DESCO INDUSTRIES INC TECHNICAL BULLETIN TB-7042

Statguard® Static Dissipative Floor Finish Application Instructions

Made in the United States of America

Figure 1. Statguard® Static Dissipative Floor Finish

Description

Statguard® 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^{10} ohms per ANSI/ESD STM7.1 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 Statguard® Static Dissipative Floor Finish has not been used before is recommended.

SAFE WALKING SURFACE

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

General Guidelines

Statguard® Floor Finish eliminates triboelectric generated charges above 100V before costly damage can occur from personnel who approach static sensitive parts and products. Statguard® 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 Statguard® 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 Statguard® Floor Finish use only.

NOTE: Statguard® 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 Statguard® 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 Statguard® 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 Statguard® Floor Finish is MANY, MANY times greater than the capacitance of the human body model. The difference in capacitance is so great that the Statguard® treated floor acts as a theoretical reservoir or natural ground. The capacitance and surface resistance of the Statguard® treated floor will decay a 5000V charge to zero in .05 sec. per FTMS 101B, Method 4046. Statguard® 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.

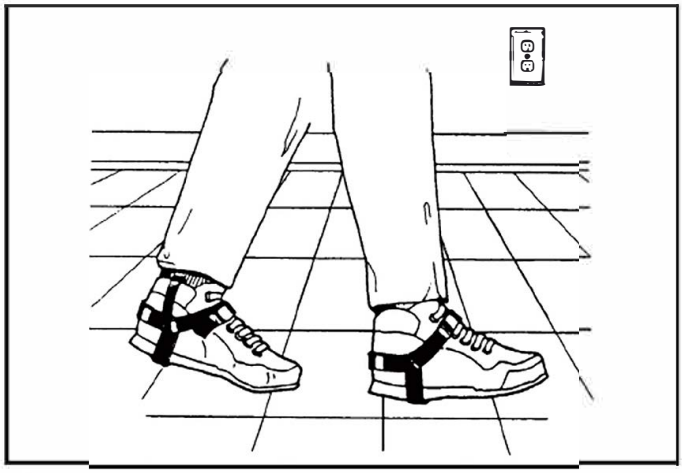

Figure 2. ESD footwear should be used on ESD flooring

CONCRETE

Two measures are used to determine a good concrete surface for Statguard® 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 Statguard® on surfaces colder than 45° F. Statguard® 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 Statguard® 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 Statguard® 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 Statguard® finish directly onto the concrete.

COVERAGE

Statguard® 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, Statguard® Floor Finish is easier to apply with significantly better productivity than competing brands.

DRY TIME

It is recommended that Statguard® 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

Statguard® Conductive Epoxy or Acrylic Latex Paint can be used as a base coat to enhance the electrical properties where more conductive resistance is needed. Statguard® Dissipative Floor Finish will seal out dirt, debris and protect the conductive surface allowing for ease of maintenance and enhanced shine. Statguard® 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. Look online at DescoIndustries.com for Technical Bulletin TB-7039 for more information on Statguard® Conductive Epoxy or Acrylic Latex Paint.

Floor Preparation - Stripping

Always use in a well ventilated area. 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 two to four times annually, depending on traffic and buildup of contaminated finish. Statguard® Floor Stripper is recommended.

Equipment needed:

- Push broom
- Single pad 175 rpm swing floor machine (with a black or brown stripping pad)
- Mops (do not use the same mop for stripper and for floor finish)

- Buckets (do not use the same bucket for stripper and for floor finish)
- Statguard® Floor Stripper
- Wet vacuum

1. Sweep away all loose dirt and trash.
2. Mix Statguard® Floor Stripper 3:1 three (3) parts WARM water to one (1) part stripper.
3. Apply stripper liberally to around 200 square foot area in need of stripping. Using a cotton string mop, uniformly distribute the solution. Let the solution stand for 5-15 minutes. Do not let it dry.

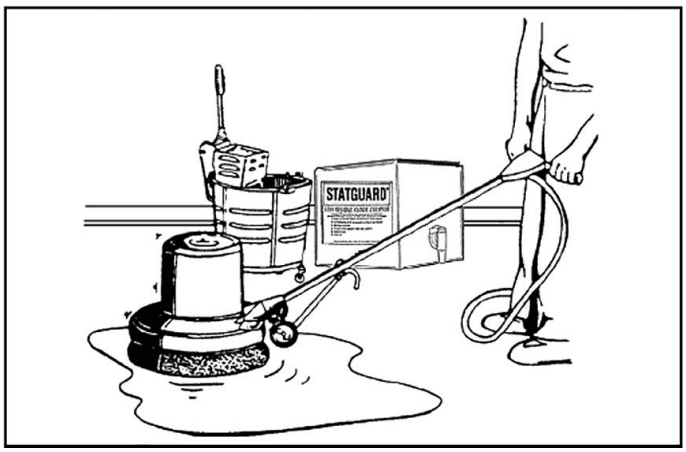

Figure 3. Stripping the floor

4. Scrub the floor with the floor machine at 175 rpm (using a stripping pad soaked in stripping solution). Work methodically, with at least two passes over each area of the floor.
5. After scrubbing, pick up the solution with a wet vac or mop.
6. Flood rinse the floor with clean, clear water.

Note: Using Statguard® Floor Neutralizer can reduce the number of rinse steps needed to get the floor to pH level 7.0 (neutral).

7. Pick up the rinse water with a wet vac or mop.
8. Repeat step 5 and 6. Entire floor should be rinsed twice.
9. Damp mop the floor at least twice with clean mop and clean water (change rinse water frequently to ensure that all stripper solution residue is removed), and let dry.
10. Visually inspect floor to be sure all stripper and old polish (shiny spots) have been removed and test pH level.

It is recommended to test the stripped surfaces after the second rinse to ensure that high pH residues are rinsed away. Some high pH strippers will leave a residue behind even after several rinses. A high pH can negatively affect the floor finish curing time as well as other properties of the finish. To test for high pH residue, test either the rinse water or the floor using either a pH measuring instrument or a piece of pH indicating litmus paper. A safe pH will be 7.0 (neutral).

Statguard® Floor Finish Application

It is recommended that you apply two coats of Statguard® 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 Statguard® freezes, allow it to thaw to 70° F and mix completely before application.

Figure 4. Applying floor finish

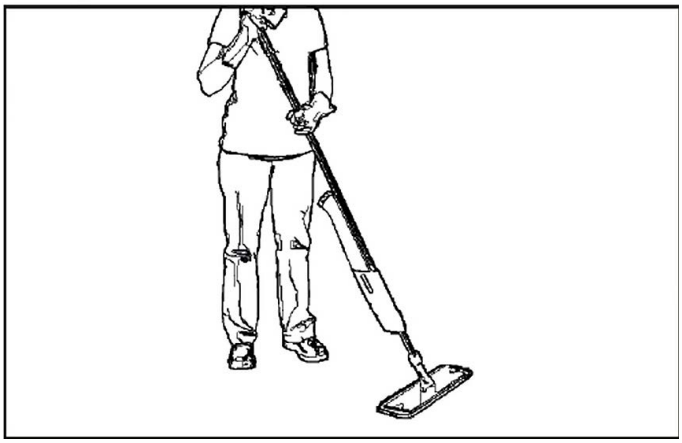

Figure 5. Applying floor finish with Flat Mop (optional).

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 Statguard® Floor Finish use only
- Bucket dedicated to Statguard® Floor Finish use only.
- Flat mop (Optional)

1. Pour Statguard® 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.
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.

Statguard® 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 Statguard® Floor Finish in water (1 part Statguard® to 3 parts water). Let dry thoroughly. The mop and bucket should be dedicated to Statguard® 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 Statguard® 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.

FLOOR CLEANER PROGRAM

Statguard® Floor Cleaner will clean surface stains and heel marks. As a cleaner it will reduce the gloss of the floor. Do not re-apply Statguard® finish after using Statguard® Floor Cleaner, see Mop and Recoat program.

Heavy-Moderate Traffic:

Clean once a week, or as dictated by floor appearance.

Low Traffic Floors:

Clean floors as dictated by floor appearance.

1. Dust mop with untreated mop.
2. Dilute Statguard® Dissipative Floor Cleaner 10 parts clean water to 1 part Floor Cleaner. For example, use five (5) gallons of clean water to two (2) quarts of floor cleaner.
3. Damp mop floor with cleaner solution and let dry thoroughly. The mop and bucket should be dedicated to Statguard® use only.

DRY BURNISH PROGRAM

Heavy-Moderate Traffic:

A dry burnish program will increase gloss and remove surface imperfections.

Dry burnish once a week or as dictated by floor appearance.

Low Traffic Floors:

Dry burnish as dictated by floor appearance.

1. Dust mop with an untreated mop.
2. Dry burnish at 1000-2000 rpm.
3. After dry burnish, dry mop the area with an untreated dry mop if necessary.

SPRAY BUFF PROGRAM

A spray buff program will repair scratches, marks, and other imperfections as well as gloss.

Heavy-Moderate Traffic:

Spray buff once a week or as dictated by appearance.

Low Traffic Floors:

Spray buff as dictated by floor appearance.

Equipment needed:

- Untreated dust mop
- Spray bottle
- 175-1500 rpm buffing machine with appropriate pad

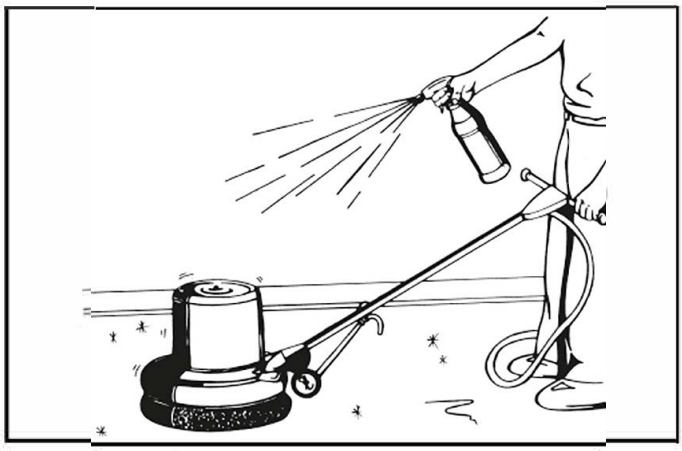

Figure 6. Applying Spray Buff

1. Dust mop with an untreated mop or push broom.
2. At 175-300 rpm, use a red pad. At 1000-1500 rpm use a white or beige pad.
3. Spray a small area with a mixture of one part Statguard® and two parts water. Spray lightly.
4. Buff the sprayed area until clean and glossy. All black marks and scuffs should be removed.
5. After high speed spray buffing, dry mop the area, if needed, with an untreated mop.

Physical Properties

Base	Acrylic Polymer
Description	Aqueous Acrylic Emulsion
Abrasion Resistance	Exc. Crockmeter at 50% RH
Color	Off White Opaque
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 x 10^6 to <1 x 10^{10} ohms per ANSI/ESD S7.1 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 Statguard® 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. We recommend using the Desco Digital Surface Resistance Meter for measuring the surface resistance of the floor and the Kasuga Body Potential Meter for measuring an operator's charge generation.

RoHS, REACH, and Conflict Minerals Statement

See Desco Industries RoHS, REACH, and Conflict Minerals Statement:
DescoIndustries.com/ROHS.aspx

Desco Industries Limited Warranty

See Desco Industries Limited Warranty:
DescoIndustries.com/Warranty.aspx

Statguard® Static Dissipative Floor Finish is available from these Desco Industries brands:

DESCO

for service and support in North America

2.5 Gallons	10511
5 Gallons	10512
55 Gallons	10520

STATGUARD FLOORING

for service and support in North America

2.5 Gallons	46000
5 Gallons	46001
55 Gallons	46003

DESCO EUROPE

for service and support in United Kingdom and Europe

10 Litres	220521

DESCO ASIA

for service and support in Asia

10 Liters	10511
20 Liters	10512
200 Liters	10520

SAFETY DATA SHEET

May be used to comply with OSHA Hazcom 29 CFR 1910.1200, Regulation (EU) 2015/830 and Japan JIS 7253-2012). Standards must be consulted for specific requirements.

Revision Date: 2018-07-24

SECTION 1 — IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifiers

Product Name:	Statguard® Static Dissipative Floor Finish
EC No.:	None
REACH Registration No.:	None
CAS No.:	None

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified use: Dissipative Floor Finish

1.3 Details of the supplier of the safety data sheet

Supplier: DESCO INDUSTRIES INC

United States	**United Kingdom**	**Japan**
One Colgate Way	2A Dunhams Lane	661-1 Yachimata-ho
Canton, MA 02021	Letchworth Garden City	Yachimata-Shi
+1 781-821-8370	Hertfordshire, SG6 1BE	Chiba-Ken 289-1115
	+44 (0) 1462 672005	+81 43-309-4470

Email Address: Service@DescoIndustries.com

1.4 Emergency telephone number

United States:	+1 781-821-8370
United Kingdom:	+44 (0) 1462 672005
Japan:	+81 43-309-4470

Office hours: 8:00 AM - 5:00 PM

SECTION 2 — HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture

Classification according to OSHA Hazcom 29 CFR 1910.1200, Regulation (EC) No 1272/2008, JIS 7252-2014

Eye irritation	Category 2
Skin irritation	Category 2

2.2 Label elements

Labelling according to OSHA Hazcom 29 CFR 1910.1200, Regulation (EC) No 1272/2008, JIS 7252-2014

Hazard pictograms/Symbols:

Signal word: Warning

Hazard statements:
H315 Cause skin irritation
H319 Cause serious eye irritation.

Precautionary statements:

Prevention
P264 Wash thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313 If eye irritation persists: Get medical advice/attention.
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
P332 + P313 - If skin irritation occurs: Get medical advice/attention.

2.3 Other hazards None known

SECTION 3 — COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Components	CAS No.	Concentration	Classification
Diethylene Glycol Monoethyl Ether	111-90-0	1 - 5%	**OSHA 29CFR 1910.1200:** Flammable Liquid 4 **Reg. (EC) No. 1272/2008:** Eye Irritation 2 **JIS 7252-2014:** Not Classified
Trix(2-butoxyethyl) phosphate	78-51-3	1 - 5%	**OSHA 29CFR 1910.1200:** Acute Toxicity 4 Skin Irritation 2 Eye Irritation 2A STOT SE 3 Aquatic Acute 3 Aquatic Chronic 1 **Reg. (EC) No. 1272/2008:** Skin Irritation 2 Eye Irritation 2 STOT SE 3 **JIS 7252-2014:** Not Classified

SECTION 4 — FIRST AID MEASURES

4.1 Description of first aid measures

Eye Contact	Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.
Skin Contact	In case of contact, immediately flush with plenty of water. If irritation occurs and persists, get medical attention.
Ingestion	Rinse mouth. If you feel unwell, get medical attention.
Inhalation	Remove person to fresh air. If you feel unwell, get medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5 — FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing Media	To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.
Unsuitable Extinguishing Methods	None known

5.2 Special hazards arising from the substance or mixture

Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Carbon dioxide. Carbon monoxide.

Unusual Fire and Explosion Hazards: This material will not burn until the water has evaporated. Residue can burn.

5.3 Advice for firefighters

Wear self-contained breathing apparatus and protective suit. If protective equipment is not available or not used, fight fire from a protected location or safe distance.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Keep people away from and upwind of spill/leak. Material can create slippery conditions.

6.2 Environmental precautions

CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

6.3 Methods and materials for containment and cleaning up

Contain spills immediately with inert materials (e.g., sand, earth). Transfer liquids and solid diking material to separate suitable containers for recovery or disposal.

6.4 Reference to other sections

See SECTION 13, Disposal Considerations, for information regarding the disposal of contained spills.

SECTION 7 — HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Keep container tightly closed. Do not breathe vapors, mist or gas.

7.2 Conditions for safe storage, including any incompatibilities

Keep from freezing - product stability may be affected. STIR WELL BEFORE USE.
Storage temperature: 1°C - 49°C (34°F - 120°F)
Other data: Monomer vapors can be evolved when material is heated during processing operations.
See SECTION 8, for types of ventilation required.

7.3 Specific end uses Floor Finish

SECTION 8 — EXPOSURE CONTROL / PERSONAL PROTECTION

8.1 Control parameters

Components	CAS No.	Value type (Form of exposure)	Control parameter/ Permissible conc.	Basis
Diethylene Glycol Monoethyl Ether	111-90-0	TWA	25 ppm	US WEEL

For EU: None of the components is listed in EH40/2005 Workplace Exposure Limits. (Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement.)

8.2 Exposure controls

Technical Control: Use local exhaust, or other technology solutions to keep air levels below given or recommended limit values. If limit values are not present, good general ventilation should be sufficient. Local exhaustion mat be required in some operations.

Individual protection measures

Eye/Face Protection	Use chemical safety goggles. **For EU:** Safety glasses (with side shields) should be consistent with EN 166 or equivalent.
Skin Protection	No precautions other than clean body covering clothing should be needed.

Hand Protection	Chemical protective gloves is not needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized. In case of using gloves, use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Neoprene. Nitrile/ butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Avoid gloves made of: Polyvinyl alcohol ("PVA"). **For EU:** In case of using gloves, use chemical resistant gloves classified according to standard SS-EN 374: Protective gloves against chemical and microorganisms. In case of prolonged contact or repeated contact, it is recommended gloves with protection index grade 4 or higher (breakthrough time longer than 120 minutes according to standard SS-EN 374). When only short-term contact is expected, it is recommended gloves with protective index class 1 or higher (breakthrough time longer than 10 minutes according to standard SS-EN 374).
Respiratory Protection	Respiratory protection should be worn as there is a risk of exposure above given or recommended Occupational Exposure Limits. If such limit values are not present, respiratory protection will cause effects such as respiratory irritation or discomfort, or when risk assessment indicates that this is required. Under most conditions, no respiratory protection should be required; If discomfort is experienced, use an approved respiratory protective device. **For EU:** Use the following CE-approved filters: Filters against organic gases with prefilter to particles, type AP2.
Hygiene measures	Wash hands before breaks and at the end of workday.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	Liquid.
Color:	Opaque, tan liquid.
Odor:	Wax or ammonia odor.
Odor Threshold:	No data available
pH:	8.0 - 9.0
Melting Point:	N/A.
Boiling Point:	>200°F (93.3°C)
Flash Point:	Noncombustible
Evaporation rate:	N/A
Flammability:	Not Applicable
Upper flammability or explosive limits:	Not Applicable
Lower flammability or explosive limits:	Not Applicable
Vapor Pressure (mm Hg):	No data available
Vapor Density (air=1):	No data available
Relative Density:	8.6 lbs./gal at 20°C
Specific Gravity (H_2O = 1) :	> 1.0
Water Solubility:	Completely
Partition coefficient:	No data available
Auto-ignition temperature:	Not Applicable
Decomposition temperature:	No data available
Viscosity:	3.3 cps
Explosive properties:	No data available
Oxidizing properties:	No data available

9.2 Other information

VOC	0%*

*Per Title 17, California Code of Regulations, Division 3, Chapter 1, Subchapter 8.5, Article 2, Section 94508.

SECTION 10 — STABILITY AND REACTIVITY

10.1 Reactivity
No dangerous reaction known under conditions of normal use.

10.2 Chemical stability
Stable product at normal conditions.

10.3 Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4 Conditions to avoid
Temperatures above 100°F (38°C) and below 34°F (1°C)

10.5 Incompatible materials
Strong oxidizing agents. Strong acids.

10.6 Hazardous decomposition products
Thermal decomposition may yield acrylic monomers.

SECTION 11 — TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute Toxicity

Acute oral toxicity	Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. Based on information for component(s): LD50, Rat, > 5,000 mg/kg Estimated.
Acute dermal toxicity	Prolonged skin contact is unlikely to result in absorption of harmful amounts. Based on information for component(s): LD50, Rabbit, > 5,000 mg/kg Estimated.
Acute inhalation toxicity	Brief (minutes) exposure to vapor, mist or dust is not likely to cause adverse effects. The LC50 has not been determined.

Skin corrosion/irritation
Brief contact may cause skin irritation with local redness.

Serious eye damage/eye irritation
May cause eye irritation. May cause corneal injury.

Sensitization
For the component(s) tested: Did not demonstrate the potential for contact allergy in mice.
For respiratory sensitization: No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Carcinogenicity
For the component(s) tested: Did not cause cancer in laboratory animals.

Teratogenicity
Did not cause birth defects or any other fetal effects in laboratory animals.

Reproductive toxicity
For the component(s) tested: In animal studies, did not interfere with reproduction.

Mutagenicity
In vitro genetic toxicity studies were negative for component(s) tested. Genetic toxicity studies in animals were negative for component(s) tested.

Aspiration Hazard
Based on physical properties, not likely to be an aspiration hazard.

SECTION 12 — ECOLOGICAL INFORMATION

12.1 Toxicity

Ingredients	Acute toxicity to fish	Acute toxicity to aquatic invertebrates	Acute toxicity to algae/aquatic plants
Diethylene glycol monoethyl ether CAS No.: 111-90-0	LC50, Ictalurus catus (catfish), flow-through test, 96 Hour, 6,010 mg/l, OECD Test Guide-line 203 or Equivalent.	LC50, Daphnia magna (Water flea), static test, 48 Hour, 1,982 mg/l, OECD Test Guideline 202 or Equivalent	EC50, Desmodesmus subspicatus (green algae), static test, 96 Hour, Growth rate inhibition, > 100 mg/l, OECD Test Guideline 201 or Equivalent
Trix(2-butoxyethyl) phosphate CAS No.: 78-51-3	LC50, Fish, 96 Hours, 24 mg/L	EC50, Daphnia Magna, 48 hours, 53 mg/L	EC50, Freshwater Algae, 72 hours, 61 mg/L

12.2 Persistence and degradability

Diethylene glycol monoethyl ether (CAS No.: 111-90-0)

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegrad ability).
10-day Window: Pass
Biodegradation: 90 %
Exposure time: 28 d
Method: OECD Test Guideline 301E or Equivalent
10-day Window: Not applicable
Biodegradation: > 90 %
Exposure time: 5.5 d
Method: OECD Test Guideline 302B or Equivalent

12.3 Bioaccumulative potential

Diethylene Glycol Monoethyl Ether (CAS No.: 111-90-0)

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -0.54 Measured

12.4 Mobility in soil

Diethylene Glycol Monoethyl Ether (CAS No.: 111-90-0)

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient(Koc): 20 Estimated.

Trix(2-butoxyethyl) phosphate (CAS No.: 78-51-3)

Partition coefficient(Koc): 4.78

12.5 Results of PBT and vPvB assessment

No relevant data found.

12.6 Other adverse effects

No relevant data found.

12.7 Additional Information

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

SECTION 13 — DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product	Coagulate the emulsion by the stepwise of Ferric Chloride and Lime. Remove the clear supernatant liquid and flush to a chemical sewer. Incinerate the solids and the contaminated material according to local and federal regulations.
13.2 Additional information	None

SECTION 14 — TRANSPORT INFORMATION

DOT (Department of Transportation)	Not regulated for transport
Classification for SEA transport (IMO-IMDG)	Not regulated for transport
Classification for AIR transport (IATA/ICAO)	Not regulated for transport
14.1 UN Number	None
14.2 UN proper shipping name	None
14.3 Transport hazard class(es)	None
14.4 Packing group	None
14.5 Environmental hazards	None
14.6 Special precautions for user	None

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

Consult IMO regulations before transporting ocean bulk.

SECTION 15 — REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories at CAS# Level

All components of this product are listed on the following inventories: USA (TSCA), Canada (DSL/NDSL), EU (EINECS), Japan (ISHL)

US Regulations:

Superfund Amendment and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986)

Section 302 and 303	No chemicals in this product are subject to the reporting requirements of Section 302.
Section 304	This product does not contain any components with a section 304 Reportable Quantity (RQ).
Section 311 and 312	Immediate health hazard

Section 313

Ingredient(s)	CAS No.	Weight %	SARA 313 - Threshold Values %
Diethylene glycol monoethyl ether	111-90-0	1 - 5%	1.0

California Proposition 65

This product is not subject to the reporting requirements under California's Proposition 65.

RIGHT TO KNOW (RTK)

Ingredients	CAS #	MARTK	NJRTK	PARTK
Diethylene glycol monoethyl ether	111-90-0	-	X	X
Trix(2-butoxyethyl) phosphate	78-51-3	-	X	X

EU Regulations:

REACH	Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals. As of 2012-09-27 Desco Industries Inc. has completed an assessment of all of our products and is not under any obligation to register.

Canada Regulations:

WHIMIS	Canada hazard class: Non-controlled. This product has been classified according to the hazard criteria of the CPR and the SDS contains all the information required by the CPR.

15.2 Chemical Safety Assessment	N/A

SECTION 16 — OTHER INFORMATION

HMIS RATING	Health 1, Reactivity 0, Flammability 0, Personal Protection B
NFPA RATING	Special Hazard: N/A, Health: 2, Flammability: 0, Instability: 0
SDS Updated	**2018-07-24**

Disclaimer

OTHER INFORMATION: This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process. Such information is to the best of the company's knowledge and believed accurate and reliable as of the date indicated. However, no representation, warranty or guarantee of any kind, express or implied, is made as to its accuracy, reliability or completeness and we assume no responsibility for any loss, damage or expense, direct or consequential, arising out of use. It is the user's responsibility to satisfy himself as to the suitableness and completeness of such information for his own particular use.