Tennant ESD Dissipative SDS

20 mil Static Control Dissipative

DESCRIPTION – A high-solids epoxy applied at 3 to 5 mils (0.08 to 0.13 mm) for priming and 12-14 mils (0.30 to 0.35 mm) as a build coat. Topcoat is a light-stable urethane that contains a conductive filler. This system has a satin appearance for long-lasting durability.

RECOMMENDED SYSTEM			
Application Steps	**Tennant Product**	**Application Thickness mils [mm]**	**Coverage Rate ft²/gal [m²/3.78 L]**
Primer	Eco-MPE™	3-5 [0.08-0.13]	321-535 [29.8-49.7]
Build Coat	Eco-MPE	12-14 [0.30-0.35]	114-133 [10.6-12.4]
Topcoat	Eco-SDS™ Satin	2.7 [0.07]	600 [55.7]

- **LEED® v4** – Indoor Air Quality credits available.
  - Meets requirements per CDPH-CA Section 01350 Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental chambers Version 1.2.
- **ELECTROSTATIC DISCHARGE CONTROL** - Meets ANSI/ESD S20.20-2007 for resistance <1x10^9 ohms and <100 volts Body Voltage Generation
- **DURABLE** – Eco-SDS Satin lasts as long as standard urethanes; up to two times as long as standard epoxies. It has a satin sheen which maintains a fresh look even in traffic lanes.
- **IMPROVE APPEARANCE** – Light stability over the expected life of coating.

ENVIRONMENTALLY & USER FRIENDLY

- Reduced solvent means less evaporation and less waste.
- Low Odor. Can be applied during normal business hours.
- Complies with SCAQMD VOC regulations--<13 g/L.

PRIMARY APPLICATIONS

Manufacturing / Automotive Manufacturing	Avionics	Packaging
Electrical Assembly / Production	Clean Room / Lab	Warehouse / Distribution

SYSTEM PROPERTIES		
ELECTRICAL PROPERTIES	**Test Method**	**Results**
Body Voltage Generation	ANSI/ESD STM 97.2 (ANSI/ESD S20.20 - Method 2)	12 volts with ESD shoes 32 volts with heel straps
Body Voltage Decay (with ESD shoes or heel straps)	AATCC 134-1979 (modified)	1,000 volts to <10 volts in <1.0 second
Resistance to Ground in Combination with a Person	ANSI/ESD STM 97.1 (ANSI/ESD S20.20 - Method 1)	<3.5 x 10^7 ohms (ESD shoes or heel straps)
Surface Resistance Point to Point / Point to Ground	ESD Assoc. ANSI/ESD 7.1-2005	1x10^5 ohms to <1x10^9 ohms
MATERIAL PROPERTIES	**Test Method**	**Results**
Abrasion Resistance Taber Abraser CS-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions.	ASTM D4060	38
Adhesion to Concrete, psi [MPa]	ASTM D4541	450 [3.10] (concrete failed)
Adhesion to Concrete, psi [MPa]	ASTM D7234	732 [4.48] (concrete failed)
Coefficient of Friction – James Friction Tester	ASTM D2047	0.50
Coefficient of Friction - Wet Static, BOT 3000	ANSI/NSFI B101.1	0.95
Compressive Strength, psi [MPa] (epoxy)	ASTM D695	13,500 [93.1]
Flammability/Rate of Burn (topcoat resin)	ASTM D635	182 mm/min
König Hardness (3 mil / 0.08 mm film) (topcoat resin only)	ASTM D4366	171.3
Resistance to Yellowing As measured using ASTM D2244 after 1000 consecutive hours UV exposure in QUV.	ASTM G154	<10 increase to yellow units (CIE Δb)
Shore D Hardness (epoxy)	ASTM D2240	80-85 @ 0 sec | 75-80 @ 15 sec
Tensile Strength	ASTM D2370	6,250 [43.1]
Percent Elongation	ASTM D2370	6
Volatile Organic Compound, VOC, lb/gal [g/L]	ASTM D3960	**Eco-MPE** A+B = 0.41 [49] **Eco-SDS** 0.11 [<13]
Water Absorption (24-hour immersion)	ASTM D570	0.2% weight increase

Results are based on conditions at 77°F [25°C].

CHEMICAL RESISTANCE PROPERTIES

(pigmented)	1 Day	7 Days		(pigmented)	1 Day	7 Days
Acids, Inorganic				**Solvents (Chlorinated)**		
10% Hydrochloric Acid	E	E		Methylene Chloride	P	P
30% Hydrochloric Acid (Muriatic)	E	F		**Solvents (Ketones & Esters)**		
10% Nitric Acid	E	E		Methyl Ethyl Ketone (MEK)	F	F
50% Phosphoric Acid	F	F		Propylene Glycol Methyl Ether Acetate (PMA)	E	E
37% Sulfuric Acid (Battery Acid)	E	E		**Miscellaneous Chemicals**		
Acids, Organic				20% Ammonium Nitrate	E	E
10% Acetic Acid	E	E		Brake Fluid	E	E
10% Citric Acid	E	E		Bleach	E	E
Oleic Acid	E	E		Motor Oil (SAE 30)	E	E
Alkalies				Skydrol® 500B	E	E
10% Ammonium Hydroxide	E	E		Skydrol® LD4	E	E
50% Sodium Hydroxide	E	E		20% Sodium Chloride	E	E
Solvents (Alcohols)				1% Tide® Laundry Soap	E	E
Ethylene Glycol (Antifreeze)	E	E		10% Trisodium Phosphate	E	E
Isopropyl Alcohol	E	E		Coffee	E	E
Methanol	P	P		Coke®	E	E
Solvents (Aliphatic)				Ketchup	E	E
d-Limonene	F	F		Mustard	G*	G*
Jet Fuel - JP-4	E	E		Red Wine	E	G*
Gasoline	E	F		3M™ DuraPrep™	G*	F
Mineral Spirits	E	E		Purdue Betadine Solution	G*	G*
Solvents (Aromatic)						
Xylene	E	E		Registered trademarks: Tide® of Procter and Gamble, Skydrol® of Solutia, Inc., Coke® of Coca-Cola Company and 3M™ DuraPrep™.		

ASTM D1308 Test Method 3.1.1 spot test, covered. Results are based on 1-day and 7-day. Coating cured 2 weeks prior to testing.

Legend:

E - Excellent (No Adverse Effect) - Recommended.
F - Fair (Moderate Adverse Effect) - Not recommended.
G - Good (Limited Adverse Effect) - Use for short-term exposure only.
P - Poor (Unsatisfactory) - Little or no resistance to chemical.
*Only adverse effect was staining.

NOTE: *Reduced chemical resistance and staining is possible in pigmented versions of the system.*

GENERAL PRODUCT INFORMATION

STORAGE:	Materials should be stored indoors between 65ºF [18ºC] and 90ºF [32ºC].	
SHELF LIFE:	One year from date of manufacture.	
PACKAGING OPTIONS / PART NUMBERS:	**Eco-MPE** 3.0 gallons / 370503 15.0 gallons / 370650	**Eco-SDS Satin** 1.09 gallons / 9009553

OPTIONS:

Use the same color in Eco-MPE and Eco-SDS Satin. White is not recommended for this system.

Colors in Eco-MPE: Use colorants at a rate of one unit per 3-gallon (11.34 litres) mix. Standard Colorants--Yellow, Light Gray and Rotunda Red will not impart total hide. Use these colorants at a rate of two units per 3-gallon (11.34 litres) mix. Similar colorants also may not hide as well. Refer to Color Selection Guide or consult Tennant Technical Support.

Colors in Eco-SDS Satin: Use Colorants at a rate of one-half unit per 1-gallon (3.78 litres) mix.

LIMITATIONS:

Colors: The use of color is recommended in Eco-SDS Satin. **DO NOT USE** White.

Hide: The topcoat must be applied over a pigmented primer or existing coating of similar color to obtain color hide in Eco-SDS Satin. The resulting system color will be closer to the primer.

Contamination (Fisheyes): Product may fisheye if oil, silicones, mold release agents or other contaminants are present.

Chemical Resistance / Staining: Reduced chemical resistance and staining is possible in pigmented versions of the system.

IMPORTANT: READ AND FOLLOW ALL PRECAUTIONS AND INSTRUCTIONS BEFORE PROCEEDING.

PLEASE SEE SAFETY DATA SHEET (SDS) FOR SAFETY AND PRECAUTIONS.
USE PRODUCT AS DIRECTED.
KEEP OUT OF THE REACH OF CHILDREN.

PRELIMINARY FLOOR INSPECTIONS

CHECK THE TEMPERATURE AND HUMIDITY: Floor temperature and materials should be between 65°F (18°C) and 80°F (27°C). Humidity must be less than 70%. Call Tennant Company Tech Support if conditions are outside these guidelines. **DO NOT** coat unless floor temperature is more than five degrees over the current, local dew point.

BARE CONCRETE

CHECK THE CONCRETE: Concrete must be structurally sound and free of curing membrane, paint and/or other sealer. If you suspect that the concrete has been previously sealed, call Tennant Company Tech Support for further instructions.

CHECK FOR MOISTURE: Concrete must be dry before application of this floor coating material. Concrete moisture testing must occur. Calcium chloride testing or in-situ relative humidity testing is recommended. Readings must be below 3 pounds per 1,000 ft^2 (1.5 kg per 92.9m^2) over a 24-hour period on the calcium chloride test or below 75% relative internal concrete humidity. Test methods can be purchased at www.astm.org, see ASTM F1869 or F2170, respectively or follow test kit manufacturer's instructions. If moisture issues are present, the use of a moisture mitigation system may be a consideration. Please call Tennant Company Technical Support for further information / instructions.

NOTE: Although moisture testing is critical, it is not a guarantee against future problems. This is especially true if there is no vapor barrier or the vapor barrier is not functioning properly and/or you suspect you may have concrete contamination. Additional testing may be necessary to determine the vapor barrier and any contamination.

APPLICATION EQUIPMENT

• Protective clothing	• 3/8" medium-nap roller (18”)
• Jiffy® mixer blade [Tennant Part No. 08643-1 (small unit) or 08643-5 (large unit)] (Registered trademark: Jiffy® Mixer Co. Inc.)	• Roller assembly (18")
• Slow speed drill (500 rpm or less)	• Application tray
• 18-24" (457.2-609.6 mm) Flat rubber squeegee	• Disc machine
• 18-24" 1/16" Notched rubber squeegee	• 60 grit sandpaper [Tennant Part No. 65449]
• Spiked shoes	• 80 grit sandpaper [Tennant Part No. 65450]

ASSEMBLE EQUIPMENT: Due to the limited pot life of the material, all application equipment, etc. should be ready for immediate use. (Clean roller with tape to remove any residual lint.)

PREPARATION

Detergent scrub and rinse with clean water to remove surface dirt, grease, oil and contaminants.

THICK FILM APPLICATIONS (25 mils / 0.64 mm):
Steel Shot Blast: Use magnetic broom to remove excess shot, sweep to remove large debris and vacuum to remove fine dust.
Diamond Grind: Sweep to remove large debris and vacuum to remove fine dust.

JOINTS: Depending on the preference of the facility owner, joints may or may not be filled. If the joints are filled, non-moving joints, i.e. contraction or control joints, can be hard filled with thickened, 100% solids epoxy or with a semi-rigid joint filler such as Eco-PJF™ or Eco-EJF™. Construction joints less than one inch wide may also be filled with Eco-PJF. Isolation or expansion joints must be filled with a flexible material designed for this purpose.

APPLICATION - PRIMER - ECO-MPE

A thin coat of primer will wet out concrete, help seal off concrete pores and minimize outgassing bubbles. Apply a tight coat of primer with a clean, flexible squeegee. Backrolling is not recommended. There should be no mil build over the high spots of the concrete. **NOTE:** *If faster cure times are required, use Eco-RCE, Eco-RCE/F and Eco-RCE/M.*

COVERAGE RATE: Much of this will soak into porous concrete. One gallon (3.78 litres) of Eco-MPE will cover:
535 ft^2 (49.7 m^2) at 3 mils (0.08 mm) wet/dry film
400 ft^2 (37.2 m^2) at 4 mils (0.10 mm) wet/dry film
321 ft^2 (29.8 m^2) at 5 mils (0.13 mm) wet/dry film

PREMIX PART A using a Jiffy® mixer blade and slow speed drill. (This is required for both 3-gallon (11.34 litres) and full-filled 5-gallon (18.9 litres) units.) For full-filled 5 gallon pails (18.9 litres), pour out 2 gallons (7.56 litres) into a measuring container. Then, pour the measured Part A into a mixing pail.

ADD ECO-MPE PART B TO PART A (3 GALLONS / 11.34 LITRES TOTAL MIX). For full-filled 5-gallon pails (18.9 litres), pour out 1 gallon (3.78 litres) Part B into a measuring container that is separate from the one used with the Part A. Then, add the measured Part B to the Part A already in the mixing pail. ***POTLIFE:*** *Mix only enough material which can be applied within the work time (time between the addition of Part B to Part A and the completion of all application actions). Check the following chart for work times at various temperatures. For smaller quantities, use 2 parts PART A to 1 part PART B by volume.*

APPROXIMATE WORK TIME (minutes) - °F (°C):	**65 (18.3)**	**70 (21.1)**	**75 (23.9)**	**80 (26.7)**	**90 (32.2)**
	40	30	25	20	15

MIX FOR 2 MINUTES using a Jiffy® mixer blade and slow speed drill. (Failure to do so could result in lower/diminished coating properties.)

IMMEDIATELY POUR ALL OF THE MIXED MATERIAL onto the floor in a single bead.

PUSH THE FLAT SQUEEGEE at an even speed with sufficient down pressure to apply the thinnest coat. **NOTE:** *The use of spiked shoes will allow freedom of movement on the wet floor.* **CAUTION:** *The surface will be slippery.*
START THE SECOND AND REMAINING PASSES by pushing material parallel to the first stroke. Hold the bead of material near the center of the bar. ***NOTE:*** *Eco-MPE applied thin may "bridge" holes and cracks momentarily before soaking in--make sure the previously squeegeed area is overlapped (halfway).*

TO REDUCE OUTGASSING BUBBLES, it is best to wait until the primer has set up enough to walk on before applying the build coat of Eco-MPE.

The primer must be coated within 24 hours at floor temperatures 65°F-90°F (18°C-32°C).

APPLICATION – BUILD COAT - ECO-MPE

COVERAGE RATE: At least 8 mils (0.20 mm) on top of the primer are recommended for complete hide. One gallon (3.78 litres) of Eco-MPE will cover:
133 ft^2 (12.4 m^2) at 12 mils (0.30 mm) wet/dry film
123 ft^2 (11.4 m^2) at 13 mils (0.33 mm) wet/dry film
107 ft^2 (9.9 m^2) at 14 mils (0.35 mm) wet/dry film

REPEAT STEPS used for mixing and spreading of the primer coat.

COLORS: Premix Tennant Colorants to ensure uniform color. Colorant is added at the rate of 1 unit per 3-gallons (11.34 litres) mix. **NOTE:** *When using colorant in the bulk units, add the colorant to the Part A that has been measured into the "mixing pail".*

BACKROLL THE MATERIAL with a 3/8" (10 mm) nap roller for a smooth uniform appearance. Backrolling is required to remove the puddles and squeegee lap marks in order to obtain uniform texture and a consistent mil thickness.

If Eco-MPE is topcoated with Eco-SDS Satin at floor temperatures of 65-90°F (18-32°C), it does not need to be sanded if the Eco-SDS Satin is applied within 24 hours.

Eco-MPE must be sanded if applying Eco-SDS Satin after 24 hours. Use 80 grit paper. The use of more aggressive paper will introduce deep grooves that will not be covered by a single, thin coat of urethane. We recommend thorough sanding with a swing-type buffer so that multiple scratch marks cause an obvious gloss loss on all areas (depressions will remain shiny), and the floor is uniformly dulled. The ability to see individual scratch marks is an indication that sanding is not adequate. Scrub with detergent, rinse with clean water and allow floor to dry before coating. Tack rag to remove fine dust.

ELECTRICAL GROUNDING

If Eco-SDS-Satin is the primary ground, then a grounding system that meets the customer's specifications needs to be connected to the common ground of the facility. If copper tape is used, install the copper tape on the insulator coat, underneath the Eco-SDS-Satin.

APPLICATION – TOPCOAT – ECO-SDS SATIN

PREMIX PART A USING A JIFFY® MIXER BLADE with slow speed drill. ***POTLIFE:*** *Mix only enough material which can be used within 30 minutes.* ***NOTE:*** *Once opened, this material cannot be resealed for later use.*

CONTINUE TO MIX AND ADD PART B. MIX FOR 1 MINUTE using a Jiffy® mixer blade and slow speed drill.

POUR MIXED PARTS A/B INTO PART C while mixing. ***NOTE: The Part C is not blended—DO NOT SPLIT MIX OR PRODUCT MAY NOT MEET PERFORMANCE SPECIFICATIONS.***

MIX FOR 3 MINUTES using a Jiffy® mixer blade and slow speed drill. Move the blade up and down the sides of the pail and across the bottom to ensure contents are thoroughly mixed so no dry filler remains.

COLORS: Use Colorants at a rate of one-half unit per 1-gallon (3.78 litres) of Eco-SDS Satin. Premix Tennant Colorant before adding to the combined Parts A/B/C to ensure uniform color. Add colorant to combined Parts A/B/C and mix using a Jiffy® mixer blade and slow speed drill. Mix until well blended. Pour into application tray.

APPLY ECO-SDS SATIN at the rate of 600 ft^2/gallon (55.7 m^2/3.78 L) with a 3/8" (10 mm) nap roller. For proper appearance and development of physical properties, it is crucial that material is not applied above or below this rate. Material applied at a lower application rate will tend to foam at higher humidities and temperatures. Dip the roller in the coating and lightly roll out excess in the application tray. Apply material in an area no wider than 10 feet (3.0 meters). One dip should cover about 45 sq. ft. (4.2 m^2).

SPREAD THE MATERIAL evenly with V-shaped cross passes.

MAKE SURE THE FLOOR HAS JUST ENOUGH COATING TO COVER EVENLY. Excess material could cause the floor to blister, especially in high humidity and will show more roller marks. Insufficient material will cause the floor to look non-uniform. If you cannot see the grit texture, the material is too thick.

LEVEL THE AREA with straight passes that cross the initial material paths. These final strokes will reduce roller marks. If the appearance is not satisfactory, reroll the area.

REMIX THE MATERIAL in the tray occasionally (with the roller) to prevent settling of the Part C (filler).

NOTE: This product cannot be finish rolled by a separate individual. Late finish rolling may introduce foam in the coating especially at higher humidities and temperatures.

ALLOW COATING TO DRY 24 HOURS at 75°F (24°C), 50% relative humidity before opening to light traffic. Allow more time at low temperatures, low humidity or for heavier traffic. Full coating properties take 14 days to develop.

TECHNICAL SUPPORT

For any preparation or application questions, please call Tennant technical support at 800-228-4943, option 3 (US & Canada), 800-832-8935 (International).

DISPOSAL

Dispose of all excess material, packaging and other waste in accordance with federal, state and local regulations.

MAINTENANCE GUIDELINES

Allow floor coating to cure at least one week before cleaning by mechanical means (e.g., sweeper, scrubber, disc machine).

Care: Proper maintenance will increase the life and help maintain the appearance of your new Tennant floor coating. Sweep and scrub your new coating regularly, as dirt and dust are abrasive and can quickly dull the finish, decreasing the life of your coating. Remove spills quickly as certain chemicals may stain and could possibly permanently damage the finish.

Use soft nylon brushes or white pads on your new floor coating. Any brush more abrasive than a soft nylon or white pad can cause premature loss of gloss.

Detergent: Tennant has a full range of detergents--general purpose to heavy duty--for your cleaning needs. For assistance in determining which detergent is right for your facility or for additional technical information call: 800-228-4943, option 3 (US & Canada), 800-832-8935 (International).

Caution: Avoid scratching or gouging the surface. All floor coatings will scratch if heavy objects are dragged across the surface.

Do not drop heavy or pointed items on the floor as this may causing chipping or concrete popouts in the case of a weak cap.

Rubber tires can permanently stain the floor coating from plasticizer migration. Plexiglass® between the tire and the floor coating can prevent discoloration.

Rubber burns from quick stops and starts can heat the coating to its softening temperature, causing permanent marking.

Repair: Repair gouges or scratches or chip outs as soon as possible to prevent moisture or chemical contamination.

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

Eco-ECE™ (Electrostatic Conductive Epoxy), Eco-SCT™ (Electrostatic Control Topcoat) and Eco-SDS™ (Static Dissipative System) ONLY.

The management and control of electrostatic charge is complicated and involves many factors. **BUYER ASSUMES ALL RISK AND LIABILITY ASSOCIATED WITH THE USE OF THIS PRODUCT.**

TENNANT COMPANY MAKES THE FOLLOWING LIMITED WARRANTY: (1) that this product is free from defects of manufacture, improper formulation, and defective ingredients and conforms to Tennant's manufacturing standards and (2) that the technical data furnished is true and accurate to the best of its knowledge (but no guarantee of accuracy is expressed or implied and all such data is to be used only as a general guide). **Warranty covers replacement of materials only.**

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

In no event shall Tennant or Seller be liable for any incidental, consequential, or special damages arising out of the use of Tennant Specialty Surface Coatings. **THE ONLY REMEDY OF THE USER OR BUYER, AND THE ONLY LIABILITY OF TENNANT AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES, OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE) SHALL BE REPLACEMENT OF THE PRODUCT OR, AT THE ELECTION OF TENNANT OR SELLER, RETURN OF THE PURCHASE PRICE.**

No representative of Tennant has authority to give any other warranty or assume other liability.

The presence of a Tennant employee during the application of Tennant's Specialty Surface Coatings does not extend or alter the warranty or limitations in any manner whatsoever.