

Eco-MVR™

Moisture Mitigation System (7- or 15-mil system)



System – 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 (0.18 mm) System: Withstands moisture vapor emission rates (MVER) up to 10 pounds (4.5 kilograms) per 1,000 ft² (92.9 m²) in 24 hours per ASTM F1869 or 85% in-situ relative humidity per ASTM F2170 when used over concrete that is a minimum of 14 days and a maximum of one-year-old.

15-Mil (0.38 mm) System: Withstands moisture vapor emission rates (MVER) up to 15 pounds (6.8 kilograms) per 1,000 ft² (92.9 m²) in 24 hours per ASTM F1869 or 89% in-situ relative humidity per ASTM F2170 when used over concrete that is a minimum of 14 days old.

- Place directly on 10-day-old (damp) concrete that is structurally sound and properly prepared.
- Use under impervious non-breathing coating systems that cannot withstand moisture vapor transmission levels with MVER rates above 3 pounds (1.4 kilograms) (ASTM F1869) or 75% (ASTM 2170).
- 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
- **LEED®** – LEED Green Building Certification Program Credits may be available:
 - **Indoor Environmental Quality**
 - 4.2 Low-Emitting Materials, Paint & Coatings

ENVIRONMENTALLY & USER FRIENDLY

- Reduced solvent means less evaporation and less waste.
- Complies with SCAQMD VOC regulations.

SYSTEM PROPERTIES

Property	Test Method	Results
Volatile Organic Compound – VOC lb/gal (g/L)	ASTM D3960	Mixed A+B+C = 0.02 lb/gal (2 g/L)
Adhesion (100% failure in concrete exposed to MVER at 10 lbs (4.5 kg) for 7 mils (0.18mm) & 15 lbs (6.8 kg) for 15 mils (0.38 mm) / 1000 ft ² (92.9 m ²) / 24 hr / per ASTM F1869-04)	ASTM D4541	>400 psi
Compressive Strength	ASTM D695	12,000 psi (82.74 MPa)
Tensile Strength	ASTM D638	4,200 psi (28.96 MPa)
Tensile Elongation	ASTM D638	2.7%
Microbial Resistance	ASTM G21	Passes
Alkali Resistance	ASTM D1308	Resistant

Testing performed at ambient conditions unless stated otherwise.

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-MVR 1.25 gallons / 9006052 25.0 gallons / 9006055
LIMITATIONS:	<ol style="list-style-type: none">Contamination (Fisheyes): Product may fisheye if oil, silicones, mold release agents or other contaminants are present.
WARRANTY WILL NOT APPLY.	<ol style="list-style-type: none">Colors: Colors CANNOT be used in Eco-MVR.<i>Eco-MVR is a topical treatment; therefore, it is not a remedy for failures arising from ASR (Alkali Silica Reaction) or hydrostatic moisture issues.</i>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.Concrete less than 14-days-old may result in delamination, discoloration or improper curing.7-Mil (0.18mm) System: Moisture vapor transmission (MVT) in excess of 10 lbs. (4.5 kgs.) (ASTM F1869) or 85% (ASTM F2170) may result in delamination, discoloration or improper curing.7-Mil (0.18mm) System: Concrete older than one year requires 15 mils (0.38 mm).15-Mil (0.38 mm) System: Moisture vapor transmission (MVT) in excess of 15 lbs. (6.8 kgs.) (ASTM F1869) or 89% (ASTM F2170) may result in delamination, discoloration or improper curing.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, fisheying will occur.

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

**PLEASE SEE MATERIAL SAFETY DATA SHEET (MSDS) FOR HANDLING PROCEDURES.
USE PRODUCT AS DIRECTED.
KEEP OUT OF THE REACH OF CHILDREN.**

PRELIMINARY FLOOR INSPECTIONS

CHECK THE CONCRETE:

7-Mil (0.18 mm) System: Concrete must be a minimum of 10 days and a maximum of one-year-old and structurally sound.

15-Mil (0.38 mm) System: Concrete must be a minimum of 10-days-old and structurally sound.

CHECK FOR MOISTURE:

Concrete moisture testing must occur. Calcium chloride testing per ASTM F1869 or in-situ relative humidity testing per ASTM F2170 is recommended. Test methods can be purchased at www.astm.org, see ASTM F1869 or F2170, or follow test kit manufacturer's instructions.

7-Mil (0.18 mm) System: Calcium chloride 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 or 85% in-situ relative humidity.

15-Mil (0.38 mm) System: Calcium chloride readings must not be greater than 15 lbs (6.8 kgs) per 1,000 ft² (92.9 m²) in 24 hours on the calcium chloride test or 89% in-situ relative humidity.

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). Ambient 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

• Protective clothing	• 1/8" (3.18 mm) Notched rubber squeegees
• Respirator	• Roller assembly
• Jiffy® mixer blade [Tennant Part No. 08643-5 (large unit)]	• 3/8" (10 mm) Medium nap roller
• Slow speed drill (500 rpm or less)	• Soccer cleats (soft spikes)
• 18-24" (457.2-609.6 mm) Flat rubber squeegees	• 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 – MOISTURE MITIGATION - ECO-MVR (7 MIL SYSTEM)

COVERAGE RATE of Eco-MVR is approximately 225 ft² per gallon (21 m² per 3.78 litres) depending on the porosity of the substrate. At least 7 mils (0.18 mm) 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 – MOISTURE MITIGATION - ECO-MVR (15 MIL SYSTEM)

COVERAGE RATE of Eco-MVR is approximately 321 ft² per gallon (29.8 m² per 3.78 litres) for the tight squeegee coat, depending on the porosity of the substrate, and 160 ft² per gallon (3.5 m² per 3.78 litres) for the build coat. A total of at least 15 mils (0.38 mm) 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 (0.13 mm) (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 (0.25 mm) 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 – ADDITIONAL COATINGS

Eco-MVR must be hard (cured) before topcoating with a Tennant epoxy; otherwise, fisheyeing will occur.

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

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

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.*

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 800-228-4943, option 4 (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 4 (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 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.

This warranty applies to all Specialty Surface Coatings, with the following exceptions: Eco-Hard-N-Seal™, Eco-EDP™ (Electrostatic Dissipative Primer), Eco-EDE™ (Electrostatic Dissipative Epoxy), and SDS™ (Static Dissipative System). These products have a separate warranty policy.

Tennant Company warrants its Specialty Surface Coatings to be free from defective manufacture, improper formulation, and defective ingredients. Warranty covers replacement of materials only.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

In no event shall Tennant or Seller be liable for any incidental, consequential, or special damages arising out of the use of Tennant Specialty Surface Coatings. **THE ONLY REMEDY OF THE USER OR BUYER, AND THE ONLY LIABILITY OF TENNANT AND SELLER 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 OR SELLER, RETURN OF THE PURCHASE PRICE.**

No representative of Tennant has authority to give any other warranty or assume other liability. The presence of a Tennant employee during the application of Tennant's Specialty Surface Coatings does not extend or alter the warranty or limitations in any manner whatsoever.