

PRODUCT BULLETIN
Eco-MVR™
Moisture Vapor Reducer
(7- or 15-Mil System)



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DESCRIPTION:

Eco-MVR is a fluid-applied uniquely-modified epoxy moisture mitigation system. It is designed to be used as an above- and below-grade vapor reducer that is placed between the concrete slab and the impervious coating or surfacing of the concrete substrate.

7-Mil System: Withstands moisture vapor emission rates (MVER) of 10 pounds (4.5 kilograms) or less per 1,000 square feet (92.9 square meters) in 24 hours when used over concrete that is a minimum of 14-days and a maximum of one-year old.

15-Mil System: Withstands moisture vapor emission rates (MVER) of 15 pounds (6.8 kilograms) or less per 1,000 square feet (92.9 square meters) in 24 hours when used over concrete that is a minimum of 14 days old.

USES:

- Place directly on 14-day old concrete that is structurally sound and properly prepared.
- Use under impervious non-breathing flooring systems that cannot withstand moisture vapor transmission levels with MVER rates above 3 pounds (1.4 kilograms) per 1,000 square feet (92.9 square meters) in 24 hours.

ADVANTAGES:

- Reduces or eliminates the negative effects of rapid moisture vapor emissions
- Excellent adhesion to green concrete
- Convenient 1.5:1 mix ratio by volume
- High compressive and tensile strengths
- Low VOC (2 g/L). (Complies with SCAQMD VOC regulations. LEED credits available.)

STORAGE: Materials should be stored indoors between 65°F (18°C) and 90°F (32°C).

SHELF LIFE: 1 year from date of manufacture.

PACKAGING OPTIONS / PART NUMBERS:

Eco-MVR:

- 1.25 gallon (4.73 litres) / 9006052
- 25 gallon (94.63 litres) / 9006055

LIMITATIONS:

Colors: Colors CANNOT be used in Eco-MVR.

- Eco-MVR is a topical treatment; therefore, it is not a remedy for failures arising from ASR (Alkali Silica Reaction) or hydrostatic moisture issues.**
- Minimum ambient and surface temperatures of 65°F (18°C) required during installation.
- If substrate cracks, Eco-MVR may reflect those cracks to some degree.
- Is not a substitute for a functioning vapor barrier placed beneath the concrete slab.
- 7-Mil System:** Moisture vapor transmission (MVT) in excess of 10 lbs. (4.5 kgs.) per 1,000 ft² (92.9 m²) in 24 hours per ASTM F1869-04, may result in delamination, discoloration or improper curing. Warranty will not apply to floors exhibiting these characteristics.

- 15-Mil System:** Moisture vapor transmission (MVT) in excess of 15 lbs. (6.8 kgs.) per 1,000 ft² (92.9 m²) in 24 hours per ASTM F1869-04, may result in delamination, discoloration or improper curing. Warranty will not apply to floors exhibiting these characteristics.
- Eco-MVR is not intended as a topcoat. It must be coated with a Tennant epoxy. For increased wear and chemical resistance, topcoat Eco-MVR/epoxy with a Tennant urethane.
- Eco-MVR must be hard (cured) before topcoating with a Tennant epoxy otherwise, fisheyeing will occur.

CURED COATING PROPERTIES (DRY FILM):

Property	Test Method	Results
Adhesion psi (100% failure in concrete exposed to MVER at 10 lbs (4.5 kg) for 7 mils & 15 lbs (6.8 kg) for 15 mils / 1000 ft ² (92.9 m ²) / 24 hr / per ASTM F1869-04)	ASTM D4541	>400
Compressive Strength psi (MPa)	ASTM D695	12,000 (82.737)
Tensile Strength, psi (MPa)	ASTM D638	4,200 (28.958)
Tensile Elongation	ASTM D638	2.7%
Microbial Resistance	ASTM G21	Passes
Alkali Resistance	ASTM D1308	Resistant
Volatile Organic Compound - VOC lb/gal (g/L)	ASTM D3960	.02 (2)

Results are based on conditions at 75°F (24°C).

APPLICATION CHARACTERISTICS:

Coverage rate will depend upon application coating thickness as well as the texture and porosity of the concrete. A gallon of Eco-MVR will cover:

7-Mil System (MVER up to 10 lbs (4.5 kgs):

Coverage Rate	ft ² /gal.	m ² /gal.	m ² /L
	225	21	5.5
Application Thickness, wet/dry mils (microns)	7 (178)		

15-Mil System (MVER up to 15 lbs (6.8 kgs):

Coverage Rate	ft ² /gal.	m ² /gal.	m ² /L
- 5 mils (127 microns)	321	29.8	7.9
- 10 mils (254 microns)	160	14.9	3.5
Application Thickness, wet/dry mils (microns)	5 (127.0) (tight squeegee coat) 10 (254.0) (build coat)		

**IMPORTANT:
READ AND FOLLOW ALL PRECAUTIONS AND
INSTRUCTIONS BEFORE PROCEEDING.**

PRELIMINARY FLOOR INSPECTIONS

CHECK THE CONCRETE:

7-Mil System: Concrete must be a minimum of 14-days and a maximum of one-year old and structurally sound.

15-Mil System: Structurally sound and/or previously coated concrete.

CHECK FOR MOISTURE:

Concrete moisture testing must occur. Calcium chloride testing per ASTM F1869 is recommended.

7-Mil System: Readings must not be greater than 10 lbs (4.5 kgs) per 1,000 ft² (92.9 m²) in 24 hours on the calcium chloride test.

15-Mil System: For fully cured concrete, displaying a moisture emission level up to 15 lbs (6.8 kgs) per 1,000 ft² (92.9 m²) in 24 hours.

Test methods can be purchased at www.astm.org or follow instructions from the suppliers of this test.

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 from oils, chemical spills or excessive salts.*

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 dew point.

APPLICATION EQUIPMENT

- Protective clothing
- Respirator
- Jiffy® Mixer Blade
[Tennant Part No. 08643-5 (large unit)]
- Slow speed drill (500 rpm or less)
- Rubber squeegees (flat and 1/8" notched)
- Roller Assembly
- Shed Resistant, 3/8" (10mm) Nap Rollers
- Soccer Cleats (soft spikes)
- Spiked shoes (may be worn to apply multiple coats of Eco-MVR)

ASSEMBLE EQUIPMENT: Do not mix material until ready to apply. All application equipment, etc. should be ready for immediate use. (Clean roller with tape to remove any residual lint.)

PREPARATION

If surface dirt, grease, oil and contaminants are present, scrub with detergent and rinse with clean water to remove.

JOINTS: If contraction or control joints are to be filled, a semi-rigid joint filler such as Eco-PJS™ or Eco-EJF™ Ultra is recommended. Ensure the joints are clean by running a saw equipped with a diamond blade and vacuum to remove any debris. The joints can be filled prior to floor preparation using either Eco-PJS or Eco-EJF Ultra. If residue of the joint fillers is remaining on the concrete after shaving off excess joint filler, ensure that you sand off residue before proceeding to the shot blasting step.

Eco-PJS and Eco-EJF Ultra may also be applied after the application of Eco-MVR, but they will need to be knocked flush with the slab using a U-shaped squeegee. A razor

scraper must not be used to shave off excess joint material as the action could damage the Eco-MVR.

Isolation joints must be filled with a flexible material designed for this purpose. Coating applied over filled joints will crack if there is concrete movement.

Steel Shot Blast to a profile of CSP3-4 (International Concrete Repair Institute). Brush blasting is not adequate. Use magnetic broom to remove excess shot, sweep to remove large debris and vacuum to remove fine dust.

APPLICATION – Eco-MVR (7-Mil System)

COVERAGE RATE of Eco-MVR is approximately 225 ft² per gallon (21 m² per 3.79 L) depending on the porosity of the substrate. At least 7 mils (177.8 microns) of Eco-MVR must be applied to function properly.*

PREMIX PART A using a Jiffy® mixer blade and slow speed drill. For full-fill 5's (18.9 litres), pour out 1.5 gal (5.67 litres) Part A into a measuring container. Then, pour this measured Part A into a 5-gallon mixing pail.

ADD ECO-MVR PART B TO PART A. For full-fill 5's (18.9 litres), pour out 1 gal (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.

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 SQUEEGEE at an even speed and down pressure. The squeegee should be pushed to apply the targeted amount.

START THE SECOND AND EACH REMAINING PASS by pushing material parallel to the first pass. 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). Do not allow Eco-MVR to fill in joints.*

Immediately after the Eco-MVR is applied and there is room to roll, a second person will **BACKROLL THE MATERIAL** with a 3/8" (10 mm) roller to a smooth and uniform appearance. **NOTE:** *Finish backrolling as soon as possible.*

*If outgassing is a concern, Eco-MVR can be applied in two coats. A thin coat of Eco-MVR will wet out concrete, help seal off concrete pores and minimize outgassing bubbles. Apply a tight squeegee coat (no backroll) of Eco-MVR with a clean, flexible, flat squeegee. There should be no mil build over high spots of the concrete. Then, apply the balance of the material after the first coat is tacky.

APPLICATION – Eco-MVR (15-Mil System)

COVERAGE RATE of Eco-MVR is approximately 321 ft² per gallon (29.8 m² per litre) for the tight squeegee coat, depending on the porosity of the substrate, and 160 ft² per gallon (3.5 m² per litre) for the build coat. At total of at least 15 mils (381 microns) of Eco-MVR must be applied to function properly.

REPEAT STEPS used above for mixing and spreading (see Application section – Eco-MVR (7-Mil System)).

USE A CLEAN, FLEXIBLE, FLAT SQUEEGEE to apply a tight squeegee coat at 5 mils (127.0 microns) (no backroll). There should be no mil build over high spots of the concrete.

ALLOW THE FIRST COAT TO BECOME TACKY to minimize outgassing bubbles.

APPLY A 10 MIL (254.0 MICRONS) BUILD COAT. A notched squeegee may be used to increase the thickness applied. **Second coat must be applied within 24 hours.**

Immediately after the Eco-MVR is applied and there is room to roll, a second person will **BACKROLL THE MATERIAL** with a 3/8" (10 mm) roller to a smooth and uniform appearance. **NOTE:** *Finish backrolling as soon as possible.*

APPLICATION OF ADDITIONAL COATINGS

Eco-MVR must be hard (cured) before topcoating with a Tennant epoxy otherwise, fisheyeing will occur. **NOTE:** *If recoat time exceeds 48 hours, Eco-MVR must be sanded and an additional coat of Eco-MVR applied.* 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.

APPROXIMATE HARD-CURE TIMES (hours) - °F (°C)

65 (18.3)	72 (22.2)	80 (26.7)	90 (32.2)
30	23	18	4

A topcoat of Tennant urethane is strongly recommended for increased wearability. (See appropriate product bulletin for application instructions)

TECHNICAL SUPPORT

For any preparation or application questions, please call Tennant technical support at 1-800-228-4943, option 4 (1800 226 843 Aust).

DISPOSAL

Dispose of all excess coatings, packaging and other waste in accordance with federal, state and local regulations.

PLEASE SEE MATERIAL SAFETY DATA SHEET (MSDS) FOR SAFETY INFORMATION AND PRECAUTIONS.

USE PRODUCT AS DIRECTED.

KEEP OUT OF THE REACH OF CHILDREN.

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

LIMITED WARRANTY

Tennant Coating Technologies, a Tennant Company Group warrants its **Eco-MVR Moisture Vapor Reducer** to be free from defects of manufacture, improper formulation, and defective ingredients.

Tennant Coating Technologies further warrants that adhesive floor coatings will not peel or lose bond due to water vapor transmission for a period of five (5) years after application of Tennant Coating Technologies' Eco-MVR Moisture Vapor Reducer under the following application conditions:

- **7-Mil System:** The Eco-MVR Moisture Vapor Reducer was applied to a concrete floor less than one year old; No adhesive floor coating or primer has previously been applied to the concrete floor;
15-Mil System: Applied to structurally sound and/or previously coated concrete that has been properly prepared.
- The moisture level of the concrete floor prior to application of Eco-MVR was tested no earlier than 5 days prior to application using the Calcium Chloride test and the results were no greater than 10 lbs/1000 square feet of vapor transmission for the 7-Mil System and no greater than 15 lbs/1000 square feet of vapor transmission for the 15-Mil System;
- The Eco-MVR Moisture Vapor Reducer was applied in accordance with the Eco-MVR product bulletin; and
- **The Warranty application below is completed and returned to Tennant Coating Technologies' Warranty within 60 days of the Eco-MVR topcoat application via fax: 763.508.4875.**

This warranty applies only to the repair or replacement of defective areas due to a failure of Eco-MVR and is subject to the exclusions listed below.

ALL ACCOUNTS MUST BE PAID IN FULL PRIOR TO ANY WARRANTY BEING ISSUED OR ENFORCED.

EXCLUSIONS

THIS WARRANTY IS VOID FOR APPLICATIONS WHERE SUBSTRATUM FAILURE, HYDROSTATIC PRESSURE, OR SEVERE OR ABNORMAL USE OCCURS SUCH AS DRAGGING OF PALLETS, MACHINERY OR OTHER HEAVY OBJECTS. THIS WARRANTY IS VOID IF BOND INHIBITING CONTAMINANTS ARE FOUND IN THE CONCRETE OR WHERE THE PRODUCT IS APPLIED TO IMPROPER SUBSTRATES AND/OR WITHOUT PROPER APPLICATION/PREPARATION PER TENNANT COATING TECHNOLOGIES SPECIFICATIONS. WARRANTY IS VOID IF THE TOPCOAT IS NOT PROPERLY MAINTAINED AND/OR IF CONCRETE CONDITIONS CHANGE AFTER THE APPLICATION OF ECO-MVR OR TOPCOAT.

IN NO EVENT SHALL TENNANT COATING TECHNOLOGIES BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES ARISING OUT OF USE OF TENNANT COATING TECHNOLOGIES' ECO-MVR, INCLUDING BUT NOT LIMITED TO, DAMAGES TO STRUCTURE, CONTENTS OF STRUCTURES, OR ARISING FROM FACILITY SHUT DOWN. THE ONLY REMEDY OF THE USER OR BUYER, AND THE ONLY LIABILITY OF TENNANT COATING TECHNOLOGIES FOR ANY AND ALL CLAIMS, LOSSES, INJURIES, OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE) SHALL BE REPLACEMENT OF THE PRODUCT, OR, AT THE ELECTION OF TENNANT COATING TECHNOLOGIES, RETURN OF THE PURCHASE PRICE.

IT IS EXPRESSLY UNDERSTOOD THAT THIS WARRANTY IS IN LIEU OF ANY AND ALL OTHER WARRANTIES, RIGHTS OR OTHER REMEDIES.

APPLICATION FOR ECO-MVR LIMITED WARRANTY

NOTE: ALL ACCOUNTS MUST BE PAID IN FULL PRIOR TO ANY WARRANTY BEING ISSUED OR ENFORCED.

Company Name:	_____	Start Date:	_____
Address:	_____	Completion Date:	_____
Contact Name:	_____	Total Area Size:	_____
Phone Number:	_____	Eco-MVR Batch #:	A = _____ B = _____
		Epoxy Batch #:	A = _____ B = _____
		Topcoat Batch #:	A = _____ B = _____

Project Name/Area Applied: _____

Address of Project: _____

Name and Title of Person Authorizing Work at Location: _____

Calcium Chloride test readings of 1 test per 1000 square feet.											Date: _____
											(All readings must be taken on the same day.)

FLOOR MAP

(Use one box per calcium chloride test. Use additional tables as necessary.)

Certified by:

Signature: _____	Date: _____
Title: _____	
Company Name: _____	