

# Tennant Performance

## WearGuard™-240

### Gloss Urethane System



**DESCRIPTION** - A high-solids epoxy applied at 3 to 5 mils (0.08 to 0.13 mm) for priming and 7 to 13 mils (0.18 to 0.33 mm) as a build coat. Topcoat is a one-component, moisture-cure aromatic urethane for protecting interior concrete floors.

RECOMMENDED SYSTEM			
Application Steps	Tennant Product	Application Thickness mils [mm]	Coverage Rate ft <sup>2</sup> /gal [m <sup>2</sup> /3.78 L]
Primer	Eco-MPE™	3-5 [0.08-0.13]	321-535 [29.8-49.7]
Build Coat	Eco-MPE	7-13 [0.18-0.33]	123-228 [11.4-21.2]
Topcoat	WearGuard-240 Gloss	4 [0.10]	400 [37.2]

Other Tennant products may be used for the application steps; contact your Tennant Coatings Specialist. See appropriate product bulletin for application instructions or contact Tennant Technical Support. The alternate system #1 adds a second topcoat.

ALTERNATE SYSTEM #1			
Application Steps	Tennant Product	Application Thickness mils [mm]	Coverage Rate ft <sup>2</sup> /gal [m <sup>2</sup> /3.78 L]
2 <sup>nd</sup> Topcoat	WearGuard-240 Gloss	4 [0.10]	400 [37.2]

The alternate systems below use different products for the primer and build coat.

ALTERNATE SYSTEM #2			
Application Steps	Tennant Product	Application Thickness mils [mm]	Coverage Rate ft <sup>2</sup> /gal [m <sup>2</sup> /3.78 L]
Primer	Eco-RCE	3-5 [0.08-0.13]	321-535 [29.8-49.7]
Build Coat	Eco-RCE	7-13 [0.18-0.33]	123-228 [11.4-21.2]

ALTERNATE SYSTEM #3			
Application Steps	Tennant Product	Application Thickness mils [mm]	Coverage Rate ft <sup>2</sup> /gal [m <sup>2</sup> /3.78 L]
Primer	Eco-RCE/M	3-5 [0.08-0.13]	321-535 [29.8-49.7]
Build Coat	Eco-RCE/M	7-13 [0.18-0.33]	123-228 [11.4-21.2]

ALTERNATE SYSTEM #4			
Application Steps	Tennant Product	Application Thickness mils [mm]	Coverage Rate ft <sup>2</sup> /gal [m <sup>2</sup> /3.78 L]
Primer	Eco-GPE	3-5 [0.08-0.13]	321-535 [29.8-49.7]
Build Coat	Eco-GPE	7-13 [0.18-0.33]	123-228 [11.4-21.2]

- **DURABLE** - Offers protection against dirt, spills and wear
- **SAFER WORK ENVIRONMENT** - High gloss finish increases light reflectivity

#### ENVIRONMENTALLY & USER FRIENDLY

- Cleans easily, saving detergent, labor and wear
- Eliminates concrete dusting

#### PRIMARY APPLICATIONS

Main Aisles	Assembly / Production	Warehouse / Distribution
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## SYSTEM PROPERTIES

Property	Test Method	Results
Abrasion Resistance Taber Abrasion CS-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions	ASTM D4060	20-30 mg/loss
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 – COF, James Friction Tester	ASTM D2047	0.52-0.55
Compressive Strength, psi [MPa]	ASTM D695	13,500 [93.1]
Impact Resistance	ASTM D2794	>100 lbs.
Shore D Hardness	ASTM D2240	80-85 @ 0 sec 75-80 @ 15 sec
Tensile Strength, psi [MPa]	ASTM D2370	5,600 [38.61]
Percent Elongation	ASTM D2370	76
Thermal Stability / Heat Resistance (resin only) (5 hours at 158°F.)	MIL-D-3134J, Section 4.6.3	No slip/flow, no softening, no change in appearance
Volatile Organic Compound, VOC, lb/gal [g/L]	ASTM D3960	<b>Eco-MPE</b> <b>WG-240 Gloss</b> A+B = 0.41 [49]                      2.06 [247]
Water Absorption, 24-hour immersion	ASTM C413	2.7% weight increase

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

## CHEMICAL RESISTANCE PROPERTIES

WearGuard-240 Gloss	1 Day	7 Days	Solvents (Aromatic)	1 Day	7 Days
<b>Acids, Inorganic</b>			<b>Solvents (Aromatic)</b>		
10% Hydrochloric Acid	E	G	Xylene	G	F
30% Hydrochloric Acid (Muriatic)	F	P	<b>Solvents (Chlorinated)</b>		
10% Nitric Acid	F	P	Methylene Chloride	P	P
50% Phosphoric Acid	E	G	<b>Solvents (Ketones &amp; Esters)</b>		
37% Sulfuric Acid (Battery Acid)	E	G	Methyl Ethyl Ketone (MEK)	P	P
<b>Acids, Organic</b>			Propylene Glycol Methyl Ether Acetate (PMA)	F	P
10% Acetic Acid	G	F	<b>Miscellaneous Chemicals</b>		
10% Citric Acid	E	E	20% Ammonium Nitrate	E	E
Oleic Acid	G	F	Brake Fluid	P	P
<b>Alkalies</b>			Bleach	E	E
10% Ammonium Hydroxide	E	G	Motor Oil (SAE 30)	E	E
50% Sodium Hydroxide	E	E	Skydrol® 500B	F	P
<b>Solvents (Alcohols)</b>			Skydrol® LD4	F	P
Ethylene Glycol (Antifreeze)	E	G	20% Sodium Chloride	E	E
Isopropyl Alcohol	G	F	1% Tide® Laundry Soap	E	E
Methanol	F	P	10% Trisodium Phosphate	E	E
<b>Solvents (Aliphatic)</b>			Unleaded Gasoline with Ethanol	F	P
d-Limonene	E	G			
Jet Fuel - JP-4	E	E			
Gasoline	E	G			
Mineral Spirits	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

<b>STORAGE:</b>	Materials should be stored indoors between 65°F [18°C] and 90°F [32°C].	
<b>SHELF LIFE:</b>	One year from date of manufacture.	
<b>PACKAGING OPTIONS / PART NUMBERS:</b>	<b>WearGuard-240 Gloss</b>	<b>Eco-MPE</b>
	3.98 gal (15.07 litres) / 9015686	3 gal / 370503 15 gal / 370650
<b>OPTIONS:</b>	<b>Colors in Eco-MPE:</b> Use colorants at a rate of one unit per 3-gallon (11.34 litres) mix. Standard Colorants-White, Yellow and Light Gray 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 WG-240 Gloss:** Use colorants at a rate of one unit per 0.80 gallon (3.02 litres) mix. Colors available are Battleship Gray, Tile Red, Smoke Blue, Medium Gray, Yellow, Canada Gray, Regal Blue, Sandy Beige and Black. Yellow Red will not impart total hide. Use this colorant at a rate of two units per 0.80 gallon (3.02 litres) mix.

**NOTE:** *Light Gray and White are not recommended as exposure to light will cause these lighter colors to discolor in a short time.*

**NOTE:** *The resin used for this product is amber, so colors will appear slightly darker and will not match other products with same colorant.*

**Traction Grit:** To improve traction in slip hazard areas, 291 may be used. See 291 product guide.

**LIMITATIONS:** *UV/Light Stability:* This product is not UV/light stable and will yellow/amber over time.

*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 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.

#### **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 Technical Support for further instructions.

**CHECK FOR MOISTURE:** Concrete must be dry before application of this floor coating material. Concrete moisture testing must occur. In-situ relative humidity testing is recommended. Readings must be below 75% relative internal concrete humidity. Test methods can be purchased at [www.astm.org](http://www.astm.org), see F2170, or follow 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	• Mixing pail
• Jiffy® mixer blade [Tennant Part No. 08643-1 (1 gal) or 08643-5 (5 gal)]	• Roller assembly (18")
• Slow speed drill (500 rpm or less)	• Shed resistant, 3/8" (10 mm) nap rollers
• 18-24" (457.2-609.6 mm) Flat rubber squeegee	• Application tray
• 18-24" 1/16" Notched rubber squeegee	• Disc machine
• Spiked shoes	• 100 grit sandpaper
• Organic respirator	

**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.

**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 or 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<sup>2</sup> (49.7 m<sup>2</sup>) at 3 mils (0.08 mm) wet/dry film  
400 ft<sup>2</sup> (37.2 m<sup>2</sup>) at 4 mils (0.10 mm) wet/dry film  
321 ft<sup>2</sup> (29.8 m<sup>2</sup>) 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 A to 1 part B by volume.*

**APPROXIMATE WORK TIME (minutes) - °F (°C):**

<b>65 (18.3)</b>	<b>70 (21.1)</b>	<b>75 (23.9)</b>	<b>80 (26.7)</b>	<b>90 (32.2)</b>
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:** One gallon (3.78 litres) of Eco-MPE will cover:

228 ft<sup>2</sup> (21.2 m<sup>2</sup>) at 7 mils (0.18 mm) wet/dry film  
200 ft<sup>2</sup> (18.6 m<sup>2</sup>) at 8 mils (0.20 mm) wet/dry film  
178 ft<sup>2</sup> (16.5 m<sup>2</sup>) at 9 mils (0.23 mm) wet/dry film  
160 ft<sup>2</sup> (14.9 m<sup>2</sup>) at 10 mils (0.25 mm) wet/dry film  
145 ft<sup>2</sup> (13.5 m<sup>2</sup>) at 11 mils (0.28 mm) wet/dry film  
133 ft<sup>2</sup> (12.4 m<sup>2</sup>) at 12 mils (0.30 mm) wet/dry film  
123 ft<sup>2</sup> (11.4 m<sup>2</sup>) at 13 mils (0.33 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 uniformed appearance. Backrolling is required to remove the puddles and squeegee lap marks in order to obtain uniform texture and a consistent mil thickness. **NOTE:** *Get off the Eco-MPE as soon as possible.*

If Eco-MPE is topcoated with WG-240 Gloss at floor temperatures of 65-90°F (18-32°C), it does not need to be sanded if applied within 24 hours.

If epoxy is not coated within 24 hours, it must be sanded with 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; 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 WEARGUARD-240 GLOSS

**PREMIX 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 Colorant before adding to WearGuard-240 Gloss to ensure uniform color. Use a larger, separate mixing container when using colorants. Add WearGuard-240 Gloss to the mixing container, then, add colorant.

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

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**APPLY WEARGUARD-240 GLOSS** at the rate of 400 sq. ft. per gallon (37.16 m<sup>2</sup>/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.

**ALLOW COATING TO CURE 24 HOURS** before opening to foot traffic.

## APPLICATION – 2<sup>nd</sup> TOPCOAT - WEARGUARD-240 GLOSS (OPTIONAL)

**NOTE:** A second coat may be applied; however, it must be sanded between coats with 100 grit sandpaper. Follow application instructions above.

## 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 cause 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

Tennant offers a limited warranty on all products. Please see the Tennant Coatings Limited Product Warranty Statement on our website at [www.tennantcoatings.com/warranty](http://www.tennantcoatings.com/warranty). Please contact the Tennant Coatings Technical Support team for additional questions at 800-228-4943, option 3 (US & Canada), 800-832-8935 (International).