many chemicals commonly encountered in food and beverage industries such as 50% acetic acid (vinegar), 30% lactic acid (acids present in milk and dairy products), citric acids (acid present in citrus fruits and limes), oleic acids (organic acid formed by oxidation of vegetable and animal fats). A full list of chemicals resistant to Duracrete ESD 2000 is available on request. Strong solvents may soften Duracrete ESD 2000 on continuous immersion, but the film will regain its strength once the solvent is evaporated. A few substances will make stains on Duracrete floors on continuous exposure. It should be noted that discolouration is not termed as film failure. Staining can be minimized by effective cleaning.

Directions to use
Surface preparation

The long-term durability of the applied Duracrete ESD 2000 coating 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, or grease. Excessive laitance should be removed by light mechanical scrabbling, 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. Grooves of 5mm x5mm to be created at all termination areas as required and to be filled with DURACRETE ESD 2000 scratch coat only over groove. Next process is laying Duracrete ESD 2000 top coat.

Priming

Prepared substrates to be treated with Duracrete ESD 2000 coating, should be primed with Aquoxy 50 primer. It should be mixed in the proportions supplied by adding the entire contents of hardener can to the base can. Once mixed Aquoxy 50 should be immediately applied in a thin, continuous film using stiff brushes or rollers. Over application and puddles should be avoided. Porous floors may require two coats of Aqoxy 50 primer. It should be allowed to become tack free prior to application. Primer coverage will depend on the texture and porosity of the substrate and also the application thickness. Overcoating window time should not exceed 24 hours. Incase overcoating window exceeds 24 hours, recoating of primer is necessary. Copper tape of 25mm wide to be fixed on the entire floor as per designed layout and at the periphery of the floor in grid pattern. All copper tapes to be terminated at the designated earthing point. AQUOXY ESD coating to be applied over the copper tape at a designated coverage.

Mixing & Application :

Duracrete ESD 2000 is supplied in pre-weighed packs ready to use on site. Solvent or thinners should not be added. Application of Carbon fibre need to be added into resin part and to be mixed first and followed by addition of pigment, hardener and aggregate part one by one and to be mixed for 2-3 minutes to achieve a homogenous mix. 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 AQUOXY ESD coated substrate and spread to the required thickness with a notch trowel and spike roller. Apply in two coats. Allow to cure overnight. Allow trafficking after 48 hrs.

Packaging and theoretical coverage

Duracrete ESD 2000 is available in pre-weighed kits of 11.81 kgs containing resin, hardener, reactive aggregate, carbon filler and DPI. It has maximum shelf life of 6 months in the unopened containers.

Coverage : 1 set cover 3.5 sqm @ 2mm

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. It contains inflammable solvents. Mix resin and hardener as per the recommended ratio. Use the mix solution within the pot life time.

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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Do's	Don't
Clean regularly	Drag any sharp and heavy object. Movement of metal wheel trolley
Remove aggressive chemical spillage immediately	Expose to fire or welding spark
Maintain wheel for proper rolling, should not get dragged. Nylon / teflon wheel trolleys are recommended	Expose to very high temperature than recommended by Manufacturer
Handle heavy material gently and cautiously	Drop down any heavy material on the floor
Immediately clean spillage of any oil or fatty liquid which may cause accident during people's movement	Expose to highly corrosive chemicals

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 screed or PVC tiles and sheets. Duracrete ESD 2000 coated floor 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 advices to be applied below 15 ^{0}C as the flow reduces. While applying the product above 35 ^{0}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 ^{0}C.

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