

Mechanical Room

Flexible/Reinforced System



DESCRIPTION – A prime coat of a flexible waterproofing membrane applied at 3-5 mils (0.08-0.13 mm), followed by an additional two coats of the same coating (20 mils (0.51 mm) each coat). Reinforcement layer is a high solids epoxy applied at 10 mils (0.25 mm). Topcoat is a light-stable urethane which has a satin appearance for long-lasting durability.

RECOMMENDED SYSTEM			
Application Steps	Tennant Product	Application Thickness mils [mm]	Coverage Rate ft ² /gal [m ² /3.78 L]
Flexible Primer	Eco-Flex	3-5 [0.08-0.13]	321-535 [29.8-49.7]
Flexible Build Coat	Eco-Flex	20 [0.51]	80 [7.4]
Flexible Build Coat	Eco-Flex	20 [0.51]	80 [7.4]
Reinforcement Coat	Eco-MPE	10 [0.25]	160 [14.9]
Topcoat	Eco-HTS 100	3 [0.08]	500 [46.45]

- **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.
- **IMPROVED APPEARANCE** – Light stable / aliphatic over the expected life of the coating. Available in a variety of UV-stable colors.
- **DURABLE** – Eco-HTS 100 lasts twice as long as standard urethanes; up to four times as long as standard epoxies. It has a satin sheen which maintains a fresh look even in traffic aisles.

PRIMARY APPLICATIONS

Mechanical Rooms

SYSTEM PROPERTIES (with Eco-HTS 100 Topcoat)		
Property	Test Method	Results
Abrasion Resistance Taber Abraser CS-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions	ASTM D4060	18 mg/loss Result based on independent lab testing of Eco-HTS™.
Adhesion to Concrete, psi [MPa]	ASTM D4541	>400 [2.76] (concrete failed)
Coefficient of Friction – COF, James Friction Tester	ASTM D2047	0.63
Coefficient of Friction - Wet Static, BOT 3000	ANSI/NFSI B101.1	0.94
Compressive Strength, psi [MPa] (epoxy)	ASTM D695	13,500 [93.08]
Flammability, mm/min	ASTM D635	182
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 of yellow units (CIE Lab Δb) if pigmented topcoat
Shore A Hardness (epoxy)	ASTM D2240	85 @ 0 sec 80 @ 15 sec
Shore D Hardness (epoxy)	ASTM D2240	40 @ 0 sec 35 @ 15 sec
Tensile Strength, psi [kPa] (7 mils, 3-day cure)	ASTM D2370	18,530 [127,760]
Percent Elongation (7 mils, 3-day cure)	ASTM D2370	125
Volatile Organic Compound, VOC, lb/gal [g/L]	ASTM D3960	Eco-MPE A+B = 0.41 [49] Eco-HTS 100 A+B+C = 0.05 [6] Eco-Flex A+B = 1.29 [154]
Water Absorption, 24-hour immersion	ASTM C413	0.2% weight increase

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

CHEMICAL RESISTANCE PROPERTIES (with Eco-HTS 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	E	E		Methyl Ethyl Ketone (MEK)		E	E
50% Phosphoric Acid	E	G		Propylene Glycol Methyl Ether Acetate (PMA)		E	E
37% Sulfuric Acid (Battery Acid)	E	E		Miscellaneous Chemicals			
Acids, Organic				20% Ammonium Nitrate			
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			
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			
Ethylene Glycol (Antifreeze)	E	E		10% Trisodium Phosphate		E	E
Isopropyl Alcohol	E	E		Coffee		E	E
Methanol	E	E		Coke®		E	E
Solvents (Aliphatic)				Ketchup			
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			
Xylene	E	E		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 65°F [18°C] and 90°F [32°C].		
SHELF LIFE:	One year from date of manufacture.		
PACKAGING OPTIONS / PART NUMBERS:	Eco-MPE	Eco-Flex	Eco-HTS 100
	3.0 gallons / 370503	4 gallons / 9003640	1.09 gallons / 9002617
	15.0 gallons / 370650	10 gallons / 9003637	5.5 gallons / 9002621
OPTIONS:	<p>Colors in Eco-Flex: Use colorants at a rate of one unit per 4-gallon (15.12 litres) mix. Standard Colorants--White, Yellow and Light Gray will not impart total hide. Use these colorants at a rate of two units per 4-gallon (15.12 litres) mix.</p> <p>Colors in Eco-MPE: 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.</p> <p>Colors in Eco-HTS 100: Use Colorants at a rate of one unit per 1-gallon (3.78 litres) mix. Standard Colorants--White, Yellow and Sandy Beige will not impart total hide. Similar colorants also may not hide as well. Refer to Color Selection Guide or consult Tennant Technical Support.</p>		
LIMITATIONS:	<p>Contamination (Fisheyes): Product may fisheye if oil, silicones, mold release agents or other contaminants are present.</p> <p>Properties of Eco-Flex: Product designed as primer and build coat only. For enhanced chemical resistance and wear characteristics, product must be topcoated. Thin urethanes should not be applied directly to Eco-Flex where there is going to be traffic of any kind. The differences in flexibility may lead to premature wear or bond issues</p>		

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 CONCRETE: Concrete must be structurally sound and free of curing membrane, paint 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, 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 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.

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.

APPLICATION EQUIPMENT

<ul style="list-style-type: none"> • Protective clothing • Jiffy® mixer blade [Tennant Part No. 08643-1 (1 gal) or 08643-5 (5 gal)] • Slow speed drill (500 rpm or less) • 18-24" (457.2-609.6 mm) Flat rubber squeegee • 18-24" (457.2-609.6 mm) 3/16" (4.78 mm) Notched rubber squeegee • 18-24" (457.2-609.6 mm) 1/16" (4.76 mm) Notched rubber squeegee • Spiked shoes 	<ul style="list-style-type: none"> • 18" (457.2 mm) Roller assembly • 3/8" Medium nap roller • Application tray • Disc machine • 60 grit sandpaper • 80 grit sandpaper
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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.

Scarify: 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-FLEX

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-Flex will cover:

535 ft² (49.7 m²) @ 3 mils (0.08 mm) wet/dry film

400 ft² (37.2 m²) @ 4 mils (0.10 mm) wet/dry film

321 ft² (29.8 m²) @ 5 mils (0.13 mm) wet/dry film

PREMIX PART A using a Jiffy® mixer blade and slow speed drill. (Premixing is required for both 2-gallon (7.56 litres) and full-filled 5-gallon (18.9 litres) units.) For full-filled, 5-gallon (18.9 litres) pails, pour out no more than 2 gallons (7.56 litres) into a measuring container. Then, pour the measured Part A into a mixing pail.

ADD ECO-FLEX PART B TO PART A (4 GALLONS / 15.12 LITRES TOTAL MIX)

For full-filled 5-gallon (18.9 litres) pails, pour out 2 gallons (7.56 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 1 part A to 1 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.)

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-Flex 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-Flex.

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

APPLICATION – FLEXIBLE BUILD COAT - ECO-FLEX

COVERAGE RATE: A gallon (3.78 litres) of Eco-Flex will cover:
80 ft² (7.4 m²) at 20 mils (0.51 mm) wet/dry film

REPEAT STEPS used for mixing and spreading of the primer coat. A 3/16" notched squeegee can be used to increase the thickness applied.

COLORS: Premix Tennant Colorants to ensure uniform color. Colorant is added at the rate of 1 unit per 4-gallons (15.12 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. **NOTE:** *Get off the Eco-Flex as soon as possible.*

Allow the first build coat of Eco-Flex to set until you can walk on it.

APPLICATION – FLEXIBLE BUILD COAT - ECO-FLEX

COVERAGE RATE: A gallon (3.78 litres) of Eco-Flex will cover:
80 ft² (7.4 m²) at 20 mils (0.51 mm) wet/dry film

Allow the build coat of Eco-Flex to set until you can walk on it.

REPEAT STEPS used for mixing and spreading of the primer coat. A 1/16" notched squeegee can be used to increase the thickness applied.

TO AVOID INDENTATION/COMPRESSION of heavy objects, Eco-Flex must be coated with a minimum of 8 mils (0.20 mm) of Eco-MPE before traffic or a thin urethane is applied. Eco-Flex should be set before applying Eco-MPE. Eco-Flex must be coated with Eco-MPE at floor temperatures of 65-90°F (18-32°C) within 24 hours.

APPLICATION – REINFORCEMENT COAT - ECO-MPE

This layer bridges the difference in flexibility between Eco-Flex and the urethane topcoat.

COVERAGE RATE: One gallon (3.78 litres) of Eco-MPE will cover:
160 ft² (14.9 m²) at 10 mils (0.25 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):

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 NOTCHED 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.*

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).*

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.

Eco-MPE must be topcoated with Eco-HTS 100 at floor temperatures of 65-90°F (18-32°C) within 24 hours.

APPLICATION – TOPCOAT – ECO-HTS 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 Colorant before adding to Eco-HTS 100 to ensure uniform color. Add colorant to Eco-HTS 100 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-HTS 100.

POUR PART C INTO PART A while mixing.

CONTINUE TO MIX AND ADD PART B. MIX FOR 3 MINUTES using a Jiffy® mixer blade and slow speed drill. Pour into application tray.

APPLY ECO-HTS 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 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.

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.

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

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

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 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. Please contact the Tennant Coatings Technical Support team for additional questions at 800-228-4943, option 3 (US & Canada), 800-832-8935 (International).