

Eco-MPE™

Multi-Purpose Epoxy



DESCRIPTION – Neutral, two-component, high solids epoxy. Applied at 3 mils (76.2 microns) for priming or up to 30 mils (762 microns) (1/32 inch) as a build coat. Slurry option is available (instructions at end of document) for thicker applications. Colors are optional.

- **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.

ENVIRONMENTALLY & USER FRIENDLY

- Seals concrete, protecting against dirt and spills
- Cleans easily, saving detergent, labor and water
- Complies with SCAQMD VOC regulations-- <100 g/L.

PRIMARY APPLICATIONS

Stand-alone coating (a finish coat of urethane is recommended)	Use as a concrete primer before applying another epoxy or urethane
Seed coat for full broadcast flake and quartz floors	Use as a random crack filler when combined with thickening agents
Resin for epoxy mortar system	Level floor after mechanical prep

APPLICATION COVERAGE RATE

Coverage Rate, ft ² /gal [m ² /L]	53-535 [1.3-13.1]
Application Thickness, wet mils [mm]	3-30 [0.08-0.76]

MATERIAL PROPERTIES (LIQUID)

Property	Test Method	Results
Percent Solids, by wt [by vol]	ASTM D1475	A+B = 95.45 [94.56]
Volatile Organic Compound, VOC, lb/gal [g/L]	ASTM D3960	A+B = 0.41 [49]

CURED COATING PROPERTIES (DRY FILM)

Property	Test Method	Results
Abrasion Resistance, mg loss Taber Abraser, CS-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions	ASTM D4060	83.1 (Independent Lab Test Result)
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	0.59-0.62
Compressive Strength, psi [MPa]	ASTM D695	13,500 [93.079]
Tensile Strength, psi [MPa]	ASTM D2370	8,000 [55,158]
Percent Elongation	ASTM D2370	5
Shore D Hardness	ASTM D2240	80-85 @ 0 sec 75-80 @ 15 sec

Results are based on conditions at 77°F (25°C)

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:	3 gallons (11.34 litres) / 370503	15 gallons (56.7 litres) / 370650
	A = 2 gallons (7.56 litres) / 370504 (5-gallon pail) B = 1 gallon (3.78 litres) / 370505 (1-gallon can)	A = 5 gallons (18.9 litres) / 370651 (5-gallon pail) x1 B = 5 gallons (18.9 litres) / 370652 (5-gallon pail) x2

BULK – CONTRACTOR ONLY

165 gallons (623.7 litres) / 9004758	750 gallons (2,835 litres) / 9021196
A = 55 gallons (207.9 litres) / 9004502 (55-gallon drum) x1 B = 55 gallons (207.9 litres) / 9004503 (55-gallon drum) x2	A = 250 gallons (945 litres) / 9021194 (250-gallon tote) x1 B = 250 gallons (945 litres) / 9021195 (250-gallon tote) x2

FOR SLURRY OPTION: #190 Silica Flour and #60 Mesh Fine Silica Sand

OPTIONS: *Colors:* Use colorants at a rate of one unit per 3-gallon (11.34 litres) mix of Eco-MPE. 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. (White and Light Gray are only recommended if topcoating with a non-yellowing urethane. Due to possible color inconsistencies, Battleship Gray and Medium Gray colorants are only recommended if topcoated.)

LIMITATIONS: *Colors:* Multiple coats may be needed to achieve complete hide in lighter systems.
UV/Light Stability: This product is not light stable and will yellow/amber over time.
Contamination (Fisheyes): Products may fisheye if oil, silicones, mold release agents or other contaminants are present

CHEMICAL RESISTANCE PROPERTIES

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

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.*

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 from oils, chemical spills or excessive salts.

CHECK THE TEMPERATURE AND HUMIDITY: Floor temperature and materials should be between 65°F (18°C) and 85°F (29°C). **Humidity must be less than 70%** or the result may be a hazy appearance. **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) Notched rubber squeegee Roller assembly (18") 	<ul style="list-style-type: none"> Medium (3/8") nap roller (shed resistant) Spiked shoes 60 grit sandpaper 80 grit sandpaper 100 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

Ensure concrete is free of dirt, grease, oil or other contaminants. Certain types of contaminant may interfere with coating adhesion and cause fisheyes or defect in the coating. Scrub with detergent, rinse with clean water, and allow to fully dry.

Concrete Preparation Options for Thin to Medium Film Applications (25 mils (0.63 mm) maximum)

Diamond Grind: (results of diamond grinding may vary depending on technique and the hardness of the concrete. Additional mils may be required). Sweep to remove large debris and vacuum to remove fine dust.

Light Blast: Use magnetic broom to remove excess shot, sweep to remove large debris and vacuum to remove fine dust.

Concrete Preparation options for Thick-Film Applications

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.

Filling 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 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. **Coating applied over filled joints may crack if there is concrete movement.**

APPLICATION – PRIMER COAT

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. One gallon (3.78 litres) of Eco-MPE will cover:

535 ft² (49.70 m²) @ 3 mils (0.08 mm) wet/dry film

400 ft² (37.16 m²) @ 4 mils (0.10 mm) wet/dry film

321 ft² (29.82 m²) @ 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.

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".*

PREMIX ECO-MPE PART B by rapidly tipping the pail end-over-end several (approximately 6) times. **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):

<u>65 (18.3)</u>	<u>70 (21.1)</u>	<u>75 (23.9)</u>	<u>80 (26.7)</u>	<u>90 (32.2)</u>
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 (IF REQUIRED)

COVERAGE RATE will depend upon required thickness. One gallon (3.78 litres) of Eco-MPE will cover:

160 ft² (14.86 m²) @ 10 mils (0.25 mm) wet/dry film

107 ft² (9.94 m²) @ 15 mils (0.38 mm) wet/dry film

80 ft² (7.43 m²) @ 20 mils (0.51 mm) wet/dry film

NOTE: Total Eco-MPE (prime and build coat) should not exceed 35 mils (0.89 mm).

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

*1/16" notched squeegee to apply 10-15 mils (0.25-0.38 mm)

*1/8" notched squeegee to apply 15-20 mils (0.38-0.51 mm)

*1/4" notched squeegee to apply more than 20 mils (0.51 mm)

*These guidelines were arrived at by using new squeegees on smooth concrete with little applied pressure. The application rate is affected by worn squeegees, applied pressure and texture of the concrete.

Immediately after the Eco-MPE is applied and there is room to roll, a second person will **BACKROLL THE MATERIAL** with a 3/8" roller to a smooth and uniform appearance. **NOTE:** *Get off the Eco-MPE as soon as possible.*

ALLOW COATING TO CURE 24 hours at 75°F (24°C) before opening to light traffic. Allow more time at low temperatures or for heavier traffic. Full coating properties take 14 days to develop.

OPTIONAL APPLICATION OF SLURRY

NOTE: *If a slurry application is desired, follow instructions below. A primer coat will reduce the risk of outgassing bubbles and is strongly recommended for porous concrete. See Application - Primer Coat section.*

COVERAGE RATE of Eco-MPE Slurry will depend upon required thickness. One mix will cover approximately:

80 ft² (7.4 m²) @ 70 mils (1.78 mm) wet/dry film

40 ft² (3.7 m²) @ 125 mils (3.18 mm) wet/dry film

PREMIX ECO-MPE PART A using a Jiffy® mixer blade. Pour out 1 gallon (3.78 litres) into a measuring container. Then, **POUR THE MEASURED PART A INTO THE MIXING TOTE.** Begin mixing.

PREMIX ECO-MPE PART B. Pour out 0.50 gallons (1.89 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 tote.

MIX FOR 1 MINUTE or until thoroughly blended using a Jiffy® mixer blade and slow speed drill.

POUR ONE GALLON (3.78 LITRES) OF #190 SILICA FLOUR into the mixing tote. Mix until uniform (approximately one minute). The resin needs to completely wet out the Part C.

COLORS: **ADD** 1/2 pint of pigment per batch.

ADD ONE GALLON (3.78 LITRES) OF #60 MESH FINE SILICA SAND into the mixing tote. Mix until uniform (approximately one minute). The resin needs to completely wet out the sand.

POTLIFE AT 75°F: *Mix only enough material, which can be raked, troweled and porcupine rolled in a 15-minute period.*

POUR THE MIXED MATERIAL onto floor.

GAUGE RAKE/NOTCH TROWEL material over desired area.

USE HAND TROWELS to finish along edges and drains.

USE PORCUPINE ROLLER to release any entrained air as well as work resins to the surface. This will help remove gauge rake marks and level material.

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.

APPLICATION OF ADDITIONAL COATINGS

If Eco-MPE is being topcoated with a Tennant urethane except Eco-HPS® 100 at floor temperatures of 65-90°F (18-32°C), it does not need to be sanded if applied within 24 hours. **NOTE:** *This is a Tennant solution only, DO NOT try this with competitive epoxies.*

SANDING REQUIRED

Eco-MPE must be thoroughly sanded if 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

Eco-MPE must also be sanded if applying other Tennant urethanes after 24 hours. Use 80 grit sandpaper except for Eco-HPS 100, WearGuard™-240 Gloss and Tennant CRU—use 100 grit sandpaper. 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 if the topcoat 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.

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

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).