

Tennant HPS

High Protection 25 mil System



System – 25 mil Eco-HPS® 100 – Gloss, uses Eco-MPE™, Multi-Purpose Epoxy, which is a 100% solids epoxy applied at 3 to 5 mils (0.08 to 0.13 mm) for priming and 17 to 19 mils (0.43 to 0.48 mm) as a build coat. Eco-HPS® 100 – Gloss Urethane Topcoat is a light-stable and chemical resistant urethane (CRU).

- **LEED® CREDIT** – LEED Green Building Certification Program credits may be available:
 - **Indoor Environmental Quality**
 - 4.2 Low-Emitting Materials, Paint & Coatings
- **INCREASED APPEARANCE** – Light stable / aliphatic over the expected life of the coating. Available in a variety of colors.
- **HIGH CHEMICAL RESISTANCE** – Eco-HPS 100 withstands harsh industrial traffic, Skydrol®, jet fuels and other chemicals.
- **SAFER WORK ENVIRONMENT** – High-gloss finish increases brightness and light reflectivity.
- **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.

PRIMARY APPLICATIONS

Hangar Floor	Manufacturing
Automotive Manufacturing	Assembly / Production
Mechanical Room	Packaging
Clean Room / Lab	

SYSTEM PROPERTIES (with Eco-HPS 100 Topcoat)

Property	Test Method	Results
Volatile Organic Compound, VOC	ASTM D3960	Mixed A+B = 0.06 lb/gal (7 g/L)
Abrasion Resistance Taber Abraser CS-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions	ASTM D4060	18.8 mg/loss Result based on independent lab testing of Eco-HPS™.
Adhesion to Concrete	ASTM D4541	450 psi (3.10 MPa) (concrete failed)
Adhesion to Concrete	ASTM D7234	732 psi (4.48 MPa) (concrete failed)
Coefficient of Friction – COF, James Friction Tester	ASTM D2047	0.61
Wet Static Coefficient of Friction, BOT 3000	ANSI/NFSI B101.1	0.99
Compressive Strength, (epoxy)	ASTM D695	13,500 psi (93.079 MPa)
Flammability	ASTM D635	182 mm/min
Resistance to Yellowing As measured using ASTM D2244 after 1000 consecutive hours UV exposure in QUV.	ASTM G154	<10 increase of yellow units (CIE Lab Δb) if pigmented topcoat
Tensile Strength	ASTM D2370	6,250 psi (43.09 MPa)
Percent Elongation	ASTM D2370	6
König Hardness (3 mil / 0.08 mm film) (topcoat resin only)	ASTM D4366	171.3
Shore D Hardness (epoxy)	ASTM D2240	80-85 @ 0 sec 75-80 @ 15 sec
Water Absorption, 24-hour immersion	ASTM C413	0.2% weight increase

TENNANT COATINGS

For First Impressions That Last™

Testing performed at ambient conditions unless stated otherwise.

CHEMICAL RESISTANCE PROPERTIES (with Eco-HPS 100 Topcoat)					
	1 Day	7 Days		1 Day	7 Days
Acids, Inorganic			Solvents (Chlorinated)		
10% Hydrochloric Acid	E	E	Methylene Chloride	P	P
30% Hydrochloric Acid (Muriatic)	E	E	Solvents (Ketones & Esters)		
10% Nitric Acid	G	P	Methyl Ethyl Ketone (MEK)	F	F
50% Phosphoric Acid	G	G	Propylene Glycol Methyl Ether Acetate (PMA)	E	G
37% Sulfuric Acid (Battery Acid)	E	G	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	G	G	Coffee	E	E
Methanol	G	F	Coke®	E	E
Solvents (Aliphatic)			Ketchup	E	E
d-Limonene	E	E	Mustard	G*	G*
Jet Fuel - JP-4	E	E	Red Wine	E	G*
Gasoline	E	E	3M™ DuraPrep™	G*	F
Mineral Spirits	E	E	Purdue Betadine Solution	G*	G*
Solvents (Aromatic)			Registered trademarks: Tide® of Proctor and Gamble, Skydrol® of Solutia, Inc., Coke® of Coca-Cola Company and 3M™ DuraPrep™.		
Xylene	E	E			

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 65°F (18°C) and 90°F (32°C).	
SHELF LIFE:	One year from date of manufacture.	
PACKAGING OPTIONS / PART NUMBERS:	Eco-MPE™	Eco-HPS® 100
	3.0 gallons / 370503 15.0 gallons / 370650	0.94 gallons / 9002633 4.7 gallons / 9002634
OPTIONS:	<p><i>Colors in Eco-MPE:</i> All 100 Series and Standard Colorant may be added to Eco-MPE. Use colorant at a rate of one unit per 3-gallon (11.34 litres) unit of Eco-MPE. Standard Colorants-White, Light Gray, 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.</p> <p><i>Colors in Eco-HPS 100:</i> All 100 Series and Standard Colorants may be added to Eco-HPS 100. Use Colorants at a rate of one unit per 1-gallon (3.78 litres) of Eco-HPS 100.</p>	
LIMITATIONS:	<p><i>Contamination (Fisheyes):</i> Product may fisheye if oil, silicones, mold release agents or other contaminants are present.</p> <p><i>Chemical Resistance / Staining:</i> Reduced chemical resistance and staining is possible in pigmented versions of the system.</p>	

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 INSPECTIONS

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

When this 25 mil system shows wear in the future, it can be recoated using Eco-HPS 100 as long as the system is well-bonded to concrete. 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 and rinse with clean water before coating. If these conditions do not exist, call Tennant Company Technical 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 ft² (1.5 kg per 92.9m²) 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 Tennant Eco-MVR may be a consideration; see Eco-MVR System Guide and/or call Tennant Company Technical Support for further 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)]	• 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. 65449]
• Spiked shoes	• 60 grit sandpaper [Tennant Part No. 65451]

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: For a seamless appearance, joints need to be filled. Contraction or control joints can be filled with a semi-rigid joint filler such as Eco-PJF™ or Eco-EJF™. Ensure the joints are clean by running a saw equipped with a diamond blade and vacuum to remove any debris. Construction joints less than one inch wide may also be filled with Eco-PJF.

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 will depend upon coating thickness. Much of this will soak into porous concrete. A gallon (3.78 litres) of Eco-MPE will cover: 535 ft² (49.7 m²) @ 3 mils (0.08 mm) wet/dry film, 321 ft² (29.8 m²) @ 5 mils (0.13 mm)

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 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.

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 and rinse with clean water before coating.

APPLICATION – BUILD COAT - ECO-MPE

COVERAGE RATE will depend upon coating thickness. A gallon (3.78 litres) of Eco-MPE will cover: 94 ft² (8.7 m²) @ 17 mils (0.43 mm) wet/dry film, 84 ft² (7.8 m²) @ 19 mils (0.48 mm)

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 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 uniformed appearance. Backrolling is required to remove the puddles and squeegee lap marks in order to obtain uniform texture and a consistent mil thickness.

Eco-MPE must be thoroughly sanded before applying Eco-HPS 100 (see chart below).

APPROXIMATE SAND TIME (hours) - °F (°C)

65 (18.3)	70 (21.1)	75 (23.9)	80 (26.7)	90 (32.2)
24	20	16	12	8

Use 100 grit paper to sand Eco-MPE. The use of more aggressive paper will introduce deep grooves that will not be covered by a single, thin coat of urethane; swirl marks will be particularly evident in a topcoat that is glossy. 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 and rinse with clean water before coating and tack rag to remove fine dust.

APPLICATION – TOPCOAT – ECO-HPS® 100

PREMIX PART A FOR 3 MINUTES USING A JIFFY® MIXER BLADE with slow speed drill. *POTLIFE: Mix only enough material which can be used in a two-hour period.* **NOTE:** Once opened, this material cannot be resealed for later use.

COLORS: Premix Tennant Colorants before adding to Eco-HPS® 100 to ensure uniform color. Add colorant to Eco-HPS® 100 A.

ADD PART B while mixing.

MIX FOR 3 MINUTES using a Jiffy® mixer blade and slow speed drill. Pour into application tray.

APPLY ECO-HPS®100 at the rate of 500 ft²/gallon (46.45 m²/3.78 litres) 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 meter) 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.

MAKE SURE THE FLOOR HAS JUST ENOUGH COATING TO COVER EVENLY. Excess material could cause the floor to blister, especially in high humidity. Insufficient material will cause the floor to look non-uniform.

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.

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 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.