Eco-CRN™

Chemical Resistant Novolac

DESCRIPTION – Eco-CRN is a two component, high-solids novolac-based secondary containment topping/lining that provides superior protection to concrete surfaces subjected to many acid and caustic solutions. Eco-CRN may also be used alone, with the addition of silica sand or decorative colored quartz aggregate. For a colored resin system, add the Tennant Standard Colorant of choice to clear Eco-CRN resin.

- **LEED® CREDIT** – LEED Green Building Certification Program credits may be available:
  - **Indoor Environmental Quality**
    - 4.2 Low-Emitting Materials, Paint & Coatings

ENVIRONMENTALLY & USER FRIENDLY

- Provides a highly acid and alkali resistant layer to existing coatings
- Solvent-free
- Cleans easily, saving detergent, labor and water

PRIMARY APPLICATIONS

Containment Areas	Chemical & Waste Treatment Plants
Pulp & Paper	Textile Mills
Battery Charging Area	Metal Finishing & Power Generation Facilities

APPLICATION COVERAGE RATE

To meet **<100 g/L VOC per EPA Method 24**, Eco-CRN must be applied in one or more coats at 10 mils (0.25 mm) or greater.

MATERIAL PROPERTIES (LIQUID)

Property	Test Method	Results
% solids (nonvolatiles)	ASTM D2369, Method E	94.74 @ 10 mils or greater
Density, lbs/gal	ASTM D1475	A+B = 9.23
Volatile Organic Compound – VOC, g/L	EPA–Method 24	≤100 @ 10 mils (0.25 mm) or greater

CURED COATING PROPERTIES (DRY FILM)

Property	Test Method	Results
Filled Compressive Strength, psi [MPa]	ASTM D695	9,750 [67.22]
Filled Flexural Strength, psi [MPa]	ASTM D790	1,900 [13.10]
Flexural Strength, psi [MPa]	ASTM D790	6,200 [42.75]
Gloss	ASTM E97	95+
Sward Hardness, A/D	ASTM D2240	90 / 70
Tensile Strength, psi [MPa]	ASTM D2370	4,100 [28.27]

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

GENERAL PRODUCT INFORMATION

STORAGE:	Materials should be stored indoors between 65ºF [18ºC] and 90ºF [32ºC].
SHELF LIFE:	One year from date of manufacture.
PACKAGING OPTIONS / PART NUMBERS:	5.0 gallons [18.9 litres] / 9020757
OPTIONS:	*Colors:* Use colorants at a rate of two units per 5-gallon (18.9 litres) mix of Eco-CRN. Standard Colorants--White, Yellow and Light Gray will not impart total hide. Use these colorants at a rate of four units per 5-gallon (18.9 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.)
LIMITATIONS:	*Colors: Colorants may be used; however, chemical resistance properties may be diminished.* *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-CRN Neutral	7 Day Immersion		Eco-CRN Neutral	7 Day Immersion
Acids, Inorganic			**Acids, Organic (continued)**	
37% Hydrochloric Acid	E*		10% Formic Acid	F
16% Hydrofluoric Acid	P		5% Formic Acid	G
50% Nitric Acid	P**		30% Lactic Acid	G
30% Nitric Acid	G**		20% Lactic Acid	G
10% Nitric Acid	E		10% Lactic Acid	G
5% Nitric Acid	E		**Alkalies**	
85% Phosphoric Acid	G**		25% Potassium Hydroxide	E**
40% Phosphoric Acid	G		50% Sodium Hydroxide	E
20% Phosphoric Acid	G		10% Sodium Hypochlorite	E
98% Sulfuric Acid	F*		**Solvents (Aromatic)**	
50% Sulfuric Acid	G*		100% Perchloroethylene	E
37% Sulfuric Acid	G**		**Miscellaneous Chemicals**	
10% Sulfuric Acid	E		AFFF (Aqueous Film Forming Foam)	E
Acids, Organic			Chloroform	P
30% Acetic Acid	F			
10% Acetic Acid	G			
5% Acetic Acid	E			

7 Day Immersion Tests – Coating cured 7 days at room temperature prior to testing.

Legend:

E - Excellent (No change in pencil hardness)
F - Fair (3 units change in pencil hardness)
G – Very Good (1-2 units change in pencil hardness)
P - Unsatisfactory – (4 or more units change in pencil hardness)
*Stains / Softens **Discolors

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 55°F (12.8°C) and 90°F (32°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

• Protective clothing	• Roller assembly (18")
• Jiffy® mixer blade [Tennant Part No. 08643-1 (1 gal) or 08643-5 (5 gal)]	• Medium (3/8") nap roller
• Slow speed drill (500 rpm or less)	• Short nap roller
• 18-24" (457.2-609.6 mm) Flat rubber squeegee	• Spiked shoes
• 1/8” notched squeegee	• 60 grit sandpaper

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 contaminants 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 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 – 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.

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 ft^2 / 49.70 m^2 @ 3 mils [0.076 mm] wet/dry film
400 ft^2 / 37.16 m^2 @ 4 mils [0.102 mm] wet/dry film
321 ft^2 / 29.82 m^2 @ 5 mils [0.127 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.*

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):	**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-CRN. 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 – ECO-CRN

Eco-CRN may be applied in one coat at 16-20 mils.

COVERAGE RATE: One gallon (3.78 litres) of Eco-CRN will cover:
100 ft^2 (9.29 m^2) @ 16 mils (0.41 mm) wet/dry film
89 ft^2 (8.27 m^2) @ 18 mils (0.46 mm) wet/dry film
80 ft^2 (7.43 m^2) @ 20 mils (0.51 mm) wet/dry film
NOTE: *For a smoother finish, apply two 10-mil coats of Eco-CRN. Sand between coats.*

PREMIX PART A using a Jiffy® mixer blade and slow speed drill.

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. Use colorants at a rate of two units per 5-gallon (18.9 litres) mix of Eco-CRN. Standard Colorants White, Yellow and Light Gray will not impart total hide. Use these colorants at a rate of four units per 5-gallon (18.9 litres) mix.
NOTE: *Colorants may be used; however, chemical resistance properties may be diminished.*

ADD ECO-CRN PART B TO PART A while mixing. ***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 1.5 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)**
	35	15	10	5

MIX FOR 5 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 down pressure. The squeegee should be pushed to apply maximum pressure and therefore 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 and push at an even speed with slight down pressure. ***NOTE:*** *Epoxy applied thin may "bridge" holes and cracks momentarily before soaking in--make sure the previously squeegeed area is overlapped (halfway).*

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

ALLOW COATING TO CURE 24 HOURS at 75°F (24°C) before opening to light traffic. For complete acid, caustic and chemical resistance, allow a 7-day cure.

APPLICATION – OPTIONAL SECOND COAT – ECO-CRN

The first coat of Eco-CRN does not need to be sanded if the second coat of Eco-CRN is applied within 24 hours. **NOTE:** *This is a Tennant solution only,* ***DO NOT*** *try this with competitive epoxies.*

Apply the second coat of Eco-CRN at 10-16 mils.

COVERAGE RATE: One gallon (3.78 litres) of Eco-CRN will cover:
160 ft^2 / 14.86 m^2 @ 10 mils [0.25 mm] wet/dry film
133 ft^2 / 12.36 m^2 @ 12 mils [0.30 mm] wet/dry film
114 ft^2 / 10.59 m^2 @ 14 mils [0.36 mm] wet/dry film
100 ft^2 / 9.29 m^2 @ 16 mils [0.41 mm] wet/dry film

REPEAT STEPS used for mixing and spreading of the first coat.

ALLOW COATING TO CURE 24 HOURS at 75°F (24°C) before opening to light traffic. For complete acid, caustic and chemical resistance, allow a 7-day cure.

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).