Durex® Dur-A-Static ESD 200 System

Conductive Epoxy-Based Electrostatic Discharge (ESD) Flooring System

Description

Durex® Dur-A-Static ESD 200 System is a high-performance epoxy-based electrostatic discharge (ESD) flooring system. Engineered for a number of substrates, Durex® Dur-A-Static ESD 200 System is designed for use as a static dissipative system that provides electric conductive resistance to protect sensitive electronic equipment and machinery. The system performs to a range of 2.5 x 104 to 1.0 x 106 ohms. The system consists of a priming/leveling layer which is then combined with conductive grounded copper wire, Durex® Dur-A-Static ESD 200 System100 intermediate conductive coat and Durex® Dur-A-Static 200 Topcoat.

Uses

Durex® Dur-A-Static ESD 200 System is to be used as an Electrostatic Discharge (ESD) flooring system to provide electrostatic control properties to concrete and other construction substrates. It is recommended for floors in environments where static electricity and stray currents produced by friction could pose risks of explosions or interference with the working of precision electronic instruments.

Ideal For

- Data Processing Centres, Computer and IT-related rooms and processing facilities
- Dry powder filling and handling facilities
- Solvent handling facilities
- Flammable gas handling locations
- Aircraft and aerospace facilities and hangars
- Pharmaceutical plants
- Hospitals and health care facilities / laboratories
- Electronic-based manufacturing facilities and production areas with electrically sensitive equipment
- Computer, conductor and circuit board production areas
- Explosion hazard facilities

Features

- Protects sensitive electronic parts from the effects of static charges by dissipating them away
- Prevents explosions due to sparks of accumulated static charges by effectively conducting it away
- Avoid errors in readings recorded by sensitive electronic instruments monitoring vital parameters
- Enables easy maintenance of clean room environment through its seamless, pore-free smooth surface
- Improves the working environment by its pleasant aesthetics
- Conforms to ANSI S20.20, < 3.5 x 10^7 ohms when tested in accordance with ANSI STM 97.1
- Available in conductive range (2.5 X 10^4 to 1.0 X 10^6) ohms per ANSI/ESD S7.1/ASTM F-150
- Low BVG, Body Voltage Generation
- Maintain electrical resistance throughout coating thickness

TECHNICAL DATA

PHYSICAL PROPERTIES	DUR-A-STATIC ESD 100	DUR-A-STATIC ESD 200
Colour	Black	Please see *Durex® Colour Selection Guide* for available colour options
Resin Type	Water-based Epoxy	Cyclo-aliphatic Epoxy
Mix Ratio	Part B (Hardener) : Part A (Resin) 3:1 by volume	Part A (Resin): Part B (Hardener) 2:1 by volume
Coverage	380-400 ft2/gal @ 4-5 mils WFT	88-130 ft^2/gal @ 12-18 mils DFT
Cure Time @ 23°C	To recoat: 8-24 hours	To touch: 8-12 hours Light traffic: 48 hours Fully cured: 7 days
Pot Life @ 23°C	2 hours	20 minutes
Recommended Film Thickness	4-5 mils WFT	12-18 mils DFT

PERFORMANCE PROPERTIES			
TEST	**METHOD SYSTEM100**	**DUR-A-STATIC ESD 200**	**DUR-A-STATIC ESD 200 SYSTEM200**
Percent Solids	ASTM D 7232-06	55%	100%
V.O.C.	ASTM D 3960	0 g/L	≤ 15 g/L
Specific Gravity (Mixed)	ASTM D 333	1.13 ± 0.05 g/L	1.25 ± 0.05 g/L
Viscosity (Brookfield, 23°C)	ASTM D 2196	1000-1500 cps	1000 cps
Abrasion Resistance	ASTM 5178-91 CS-17 wheel		75 mg loss, 1000 g load, 1000 cycles
Tensile Strength	ASTM D 638-86	-	6,000 psi
Compressive Strength	ASTM C-579		11,200psi
Adhesion to Concrete	ASTM D-4541	> 400 Psi Concrete fails	> 400 Psi Concrete fails
Shore D Hardness	ASTM D 2240		80

Packaging

Durex® Dur-A-Static ESD 200 System100 is packaged 3.78 L (1 gal) kit and Durex® Dur-A-Static ESD 100 is packaged 3.78 L (1 gal) and in 18.9 L (5 gal) kits. Durex® Dur-A-Static ESD 200 is available in limited grey colours.

Storage Conditions

Store Durex® Dur-A-Static ESD 100 and Durex® Dur-A-Static ESD 200 in a dry, vented, waterproof location, stacked off the ground, out of direct sunlight and other detrimental conditions. **KEEP FROM FREEZING**.

Surface Preparation

Surfaces to be coated must be free of dirt, oils, and any other contaminants that may prevent proper adhesion. Contact Durabond Technical Services for surface preparation methods of surfaces contaminated by oil or other materials.

Concrete: New concrete shall be allowed to cure for a minimum of 28 days and to achieve a compressive strength of concrete of at least 25 MPa (3,625 psi) before coating. Durex® Epotel Moisture Block 100 can be used as a moisture-mitigating primer for application on new slabs after 14 days or for slabs with high moisture content. Consult your Durabond Technical Representative for further information. Prepare surfaces by shot blasting to achieve a profile consistent with ICRI CSP 3-4. For waterproofing applications on suspended slabs, apply over top of Durex® Uraflex 360 Waterproofing Membrane. Refer to ASTM C1127 for crack treatment. Treat static cracks up to 1/16 inch with Durex® Uraflex 360 Elastomeric Polyurethane Waterproofing Membrane. Rout and seal all dynamic/moving cracks and static cracks greater than 1/16 inch with a polyurethane sealant and reinforce where applicable. Consult your Durabond representative for further information.

Mixing Instructions

Mixing shall be carried out in a clean, rust-free container, and mixed by a power drill at 400-500 rpm maximum. See the respective product data sheets for specific mixing ratios and instructions.

Application

Isolation Layer Primer: Use of Durex® Epotel Multi-Prime or Durex® Epotel 100 GSC High-Performance Smooth Epoxy Floor Coating as a primer or isolation layer. Mixing shall be carried out in a clean, rust-free container, and mixed by a power drill at 400-500 rpm maximum. Mix two (2) parts by volume of Part 'A' epoxy resin with one (1) part by volume of Part 'B' amine binder. Mix for at least two (2) minutes. Apply immediately at a rate of 10 mils DFT for best working time and results. Allow the primer to cure until tack-free before applying subsequent coats. Ensure that the isolation layer primer is pore and pinhole free, providing uniform and complete coverage over the entire substrate. Please consult your Durabond representative for further details.

Electrical Grounding: A network of self-adhesive, conductive copper tape is always recommended in combination with any Durex® Dur-A-Static ESD 200 anti-static flooring system. The copper tape must be applied directly onto the cured Durex® Epotel Multi-Prime or Durex® Epotel 100 GSC layer, maximum 1 meter in from the perimeter of the application. Further strips of tape should be applied within this area every 3 metres. Special attention should be paid to tape areas passing over expansion or bay joints to ensure permanent electrical continuity. The applied tape should be secure and fully bonded to a confirmed earth point. A minimum of one (1) grounding point per every 93 m^2 (1,000 ft^2) of flooring should be established, with a minimum of two (2) ground connections for any isolated area less than 93 m^2 (1,000 ft^2) in order to achieve proper dissipation of static electricity.

Intermediate Conductive Coat: Durex® Dur-A-Static ESD 200 System100 is supplied in proportionate quantities in 2-component containers. The entire contents of the A component are emptied into the previously stirred B component. The two components are mixed until homogeneous for at least 2–3 minutes using a suitable low-speed mixing drill and a non-air entraining mixing paddle. The inclusion of air in the stirring process must be avoided. Durex® Dur-A-Static ESD 200 System100 is poured onto the surface and spread very thin over the entire area using a rubber squeegee (consumption approx. 380-400 SF/ gallon) and rolled with a short pile roller (max. 8 mm) afterwards. To obtain a homogeneous good conductivity and correct curing, it is very important that the conductive layer is applied evenly over the whole area. No sand or thixotropic agent may be added and no sand shall be spread on the surface of the conductive layer. A value of < 5.0 X 103 ohms should be achieved as per ANSI/ESD S7.1 or ASTM F-150.

ESD Body Coat: Apply Durex® Dur-A-Static ESD 200 over cured Durex® Dur-A-Static ESD 100 with substrate and ambient temperatures above 10 degrees C. For best results, apply by squeegee followed by back-rolling. The notched squeegee should be 450 to 600 mm (18 to 24 in) long with 1.6 -3.2 mm (1/16 to 1/8 in) notches at 6.4 mm (1/4 in) intervals.
Typically, this type of squeegee is used to apply sufficient material to achieve 12 - 18 mil thickness when back-rolled. Recommend to apply material along perimeter edges with 75 mm (3 inch) - 100 mm (4 inch) wide synthetic brush, followed by a lint-free 12 mm (1/2 inch) pile roller. Carefully organize the work with sufficient tradesmen to complete an entire section at natural break points.
Avoid stop and start lines within any one section. Ensure that the final stroke of the roller is always in the same direction and with the same pressure applied to the roller. Maintain a wet edge to prevent overlap marks and gloss differences. Divide the floor into sections that can be applied and completed without interruption. When ending a section, tape it off to form a clean, straight edge for an adjacent section.

Limitations

Durex® Dur-A-Static ESD 200 System shall not be installed under the following conditions:

- Concrete slabs with a moisture content greater than 4% be weight
- High-compression (super-plasticized) concrete slabs
- Application temperature is less than 3 degrees Celsius above dew point
- On-grade slabs and split concrete slabs with existing membrane coating
- Minimum ambient and substrate temperatures: Below 10 degrees Celsius

Clean-up

Wash tools and equipment immediately with mineral spirits or solvent-based cleaner. Allow any unused product to harden in container and discard according to local regulations.

Health and Safety

Use rubber gloves when handling the product and wear proper safety equipment when handling and using this product. Avoid contact with eyes and prolonged contact with skin. Read published Safety Data Sheet prior to use and for additional information.

Warranty

Durabond warrants this product is free of manufacturing defects, and will replace at no charge, provided it has been applied within 12 months of purchase, it has been installed for uses suitable for this product and in accordance with the manufacturer's instructions.

Technical Services

Technical support is available upon request at info@durabond.com. For the latest version of this data sheet, please visit our website at www.durabond.com, call toll free at 1-877-DURABOND (387-2266) or speak with your Durabond Technical Coatings Ltd. sales representative.