Static Dissipative Floor Finish Application Instructions

Made in the United States of America



Figure 1. Static Dissipative Floor Finish
1 gallon bottle & 5 gallon bag-in-box

Description

Static Dissipative Floor Finish is a cross linked polymer used to convert hard non-ESD floors to ESD protective flooring and for use in protecting and enhancing ESD permanent flooring (vinyl, VCT, rubber and other flooring types*). It creates a dissipative (1 x 10^6 to < 1 x 10^9 ohms per ANSI/ESD STM7.1(Section 6.2) and ESD TR53) and Low Tribocharging (<100 volts per ANSI/ESD STM97.2) coating that meets or exceeds ANSI/ESD S20.20 minimum requirements for use as a primary grounding method and for charge generation of the footwear/flooring system. Statguard® Static Dissipative Floor Finish is 3-coat, 18% solids system (Approx 2000 sq ft/gallon) that reduces dry time and labor needed for initial application and on-going maintenance.

*Testing a small area for compatibility if Static Dissipative Floor Finish has not been used before is recommended.

SAFE WALKING SURFACE

UL Classified for slip resistance only. Underwriters Laboratory has evaluated Static Dissipative Floor Finish to their slip resistance standards to ensure employee safety and to mitigate user's liability exposure

General Guidelines

Static Dissipative Floor Finish eliminates triboelectric generated charges above 100V before costly damage can occur from personnel who approach static sensitive parts and products. also drains static charges from personnel who forget to reattach their wrist straps minimizing the damage that could occur from handling. Even when using conductive tiles, a substantial triboelectric charge may be generated. When Static Dissipative Floor Finish is applied over conductive tiles, the enhanced floor tile limits charge generation, for example, due to a person walking across the floor.

Generally accepted industrial stripping and floor finish application procedures are to be followed as outlined on pages 2 and 3 in this technical bulletin. Note: to avoid contamination finish mop and bucket should be dedicated to Static Dissipative Floor Finish use only.

NOTE: Static Dissipative Floor Care products do not have a set life span. The chemicals are not known to degrade over time when stored at the proper temperature conditions as stated in the Safety Data Sheet. We also recommend that these products be stored in their original containers and be sealed when not in use.

When Static Dissipative Floor Finish is fully cured, the floor finish does have white water resistance (a standard industry test of standing water) however water if left puddled on the surface will penetrate the surface like other floor finishes and may turn white or powder.

GROUNDING

Conventional grounding practices like electrically connecting Static Dissipative Floor Finish to ground is only required for applications of static dissipative floor finish that are less than 50 square feet. For applications that are greater than 50 square feet, the capacitance of Static Dissipative Floor Finish is MANY, MANY times greater than the capacitance of the human body model. The difference in capacitance is so great that the treated floor acts as a theoretical reservoir or natural ground. The capacitance and surface resistance of the treated floor will decay a 5000V charge to zero in .05 sec. per FTMS 101B, Method 4046. has substantially less than the maximum static decay time of 0.1 seconds. Per ESD Handbook ESD TR20.20 section 5.3.4.2 "Floor finishes and topical antistats, function by two separate mechanisms. First they reduce the surface's tendency to generate a static charge. Second, they provide a path for the dissipation of charge. The charge may dissipate over the surface of the finish or it may dissipate to ground if the floor finish is grounded."

To remove charge from personnel, ESD footwear is to be used in conjunction with ESD flooring. ESD footwear should be worn on both feet.

Dynamix
By Acabados Especiales

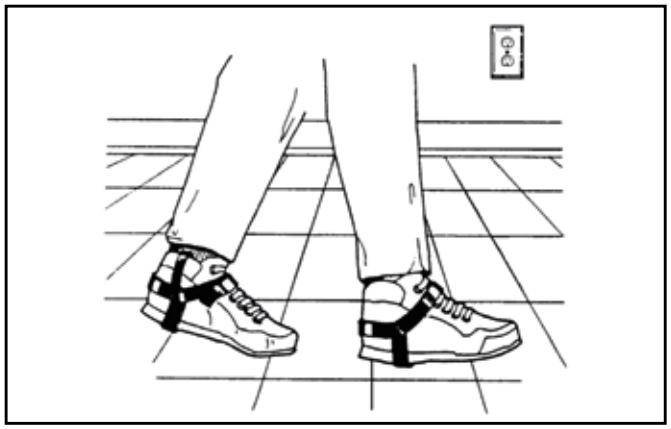


Figure 2. ESD footwear should be used on ESD flooring

Floor Finish Application

FLOOR PREPARATION - SURFACE

CONCRETE

Two measures are used to determine a good concrete surface for Static Dissipative Floor Finish:

1. The surface should be cleaned of all contaminants.
2. The surface should be dry or sealed.

SURFACE

Surface to be finished should be clean, dry, and smooth. Heavy dirt or grease build up should be removed with a stripper or degreaser. DO NOT use Static Dissipative Floor Finish on surfaces colder than 45° F. Static Dissipative Floor Finish contains zinc.

SEALING

Surface preparation is absolutely critical for porous materials such as concrete. Proper preparation simplifies application, increases durability, and is essential for proper adhesion of the coating to the substrate. Industrial grade polyurethane, vinyl, or acrylic base sealers are recommended to seal high porosity floors before applying the Static Dissipative Floor Finish. Enamel can be used for bare wood, and enamel undercoat with rust inhibitor for metal.

New concrete should cure for 60 days before sealing. Not all concrete surfaces are created equal. They vary widely in physical and chemical qualities due to the way the concrete was originally formulated, poured or finished.

Concrete surfaces are very porous and should be properly sealed prior to the application of Static Dissipative Floor Finish. There are several methods to prepare problem concrete. Each method depends on the condition of the concrete. Cleaning methods range from: sweeping, vacuuming, wire brush, air-blasting, water jet, steam cleaning, or stripping. Adhesion properties for the concrete sealer can be increased by profiling or roughing surface through acid etching, rotary drum sanding, scarifying, or mechanically scratching the surface. The concrete sealer will reduce the porosity of the concrete and provide a smooth and level surface for the finish. The sealer also provides a barrier to prevent any water migrating up through the concrete.

No Sealer Application: Sealing is recommended for increasing coverage and correcting problem concrete surfaces that are not dry or free from grease, oil, etc. If the subfloor surface is dry, level, and free from dirt, grease, oil, paint, sealer, old adhesives, and other foreign materials it may be suitable to applying Static Dissipative Floor Finish directly onto the concrete.

COVERAGE

Static Dissipative Floor Finish covers approximately 2000 square feet per gallon per coat on smooth surfaces. Coverage is less on coarse or textured surfaces. With 18% solids, Static Dissipative Floor Finish is easier to apply with significantly better productivity than competing brands.

DRY TIME

It is recommended that Static Dissipative Floor Finish be allowed to dry at room temperature in excess of 70°F for 1 hour or until dry for each coat. At high relative humidity levels, a longer drying time per coat may be necessary. Do not use force air drying. After the last coat, wait 6 hours before any light traffic, 12 hours before regular traffic, 72 hours before any wet maintenance, buffing, burnishing, and heavy equipment and floor truck traffic.

SECURELY CLOSE CONTAINER AFTER EACH USE.

Optional Base Coat

Conductive Epoxy or Acrylic Latex Paint can be used as a base coat to enhance the electrical properties where more conductive resistance is needed. Static Dissipative Floor Finish will seal out dirt, debris and protect the conductive surface allowing for ease of maintenance and enhanced shine. Static Dissipative Floor Finish is a polymer base floor finish/sealer that can be used as a top coat on the Conductive Epoxy or Latex Paint. Two coats are recommended, three coats will enhance electrical properties, durability and reduce frequency of maintenance.

FLOOR STRIPPER



Figure 3. Floor Stripper: 5 gallon bag-in-box

Stripping the floor is recommended for first time application of any finish. New tiles are supplied with a protective factory finish that protects during installation but should be stripped away prior to any floor finish application. Properly maintained floors should be stripped one to two times annually, depending on traffic and buildup of contaminated finish. Floor Stripper is recommended to strip multiple layers of floor finish or coatings.

EQUIPMENT NEEDED

- Push broom
- Single pad 175 RPM stripping machine (with black or green synthetic pad)
- Cotton Mop
- Low Residue Floor Stripper
- Buckets
- Wet vacuum
- Recommended: Neutralizer (46022) with a dedicated mop

APPLICATION

Always use in a well-ventilated area or wear a suitable respirator. Wear appropriate eye protection such as splash goggles and impervious type protective gloves. Mix Low Residue Floor Stripper with warm water. Please see the below table to find the accurate dilution ratio for your floor.

Gallons of Statguard® Stripper Concentrate	Gallons of Dilution (Water)	Total sq.ft covered	Sq. m. per Liter	Statguard® Floor Finish Build up
1	5	600	14.7	Light to Medium
1	1	200	4.9	Heavy
1	0.5	100	2.5	Heavy Aged

1. Sweep away all loose dirt and contaminants using push broom.
2. Apply diluted stripper liberally to the floor in need of stripping. Using a cotton mop, uniformly distribute the solution. Let the solution sit for 3 - 7 minutes. Do not let it dry.
3. Using a scrubbing machine at 175 RPM, and a synthetic pad (black or green), scrub the area to be stripped.

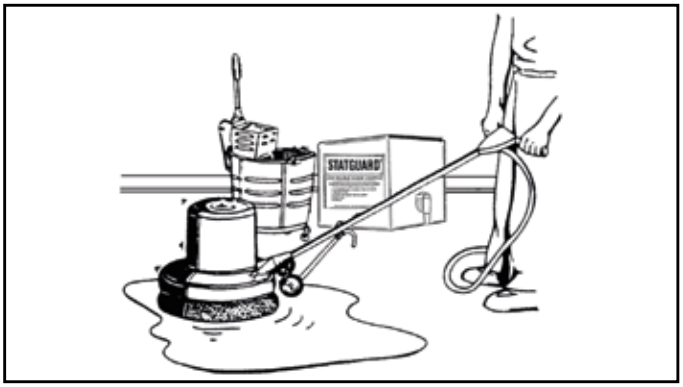


Figure 4. Stripping floor

4. Pick up the loosened solution using a wet vacuum or mop.
5. Repeat steps 2 – 4 to reapply Low Residue Floor Stripper if needed.
6. Rinse the area with Neutralizer (46022) using a dedicated mop.
   If neutralizer is not used, thoroughly rinse the floor three to four times with hot clean water to remove all spent chemicals.
   NOTE: Use neutralizer to rinse and bring the pH level down to pH level 7.0 (neutral). Using neutralizer is recommended to reduce the number of rinse steps needed to get the pH level of the floor to 7.0 (neutral).
7. Using a wet vacuum or mop, remove Neutralizer (46022) from floor.
   NOTE: If rinsing is not completed thoroughly, the remaining chemicals will soften new finish as it is applied, thereby diminishing its durability.
8. Test floor to ensure all stripper and old finish has been removed. Any shinny spots on the floor indicate old finish has not been removed.

Additional usage information can be found in Technical Bulletin TB-7026.

STATIC DISSIPATIVE FLOOR FINISH



Figure 5. Static Dissipative Floor Finish
1 gallon bottle & 5 gallon bag-in-box

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It is recommended that you apply two coats of Static Dissipative Floor Finish. After stripping the factory finish, new tile will have an initial high porosity and will require three coats on first application. For known high traffic applications, three coats are recommended for extended life.

If Static Dissipative Floor Finish freezes, allow it to thaw to 70° F and mix completely before application.



Figure 6. Applying floor finish with Flat Mop (optional).

FLAT MOP PROGRAM (OPTIONAL)

1. Flat mop can come with a refillable dispenser, that allows for easier determination of proper amount of Floor Finish / sq ft. For example, if the floor finish application rate is 1 gallon / 2000 sq ft, a 32 oz dispenser holds 500 sq ft of finish.
2. Flat mopping systems reduce workers fatigue as they are lighter in weight. Roughly three pounds when wet vs the traditional cotton loop mops which can weigh eight to ten pounds when wet.
3. The Flat mop with dispenser is faster, as one does NOT need to constantly “dip the mop and squeeze out excess”.
4. The flat mop doesn’t hold as much residual finish as a string mop, so the application of the proper amount of Floor Finish, is more precise.

Equipment needed:

- Clean rayon (or cotton blend) mop, dedicated to Static Dissipative Floor Finish use only
- Bucket dedicated to Static Dissipative Floor Finish use only.
- Flat mop (Optional)

1. Pour Static Dissipative Floor Finish into a clean and dedicated mop bucket and apply with a clean rayon (or cotton blend) mop using a figure 8 motion.
2. Let the first coat dry (at least 60 minutes), then apply a second coat. Do not use force air drying.



Figure 7. Applying floor finish

3. Let second coat dry for (at least 60 minutes) to yield a bright gloss. Repeat application to attain higher gloss and higher conductivity (two coats will provide acceptable dissipative resistance on most floors). Keep traffic from the floor for at least six hours after the last coat is applied. See dry time recommendations on page 2 in this technical bulletin.
4. One or preferably two additional coats of floor finish should be applied if the floor is to be maintained by dry burnishing or spray buffing.
5. Maintain the polish following the Dust Mop, Damp Mop, Floor Cleaner, Dry Burnish, or Spray Buff maintenance procedure below.

Floor Finish Maintenance

DUST MOP PROGRAM

1. Keep the floor surface clean. Use an untreated dust mop or push broom nightly or as needed to remove accumulated dirt and insulative contaminant.

DAMP MOP PROGRAM

1. Keep the floor surface clean. Use an untreated dust mop or push broom nightly or as needed to remove accumulated dirt and insulative contaminant.
2. To damp mop, use a 1 to 3 dilution of Static Dissipative Floor Finish in water (1 part to 3 parts water). Let dry thoroughly. The mop and bucket should be dedicated to use only.

MOP and RECOAT PROGRAM

To replenish solids that are worn away over time, a mop and recoat can be done after cleaning the surface. This can improve gloss and snap back electrical properties.

1. Follow the Damp Mop Program to clean the surface above (do not use the floor cleaner)
2. Pour Static Dissipative Floor Finish (undiluted) into a clean and dedicated mop bucket and apply a medium coat with a clean rayon (or cotton blend) mop using a figure 8 motion.
3. Let the coat dry (at least 60 minutes), then apply a second coat if needed. Do not use forced air drying.



Figure 8. Dissipative Floor Cleaner: 5 gallon bag-in-box

FLOOR CLEANER PROGRAM

Dissipative Floor Cleaner is formulated with dissipative agents that will rejuvenate and improve the static dissipative properties of floors treated with Static Dissipative Floor Finish.
Dissipative Floor Cleaner effectively cleans without leaving behind any harmful residue that can dull the surface or impede dissipation properties.
Dissipative Floor Cleaner is a non-alkaline detergent with a neutral pH, which requires no rinsing. Use the following procedure to clean treated floors with Dissipative Floor Cleaner. This product is also recommended for use on conductive floor tile and epoxy.

CLEANING SCHEDULE

Heavy to moderate traffic floors can be cleaned once a week. Light traffic floors can be cleaned 2 to 3 times a month or as needed.

EQUIPMENT NEEDED

- Push broom
- Clean and untreated mop
- 2 dedicated buckets (Clean bucket and rinse bucket)
- Dissipative Neutral Floor Cleaner

APPLICATION

1. Push broom the surface to be cleaned.
2. For damp mop, dilute Dissipative Floor Cleaner 10 to 1 (five (5) gallons of clean water to two (2) quarts of cleaner concentrate). For scrub use 15 to 1.
3. Thoroughly mix the cleaner solution before damp mop application. Use a clean, untreated mop to damp mop the area. Wring out excess fluid and do not flood a treated floor with water. For a scrubbing machine use 175 to 350 RPM with red pad.
4. Allow 30 to 60 minutes drying time before walking on the cleaned area.

Clean only with Dissipative Floor Cleaner , do not damp mop with plain water or with a high alkaline or high residue cleaner. Using harsh detergents can damage a treated floor's static dissipative properties or can degrade the finish.

Additional usage information can be found in Technical Bulletin TB-7041.



Figure 9. Dissipative Burnishing Restorer

DRY BURNISH PROGRAM

Dissipative Burnishing Restorer is a ready to use formulation that renews the unique protective properties and gloss of Static Dissipative Floor Finish with less of an investment in time, effort and money. Static decay properties, surface resistance characteristics and durability of the floor finish can be extended dramatically. The Restorer extends the re-coat cycle and significantly reduces the cost of maintenance.

BURNISHING RESTORER SCHEDULE

Heavy to moderate traffic floors should be treated two to four times per month. Light traffic floors should be treated once a month or as needed.

EQUIPMENT NEEDED

- Push broom
- 1000-1500 RPM burnishing machine (with a white or beige pad)
- Dissipative Burnishing Restorer

APPLICATION

1. Dry mop the coated area to remove loose dirt from coated floor
2. Use a clean untreated string mop to apply a thin coat of restorer onto floor. Allow it to dry 20 to 40 minutes.
3. Burnish the coated area with a 1000 to 2000 RPM rotary machine and a clean beige burnishing pad.
4. Dry mop the entire burnished area again.

Additional usage information can be found on Technical

Bulletin TB-7044.



Figure 10. Dissipative Spray Buff

SPRAY BUFF PROGRAM

Regular spray buffing will help to maintain floors treated with Dissipative Spray Buff at peak performance and appearance. Spray buffing with Dissipative Spray Buff will remove light surface soil while reviving the electrical properties of the treated surface.

SPRAY BUFF SCHEDULE

Heavy to moderate traffic floors should be spray buffed once a week or as needed. Light traffic floors should be spray buffed 2 to 3 times per month as needed. NOTE: Allow the floor finish to dry for at least seven days before spray buffing.

EQUIPMENT NEEDED

- Push broom
- 175-1500 RPM buffing machine (with a white or beige pad)
- Dissipative Spray Buff

APPLICATION

1. Sweep away all loose dirt and contaminants. Do not spray buff on a dirty floor.
2. Lightly spray a small area with the Statfree® Dissipative Spray Buff. Treat a small area at a time.

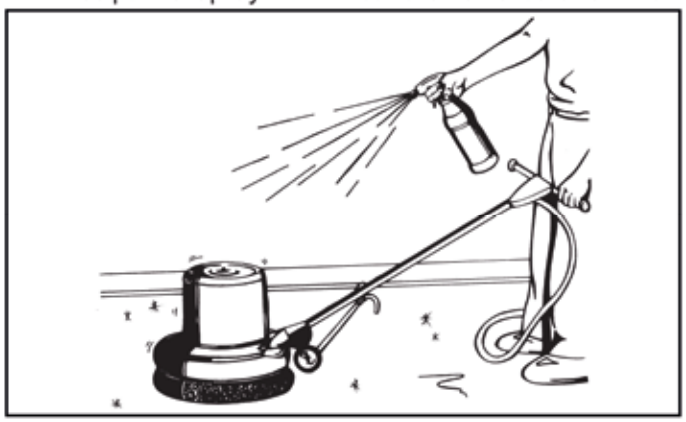


Figure 11. Applying Spray Buff

3. Buff the sprayed area at 175 - 1500 rpm until clean and glossy. The area must be buffed while in a liquid state. Do not allow it to dry.
4. After high speed buffing, dry mop the entire area with an untreated mop.

Additional usage information can be found in Technical Bulletin TB-7045.

Physical Properties

Base	Acrylic Polymer
Description	Aqueous Acrylic Emulsion
Abrasion Resistance	Exc. Crockmeter at 50% RH
Color	Off White Opaque, dries clear
Density	8.42 lbs/gal
Freeze/Thaw Stability	Exc. 3 Cycles at -10°C
pH	8.8
Slip Resistance	UL Approved*
%Solid	18%
Solvent	Water
Thermal Stability	Exc. 50°C/1 month
Viscosity	3.3 cps
Working Humidity	Range 30-60% RH

**Underwriters Laboratory (UL) tested for slip resistance only. Authorization and Registration Number SA6524.*

Electrical Properties

Surface Resistance	1×10^6 to $<1 \times 10^9$ ohms per ANSI/ESD S7.1 (Section 6.2) and ESD TR53
Low Charging	<50 volts per ANSI/ESD STM97.2
Charge Decay	5000V to 0 in 0.01 sec per FTMS 101C 4046

CLEAN ROOM CHARACTERISTICS

Contaminant	Dried Film	Liquid (Outgassing)
Sodium	Zero	Zero
Fluoride	Zero	Zero
Chloride	Zero	Zero
Bromide	Zero	Zero
Iodide	Zero	Zero

- Dried film testing was completed to simulate particulating.**
- Liquid analysis completed using GLC (gas-liquid chromatography)**

*** Analysis conducted at Armstrong Corporate Research Center, Lancaster, PA.*

Testing

In order to confirm the performance of Static Dissipative Floor Finish the surface resistance and charge generation of the flooring/footwear system should be checked periodically. Testing either point to point resistance (Rtt), resistance to ground (Rtg) and charge generation per ESD TR53 and S20.20 will indicate if the floor finish needs surface maintenance. High floor traffic areas will need more frequent maintenance than low traffic areas.