Plant-Based Urethane

Eco-ITS™ - Gloss

- **DURABLE** – Based on Wear*Guard*™ technology performance, with millions of square feet of coatings applied worldwide, it offers similar great performance.
- **SUSTAINABLE** – 50% plant-based, renewable resins.
- **LEED®** – LEED green building certification program credits available:
  - **Indoor Environmental Quality**
    - 4.2 Low-Emitting Materials, Paint & Coatings
  - **Material and Resource**
    - 6 Rapidly Renewable Materials
- **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--21 g/L (clear), 23-46 g/L (varies with colorant).

PRIMARY APPLICATIONS

Manufacturing / Automotive Manufacturing	Assembly / Production
Warehouse / Distribution	Packaging

Eco-ITS Plant-Based Urethane - Gloss – Tennant 100% solids epoxy applied at 3 mils (0.08 mm) for priming or up to 30 mils (0.76 mm) as a build coat. Topcoat is a bio-based urethane which has a glossy appearance.

SYSTEM PROPERTIES

Property	Test Method	Results
Volatile Organic Compound – VOC lb/gal (g/L)	ASTM D3960	0.17 (21) clear, 0.19-0.39 (23-46) varies w/colorant
Abrasion Resistance, mg/loss Taber Abraser, CS-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions.	ASTM D4060	40-50
Adhesion to Substrate / Bond Strength	ASTM D4541	Concrete Failure
Coefficient of Friction – James Friction Tester	ASTM D2047	0.53
Wet Static Coefficient of Friction – BOT 3000	ANSI B101.1	1.0
Dry Film Thickness, mils (mm)		3.0 (0.08) one coat
Impact Resistance, Tested on steel panel	ASTM D2794	Minimum 86 in-lbs. with an average of 91.3 in-lbs.
Tensile Strength, psi (MPa) (resin only)	ASTM D638	7692 (53.0)
Percent Elongation, (resin only)	ASTM D638	6.44
König Hardness (3 mil / 0.08 mm film) (resin only)	ASTM D4366	219.8
Percent Solids, by wt.	ASTM D2369	98.07 (A+B)
Thermal Stability / Heat Resistance Tested on steel panel (5 hours at 158°F)	MIL-D-3134J, Section 4.6.3	No slip/flow, no softening or change in appearance
Water Absorption (24-hour immersion, resin only)	ASTM D570	1.29%

Testing performed at ambient conditions unless stated otherwise.

CHEMICAL RESISTANCE PROPERTIES

Coating cured 2 weeks prior to testing.	Spill / Splash - Uncovered	1 Day - Covered	7 Days - Covered
Acids, Inorganic			
10% Hydrochloric Acid	E	E	E
30% Hydrochloric Acid (Muriatic)	E	G	F
10% Nitric Acid	G	G	G
50% Phosphoric Acid	E	E	E
37% Sulfuric Acid (Battery Acid)	E	E	E
Acids, Organic			
10% Acetic Acid	E	G	G
10% Citric Acid	E	E	E
Oleic Acid	E	E	G
Alkalies			
10% Ammonium Hydroxide	E	E	E
50% Sodium Hydroxide	E	E	E
Solvents (Alcohols)			
Ethylene Glycol (Antifreeze)	E	E	E
Isopropyl Alcohol	E	F	F
Methanol	E	F	F
Solvents (Aliphatic)			
d-Limonene	E	E	G
Jet Fuel - JP-4	E	E	E
Gasoline	E	G	F
Mineral Spirits	E	E	E
Solvents (Aromatic)			
Xylene	E	F	F
Solvents (Chlorinated)			
Methylene Chloride	E	P	P
Solvents (Ketones & Esters)			
Methyl Ethyl Ketone (MEK)	E	P	P
Propylene Glycol Methyl Ether Acetate (PMA)	E	F	F
Miscellaneous Chemicals			
20% Ammonium Nitrate	E	E	E
Brake Fluid	F	F	F
Bleach	E	E	E
Motor Oil (SAE 30)	E	E	E
Skydrol® 500B	F	F	F
Skydrol® LD4	F	F	F
20% Sodium Chloride	E	E	E
1% Tide® Laundry Soap	E	E	E
10% Trisodium Phosphate	E	E	E
Jet Fuel Phillips “Blue” Aviation Gasoline	E	G	G
Unleaded Gas + Ethanol	E	G	G

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.

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

Registered trademarks: Tide® of Procter and Gamble and Skydrol® of Solutia, Inc.

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-ITS Gloss** 1.0 gallons / 9009325
OPTIONS:	*Colors in Eco-MPE:* The following Tennant Standard and 100 Series Colorants may be added to Eco-MPE: Rotunda Red, Regal Blue, Black, Yellow, Black 100, Canada Gray 100, Light Gray 100, Medium Gray 100 and Yellow 100. Use colorant at a rate of one unit per 3-gallon (11.34 litres) unit of Eco-MPE. Standard Colorants--Yellow and Rotunda Red will not impart total hide. Use these colorants at a rate of two units per 3-gallon (11.34 litres) unit of Eco-MPE. *Colors in Eco-ITS:* The following Tennant Standard and 100 Series Colorants may be added to Eco-ITS: Rotunda Red, Regal Blue, Black, Yellow, Black 100, Canada Gray 100, Light Gray 100, Medium Gray 100 and Yellow 100. Use Colorants at a rate of one unit per 1-gallon (3.78 litres) of Eco-ITS. Yellow 100 will not impart total hide. Use this colorant at a rate of two units per gallon (3.78 litres) of Eco-ITS.	
LIMITATIONS:	*Contamination (Fisheyes):* Product may fisheye if oil, silicones, mold release agents or other contaminants are present. *UV/Light Stability:* This product is not light stable and will yellow/amber over time. *Chemical Resistance / Staining:* Reduced chemical resistance and staining is possible in pigmented versions of the system. *Worktime*: Short potlife.	

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

PLEASE SEE MATERIAL SAFETY DATA SHEET (MSDS) FOR HANDLING PROCEDURES.
USE PRODUCT AS DIRECTED.
KEEP OUT OF THE REACH OF CHILDREN.

PRELIMINARY FLOOR INSPECTION

CHECK THE TEMPERATURE AND HUMIDITY: Floor temperature and materials should be between 65°F (18°C) and 90°F (32°C). Humidity must be less than 80%. **DO NOT** coat unless floor temperature is more than five degrees over the current, local dew point.

RECOAT

Eco-ITS Satin may be used as a topcoat over an existing Tennant epoxy or urethane that is well-bonded to concrete in sound condition. If these conditions do not exist, call Tennant Company Tech Support for further instructions. If there are signs of moisture, see “Check for Moisture” section below.

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.

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	• Roller assembly (18")
• Jiffy® mixer blade [Tennant Part No. 08643-1 (small unit) or 08643-5 (large unit)] (Registered trademark: Jiffy® Mixer Co. Inc.)	• Medium (3/8") nap roller
• 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	• 100 grit sandpaper [Tennant Part No. 65451]
• Spiked shoes	• Paint brushes

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.

EasyPrep™: With 100 grit concrete tool, coating system must be <15 mils. With 25/35 grit concrete tool, coating system must be 10-25 mils.
Diamond Grinding: Coating system thickness varies with the type of diamond used. Sweep and vacuum to remove fine dust.
Steel Shot Blast: Coating system must be >16 mils. Use magnetic broom to remove excess shot, sweep to remove large debris and vacuum to remove fine dust.
Scarify: Coating system must be >25 mils. 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-PJS™ or Eco-EJF™ Ultra. Construction joints less than one inch wide may also be filled with Eco-PJS. Isolation or expansion joints must be filled with a flexible material designed for this purpose. Coating applied over filled joints will crack if there is concrete movement.

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.

COVERAGE RATE will depend upon coating thickness. Much of this will soak into porous concrete. A gallon (3.78 litres) of Eco-MPE will cover:
535 ft^2 (49.7 m^2) @ 3 mils (0.08 mm) wet/dry film
321 ft^2 (29.8 m^2) @ 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-fill 5-gallon (18.9 litres) units.) For full-fill 5's (18.9 litres), pour out 2 gallons (7.56 litres) into a measuring container. Then, pour the measured Part A into a mixing pail.

COLORS: Premix Tennant Colorants to ensure uniform color. Colorant is added to the Part A and mixed using a Jiffy® mixer blade and slow speed drill. **NOTE:** *When using colorant in the bulk units, add the colorant to the Part A that has been measured into the mixing pail.*

ADD ECO-MPE PART B TO PART A (3 GALLONS / 11.34 LITRES TOTAL MIX). For full-fill 5's (18.9 litres), pour out 1 gal (3.78 litres) Part B into a different measuring container 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 that 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.

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).* ***NOTE:*** *The use of spiked shoes will allow freedom of movement on the wet floor.*

TO REDUCE OUTGASSING BUBBLES, it is best to wait until the primer has set up enough to walk on before applying a build coat of Eco-MPE. The primer does not need to be sanded if coated within 24 hours at floor temperatures 65°F-90°F (18°C-32°C).

If primer is not coated within 24 hours, it must be sanded with 60 grit paper. 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.

APPLICATION – BUILD COAT - ECO-MPE

COVERAGE RATE will depend upon required thickness. A gallon (3.78 litres) of Eco-MPE will cover:
201 ft^2 (18.7 m^2) @ 8 mils (0.20 mm) wet/dry film
160 ft^2 (14.9 m^2) @ 10 mils (0.25 mm) wet/dry film
107 ft^2 (14.9 m^2) @ 15 mils (0.38 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-fill 5-gallon (18.9 litres) units.)

COLORS: Premix Tennant Colorants to ensure uniform color. Colorant is added to the Part A and mixed using a Jiffy® mixer blade and slow speed drill. **NOTE:** *When using colorant in the bulk units, add the colorant to the Part A that has been measured into the mixing pail.*

ADD ECO-MPE PART B TO PART A (3 GALLONS (11.34 LITRES) MAX). *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 OR 1/16" (1.60 mm) NOTCHED SQUEEGEE at an even speed with down pressure to spread the material.

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 and push at an even speed with slight down pressure. ***NOTE:*** *The use of spiked shoes will allow freedom of movement on the wet floor.* ***CAUTION:*** *The surface will be slippery.*

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-ITS Gloss at floor temperatures of 65-90°F (18-32°C), it does not need to be sanded if applied within 24 hours. **NOTE:** ***DO NOT*** *try this with non-Tennant epoxies, this is a Tennant solution only.*

Eco-MPE must be sanded if applying Eco-ITS Gloss after 24 hours. Use 100 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.

APPLICATION – TOPCOAT – ECO-ITS GLOSS

NOTE: ***This new, plant-based technology builds viscosity when Parts A & B are combined. You may notice the material requires more effort to roll after 15-20 minutes; therefore, work efficiently and do not mix material that will not be applied within 15-20 minutes.*** ***NOTE:*** *Once opened, this material cannot be resealed for later use.*

PREMIX PART A FOR 1 MINUTE USING A JIFFY® MIXER BLADE with slow speed drill.

COLORS: Premix Tennant Colorant before adding to Eco-ITS Gloss to ensure uniform color. Add colorant to Eco-ITS Gloss Part A and mix using a Jiffy® mixer blade and slow speed drill. Use colorants at a rate of one unit per 1-gallon (3.78 litres) unit of Eco-ITS Gloss.

CONTINUE TO MIX AND ADD PART B.

MIX FOR 2 MINUTES using a Jiffy® mixer blade and slow speed drill. Pour into application tray.

APPLY ECO-ITS GLOSS at the rate of 500 ft^2/gallon (46.45 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. Dip the roller in the coating and lightly roll out excess in the application tray. Apply two 8-10 foot (2.4-3.0 meters) long paths on the concrete, making one stroke left to right and one right to left. Rewet the roller and apply two more paths adjacent to the first pair. Rewet roller and apply a third pair adjacent to the second.

SPREAD THE MATERIAL evenly with V-shaped cross passes.

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.

NOTE: *When multiple applicators are used to apply material, inconsistencies between areas may result. To ensure a more uniform finish, an individual outfitted with spiked shoes may finish by pushing or pulling a roller across all applicator areas.* ***CAUTION:*** *The surface will be slippery.*

ALLOW COATING TO DRY 24 HOURS at 75°F (24°C), 50% relative humidity before opening to light traffic. Allow up to 72 hours at low temperatures, low humidity or for forklift traffic and scrubbing. 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 4 (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 4 (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

This warranty applies to all Specialty Surface Coatings, with the following exceptions: Eco-Hard-N-Seal™, Eco-EDP™ (Electrostatic Dissipative Primer), Eco-EDE™ (Electrostatic Dissipative Epoxy), and SDS™ (Static Dissipative System). These products have a separate warranty policy.
Tennant Company warrants its Specialty Surface Coatings to be free from defective manufacture, improper formulation, and defective ingredients. 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.