

Eco-Crete™ MF Flake

Urethane Mortar Slurry with Broadcast



DESCRIPTION - A three-part, cementitious-polyurethane slurry system broadcast with decorative flake, for resurfacing lightly eroded interior concrete floors in areas that require thermal shock resistance and slip resistance. Primary system is sealed with a UV-resistant epoxy and topcoated with a light-stable urethane which has a satin appearance for long-lasting durability. Gloss options are also available.

RECOMMENDED SYSTEM

Application Steps	Tennant Product	Application Thickness mils [mm]	Coverage Rate ft ² /gal [m ² /3.78 L]
Primer	Eco-Crete TC	13.33 [0.34]	120 [11.1]
Slurry	Eco-Crete MF	3/16"-1/4" [4.76-6.35]	14.7-21 [1.36-1.95]
Decorative Flake	Flake	0.2 lbs [0.09 kg]	1 [0.09]
Grout Coat	Eco-URE™	15-16 [0.38-0.41]	100-107 [9.3-9.9]
Topcoat	Eco-HTS™ 100	3 [0.08]	535 [49.70]

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 below uses a different product only for the topcoat.

ALTERNATE SYSTEM #1

Application Steps	Tennant Product	Application Thickness mils [mm]	Coverage Rate ft ² /gal [m ² /3.78 L]
Topcoat	Eco-URE	15 [0.38]	107 [9.9]

ALTERNATE SYSTEM #2

Application Steps	Tennant Product	Application Thickness mils [mm]	Coverage Rate ft ² /gal [m ² /3.78 L]
Topcoat	Eco-TCP™	15 [0.38]	107 [9.9]

OPTIONAL COVE

Application Steps	Tennant Product	Application Thickness mils [mm]	Coverage Rate ft ² /gal [m ² /3.78 L]
Primer	Eco-Crete TC	13.33 [0.34]	120 [11.1]
Cove	Eco-Crete CB	4" Height [101.6]	35 lin. ft. [10.7 meters]

- **MOISTURE TOLERANCE** – Eco-Crete MF (at 3/16", broadcast not required) is good for moisture vapor transmission up to 12 lbs/1,000 ft² in 24 hours as measured by calcium chloride tests per ASTM F1869 or 85% RH, as measured by relative humidity readings per ASTM F2170.
- **LEED® v4** – Points available under the following credits:
 - **Indoor Environmental Quality, Low Emitting Materials**
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.
 - **Materials & Resources, Building Product Disclosure & Optimization-Sourcing of Raw Materials**
Bio-Based Materials
- **ADVANCE YOUR SUSTAINABILITY GOALS** – Utilizes renewable bean oils and environmentally friendly packaging.
- **EXTREME THERMAL STABILITY** – Steam cleanable. Formulated to withstand temperature variations up to 250°F (121°C)
- **SEAMLESS** – Hygienic finish; no grout joints

PRIMARY APPLICATIONS

Food & beverage processing facilities	Chemical process facilities	Pulp and paper
Pharmaceutical facilities	Wet processing & packaging areas	Commercial kitchens

BENEFITS

Impact & abrasion resistant surface	Anti-slip surface, meets ADA recommendations
Low odor, fast installation, fast cure	Resistant to moisture vapor transmission (MVT)
Thermal shock & chemical resistant	Resistant to fungi growth per ASTM G-21
High temperature resistant to 200°F [93.3°C] (varies with topcoat options)	

TENNANT COATINGS

For First Impressions That Last™

SYSTEM PROPERTIES

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™.
Bond Strength	ASTM D4541	100% Concrete Failure
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]	ASTM C579	7,200 [49.6]
Compressive Strength, psi [MPa]	ASTM C695	13,500 [93.079]
Flammability (topcoat 182 mm/min)	ASTM D635	Self-Extinguishing
Flexural Strength, psi [MPa]	ASTM C580	2,500 [17.2]
Impact Strength, in-lb	ASTM D4226	>160
König Hardness (3 mil/0.08 mm film) (topcoat resin)	ASTM D4366	171.3
Resistance to Fungi Growth	ASTM G21	Passes, Rating of 1
Shore D Hardness (seed/grout coat)	ASTM D2240	80-85 @ 0 sec 75-80 @ 15 sec
Tensile Strength, psi [MPa]	ASTM C307	975 [6.72]
Tensile Strength, psi [MPa] (seed/grout coat)	ASTM D2370	8,000 [55.158]
Percent Elongation	ASTM D2370	6
Volatile Organic Compound, VOC, lb/gal [g/L]	ASTM D3960	Eco-Crete MF A+B+C = 0.04 [5] Eco-URE A+B = 0.67 [81] Eco-HTS 100 A+B+C = 0.05 [6]
Water Absorption (24 hours)	ASTM D570	0.2% weight increase

Testing performed at 70°F [21.1°C]. The data shown above reflects typical results based on laboratory testing under controlled conditions.

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	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	E	E	Coffee	E	E
Methanol	E	E	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			

Results are based on 1-day and 7-day spot testing. 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

PREPARATION

Detergent scrub and rinse with clean water to remove surface dirt, grease, oil and contaminants.

Steel shot blast (minimum shot size of 330) to a minimum surface profile of CSP-5 meeting ICRI (International Concrete Repair Institute) standard guideline #310.2R. 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.

Key-in all termination points, drains and joints that may move with a 1/4" (6.35 mm) by 1/4" (6.35 mm) cut.

Patch all depressions, divots and stress cracks in concrete with Eco-Crete MF. For areas thicker than 1/4", use Eco-Crete HF.

JOINTS: Fill all static (non-moving) cracks or control joints with Eco-Crete MF. Cracking of the resurfacer will occur over joints that are overlaid and later move. Because resurfacers are not flexible, joints that might move should be honored (cut) after the installation and filled with Eco-PJF or Eco-EJF. Isolation joints must be honored and filled with a flexible material designed for this purpose.

APPLICATION - PRIMER - ECO-CRETE TC

NOTE: A prime coat of Eco-Crete TC must be applied to the floor before installation of Eco-Crete MF to reduce the risk of outgassing unless Eco-Crete MF will be broadcasted.

COVERAGE RATE: A one-bag mix of Eco-Crete TC will nominally cover:
120 ft² (11.1 m²) per unit as primer over 20/40 broadcast.

Pour out 0.50 gallons (1.89 litres) Eco-Crete TC Part A into a measuring container. Then, **POUR THE MEASURED PART A INTO THE MIXING PAIL.**

ADD ONE POWDER PIGMENT BAG OR 3 OUNCES OF LIQUID COLORANT TO PART A and mix for about 15 seconds.

Pour out 0.50 gallons (1.89 litres) Eco-Crete TC 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 PIGMENTED PART A** already in the mixing pail.

MIX FOR 15 SECONDS or until thoroughly blended using a Jiffy® mixer.

POUR ONE ECO-CRETE TC PART C into the mixing pail. Blend thoroughly until all particles are wetted out, normally about two minutes. **NOTE:** It is critical to use the same mixing sequence to ensure color consistency throughout the entire application.

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

POUR THE MIXED MATERIAL onto floor in ribbons. Using a flat squeegee move material uniformly across floor. Roll and backroll material using a 1/4" nap roller to a uniform appearance. Do not over work. Allow primer to dry.

APPLICATION - SLURRY - ECO-CRETE MF

COVERAGE RATE: A one bag mix will nominally cover (finished floor):
21.0 ft² (1.95 m²) at 3/16" (4.76 mm) finished floor
14.7 ft² (1.36 m²) at 1/4" (6.35 mm) finished floor

Pour out 0.50 gallons (1.89 litres) Eco-Crete MF Part A into a measuring container. Then, **POUR THE MEASURED PART A INTO THE MIXING PAIL.**

ADD ONE POWDER PIGMENT BAG OR 3 OUNCES OF LIQUID COLORANT TO PART A and mix for about 15 seconds.

Pour out 0.50 gallons (1.89 litres) Eco-Crete MF 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 PIGMENTED PART A** already in the mixing pail.

MIX FOR APPROXIMATELY 30 SECONDS or until thoroughly blended using the Jiffy mixer.

GRADUALLY ADD ALL CONTENTS OF A BAG OF ECO-CRETE MF FILLER into the liquid mixture in the mixing pail. Blend thoroughly until all particles are wetted out, normally about two minutes. **DO NOT BLEND AGGRESSIVELY OR INTRODUCE AIR.** **NOTE:** It is critical to use the same mixing sequence to ensure color consistency throughout the entire application.

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

POUR THE MIXED MATERIAL onto floor.

CAM/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. **NOTE:** In cool conditions, a smoothing trowel may need to be used prior to porcupine rolling to remove rake marks

OPTION: Immediately roll the Eco-Crete MF with a loop roller to remove gauge rake marks and level material. **NOTE:** Late or heavy rolling may induce pinholes and unwanted roller marks.

LAY ABUTTING EDGES WITHIN 10 MINUTES to ensure a clean edge. A "wet edge" installation is imperative during large placements to avoid lines and ridges in the finished floor.

APPLICATION – DECORATIVE FLAKE

IMMEDIATELY BROADCAST TO EXCESS WITH DECORATIVE FLAKE into the uncured Eco-Crete MF on the floor. Do not dump or pile the material. Gently scatter it onto the floor by hand tossing so as to cover the wet resin completely. **NOTE:** *It is important that epoxy is not visible (no wet or shiny areas) after flake settles, because any visible epoxy will yellow.* A coverage rate of 0.2 pounds (0.09 kg) per ft² (0.9 m²) of flake is recommended.

ALLOW SYSTEM TO CURE 8-10 hours at 75°F (24°C).

THOROUGHLY SWEEP AND VACUUM to remove loose colored flake from surface. **NOTE:** *DO NOT save and reuse swept and vacuumed colored or flake unless you have taken extra precautions.*

APPLICATION – GROUT COAT – ECO-URE

COVERAGE RATE: A gallon (3.78 litres) of Eco-URE will cover:

107 ft² (9.9 m²) at 15 mils (0.38 mm) wet/dry film

100 ft² (9.3 m²) at 16 mils (0.41 mm) wet/dry film

PREMIX PART A using a Jiffy® mixer blade and slow speed drill. For full-filled 5-gallon (18.9 litres) units, pour out 2 gallons (7.56 litres) into a measuring container. Then, pour the measured Part A into a mixing pail.

ADD ECO-URE PART B TO PART A (3 GALLONS / 11.34 LITRES TOTAL MIX). For full-fill 5-gallon (18.9 litres) units, 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. **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 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. **NOTE:** *Get off the Eco-URE as soon as possible.*

Eco-URE 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/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.

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.

APPLICATION – OPTIONAL COVE – ECO-CRETE CB

NOTE: Cove installation may be done before placement of the floor; however, a smoother transition is achieved by installing the cove after the floor has been placed.

COVERAGE RATE: The cove mix below typically covers 35 lineal feet (10.7 meters) at a height of 4 inches (101.6 mm). The coverage of the Eco-Crete CB could vary depending on its thickness (cove shape). The primer mix will cover 120 ft² (11.1 m²).

APPLICATION – PRIMER – ECO-CRETE TC

Pour out 0.50 gallons (1.89 litres) Eco-Crete Part A into a measuring container. Then, **POUR THE MEASURED PART A INTO THE MIXING CONTAINER.**

Pour out 0.50 gallons (1.89 litres) Eco-Crete 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, and mix for 15 seconds. **POTLIFE:** Mix only enough material that can be applied within a 15-minute period.

GRADUALLY ADD ALL CONTENTS OF A BAG OF ECO-CRETE TC FILLER into the liquid mixture and blend thoroughly until all particles are wetted out, normally about 2 minutes.

APPLY PRIMER TO WALL BASE OR EQUIPMENT PADS using a paint brush or roller that will receive cove. Allow primer to dry.

APPLICATION – COVE – ECO-CRETE CB

Pour out 0.25 gallons (0.95 litres) Eco-Crete Part A into a measuring container. Then, **POUR THE MEASURED PART A INTO THE MORTAR MIXER.** Begin mixing.

ADD ONE POWDER PIGMENT BAG OR 3 OUNCES OF LIQUID COLORANT TO PART A and mix for about 15 seconds.

Pour out 0.25 gallons (0.95 litres) Eco-Crete 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 mortar mixer. **POTLIFE:** Mix only enough material that can be applied within a 15-minute period.

POUR ONE BAG PART C into the mortar mixer. Mix until uniform (approximately one minute). The resin needs to completely wet out the sand.

POUR THE MIXED MATERIAL along wall or at the base of equipment pads.

USE COVE TROWELS to apply, compact and finish material.

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).