

# DATA SHEET FOR **GROUNDWORX ULTRA ESD URETHANE TOP COAT**

## PRODUCT DESCRIPTION AND USE

GroundWorx Ultra ESD urethane top coat is a low odor, chemical resistant, aliphatic polyester ESD coating designed to provide static control properties. GroundWorx Ultra ESD top coat produces a nonyellowing, semi-gloss to satin finish and can be pigmented in a wide variety of colors. It can be installed in a wide variety of environments where the harmful effects of electrostatic discharge must be avoided. GroundWorx Ultra ESD urethane meets ESD Association (ESDA) standards and is compliant with ANSI/ESD S20.20-2014 recommendations for grounded static-control flooring.

## TECHNICAL DATA

### Physical Properties

- Flash Point (ASTM D3278) ..... 187°F (86°C)
- Solids Content (ASTM D2369) ..... 75%
- Mixed Viscosity (D2196) ..... 300-500 cPs
- Volatile Organic Compounds ..... < 250 g/l
- Cure Time @ 75°F:
  - ◊ Dry to touch, tack free: 8 hours
  - ◊ Fully dry: 16-24 hours
  - ◊ Full Cure: 7-14 days

### Performance Properties

- Abrasion Resistance (ASTM D4060) ..... 25 mg
- Coefficient of Friction (ASTM D2047, James Test) ..... 0.55 – 0.65
- Tensile Strength (ASTM D2370) ..... 6,160 PSI
- Elongation (ASTM D2370) ..... 8%
- Impact (ASTM D2794) ..... 140 in/lbs, direct & reverse
- Hardness (ASTM D3363) ..... 2H
- Thickness ..... 3-4 mils
- Electrical Resistance (ASTM F-150, ANSI/ESD S7.1) .....
  - ◊ Point to Point:  $2.5 \times 10^4 - 1.0 \times 10^6$
  - ◊ Point to Ground:  $2.5 \times 10^4 - 1.0 \times 10^6$
- Body Voltage Generation (ANSI/ESD STM97.2) ..... < 15V
- Static Decay (ASTM F-101C) ..... 5,000 - 0 Volts in <0.1 seconds

\*Properties and results are based on laboratory testing at 72°F (22°C) and 50% RH, theoretical calculations, and estimates. Typical properties, as stated, are to be considered as representative of current production and should not be treated as specifications.

## GENERAL INFORMATION

### Storage

Materials should be stored in original un-opened containers indoors between 65°F (18°C) and 90°F (32°C) and at or below 50% RH.

**Shelf Life**

3 months from date of manufacture (un-opened)

**Substrate**

The substrate must be free of curing membranes, silicate surface hardener, paint, or sealer and be structurally sound. If the concrete has been treated or sealed, proceed with complete removal process. Contact StaticWorx for further instruction if silicate hardeners or membranes have been utilized.

**Limitations**

If contaminants of oils, silicones, mold release agents, and/or others are present, GroundWorx Ultra ESD top coat may fisheye or delaminate from the surface. Surface contaminants should be removed with a suitable detergent prior to application. Solvent cleaning of silicone contaminants may make the situation worse; please contact StaticWorx for additional recommendations.

**Moisture**

Moisture and vapor transmission rates are dynamic in nature and may change over time. Initial testing does not guarantee future results. StaticWorx requires that all concrete slabs are tested using in-situ probes per ASTM F-2170 and with calcium chloride tests per ASTM F-1869. If the relative humidity of the concrete substrate is over 75% (per ASTM F-2170) or 3lbs/1,000ft<sup>2</sup>/24 hours (ASTM F-1869), contact StaticWorx for a moisture mitigation recommendation prior to product use.

**Vapor/Contamination**

If there is no known vapor barrier or the vapor barrier is inadequate, there is an elevated risk of bond failure. Other factors including the migration of oils, chemicals, excessive salts or Alkali Silica Reaction (ASR) from the concrete may also elevate the risk of adhesion difficulties. Contact StaticWorx for approved mitigation treatments.

**Temperature & Humidity**

During the application and curing of the coating, the substrate temperature, material temperature, and room conditions must be maintained between 65°F (18°C) and 80°F (26°C). Relative Humidity (RH) should be limited to 30- 70%. DO NOT apply coatings unless the surface temperature is more than five degrees over the dew point.

**Equipment**

- Protective equipment and clothing
- Jiffy mixer blade, model ES
- Clean container for mixing
- Low speed high torque drill motor
- High quality lint-free roller covers (3/8 in nap)
- Squeegee (for smooth finish)

**Surface Preparation**

Surface dirt, grease, oil, and contaminants must be removed by detergent scrubbing and rinsing with clean water. Shot blasting or grinding the surface is the preferred method of preparation. The success of industrial diamond grinding as a concrete preparation method will vary depending on technique and the hardness of the concrete.

### **Joint Treatment**

All control joints can be filled with a rigid or semi-rigid joint compound. Construction joints may be filled with semi-rigid joint filler and might need to be re-built and re-cut depending on conditions.

### **Electrical Grounding**

Installing GroundWorx Ultra ESD primer between the concrete surface and GroundWorx Ultra top coat is mandatory. The coating must be grounded to an earth ground once every 1,000 square feet for proper static dissipation. The EOS/ESD Association provides instruction for proper grounding of ESD equipment and floors. Contact StaticWorx for proper grounding techniques and product certification.

### **Mixing Instructions**

Premix the 2 gallon pail of Part A with a small mixing paddle attached to a drill in order to re-disperse possible settling that may have occurred during storage and shipping. Then add the color pack and mix together until a homogenous color is obtained throughout the 2 gallon pail. Next, empty the entire contents of Part A and color into a separate mixing container which will accommodate the 1.8 gallon mixed volume. Be sure to completely scrape out entire contents of the 2 gallon pail, using a blade or putty knife to remove any settled solids. StaticWorx strongly recommends pouring the mixture through a 125 micron nylon mesh paint strainer to remove any pieces of conductive particulate that may have not been thoroughly blended. Next, mix in the glass bead aggregate, if applicable. Finally, add entire contents of Part B and mix all components for 2-3 minutes at slow speed until uniform.

### **Application Instructions**

Apply GroundWorx Ultra ESD top coat at a rate of 3.5-5 mils (575ft<sup>2</sup> – 820ft<sup>2</sup> per pail) to the floor surface using a notched squeegee. If aggregate is utilized, GroundWorx Ultra top coat must be pan rolled and NOT squeegeed. Using a squeegee will produce lines of aggregate that will not roll out evenly. Back roll the wet coating using a 3/8 inch nap roller. Care should be taken to overlap and cross lap. One coat of GroundWorx Ultra top coat is all that is required to achieve the appropriate ESD properties. Be sure to sufficiently roll out the GroundWorx Ultra top coat to achieve an even film thickness throughout the entire area. Excessively thick areas (>5 mils) will exhibit slightly more gloss whereas thinner areas (<3.5 mils) will tend to produce a flatter/matte finish. Unlike most other ESD coatings, GroundWorx Ultra will not foam and produce bubbles from rolling. The material must be rolled enough so that the reflection is uniform, showing little to no signs of overlap, pooling, or contrasting thick and thin areas.

### **Working Time**

Material must be mixed, applied, and finish rolled within 20 minutes of mixing. Failure to achieve this may result in inconsistent or non-compliant electrical performance and may also provide an inconsistent finish. Do not combine multiple kits together unless this time table can be easily met.

### **Spreading**

Material applied too heavily may blister or can be soft during curing. Too little material may produce a non-uniform look and affect electrical performance. Industry best practice is to measure and grid the floor to be sure of proper application rate.

### **Cure Time**

Allow the coating to dry for a minimum 18 hours after application at 75°F (24°C) and 50% RH before opening the floor to light traffic. Allow more time for low temperatures and lower humidity or for heavier traffic. Full curing may take up to 7-14 days.

### **Handling Precautions**

Use only with adequate ventilation. Appropriate cartridge-type respirator should be used during application in confined areas. Avoid contact with skin; wear protective gloves. Read Material Safety Data Sheet before using.

### **Disposal**

Dispose in accordance with federal, state, and local regulations.

### **Maintenance Guidelines**

Allow floor coating to cure for at least 7 days before cleaning by mechanical means (i.e. sweeper, scrubber, disc buffer). Increased life of the floor will be seen with proper maintenance and will help maintain a fresh appearance. Regularly sweep to avoid retention of dirt and grime which can quickly dull the finish, decreasing the life of the coating. Spills should be removed as quickly as possible as certain chemicals may stain and can permanently damage the finish. Only soft nylon brushes or white pads should be used on your new floor coating. Premature loss of gloss can be caused by hard abrasive bristle Polypropylene (Tynex<sup>®</sup>) brushes.

### **Damages & Repairs**

Heavy objects dragged across the surface will scratch any floor coating. Avoid gouging or scratching the surface. StaticWorx recommends protecting the floor with plywood, Masonite, or Ram boards whenever heavy equipment is being moved in or out of the space. Pointed items or heavy items dropped on the floor may cause chipping or concrete chip damage. Plasticizer migration from rubber tires can permanently stain the floor coating. If a rubber tire is planned to set on the floor for a long period of time, place a piece of acrylic sheet between the tire and the floor to prevent tire staining. Rubber burns from quick stops and starts from forklifts and lift trucks can heat the coating to its softening point, causing permanent damage and marking. Repair gouges, chips, and scratches as soon as possible to prevent moisture and chemical under cutting and permanent damage to the floor coating.

### **Usage**

Installation of all products purchased must be by professional coatings installers. Unapproved modification to any StaticWorx product voids the warranty. The installer shall maintain a written record of field conditions (including, without limitation, surface and atmospheric conditions, usage rates, and lot numbers of products installed). StaticWorx reserves the right to inspect any installed product, installation, and/or maintenance records and records of field conditions and may conduct additional testing as is reasonably required to investigate any warranty claims. Warranty shall only apply for products or materials that have been paid for in full.

Moisture Vapor Transmission (MVT) and ASR (Alkali Silica Reaction) Disclaimer and Exclusion: Although rare, some floors at or below grade level are sometimes subjected to saturation by moisture from beneath the concrete floor slab. This moisture can travel through the concrete and collect between floor coatings, creating the potential for delaminating from hydrostatic pressure and or ASR. Conditions contributing to this include heavy rainfall, broken pipes, excess hydration within fresh concrete, and other factors or defective and old concrete. These factors are difficult, if not impossible, to predict. StaticWorx recommends testing for moisture and/or the presence of ASR in the concrete substrate prior to applying any polymer floor topping as detailed above. ASR can be predicted by a higher than normal pH within the concrete. If high pH should be detected, it is recommended that an independent lab test for ASR. If and when delamination of the floor occurs because of a moisture condition that exists beneath or in the concrete slab beyond the capacity of the individual product installed, or if a failure occurs due to ASR, the StaticWorx limited warranty will not apply.