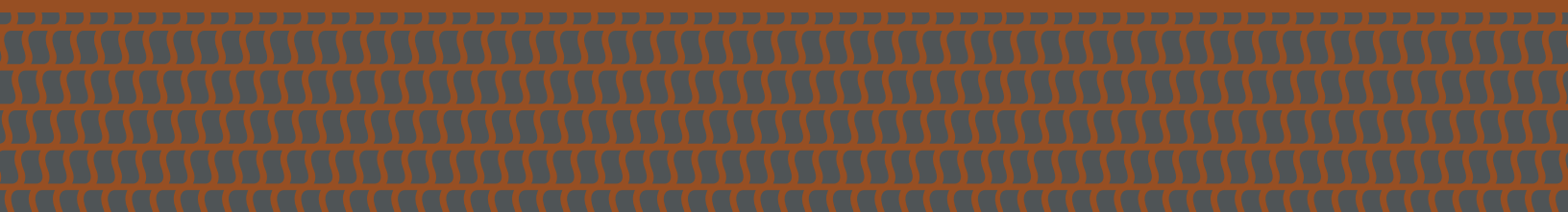




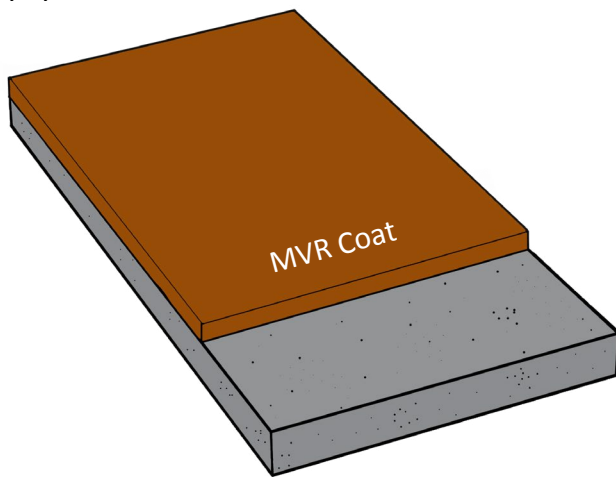
# EPOXY MVR INSTALLATION GUIDE



## KRETUS® EPOXY MVR SYSTEM

Excess moisture in concrete can cause delamination, mildew growth, and other damage to many types of flooring systems. With a  $>0.1$  perm rating and the ability to protect systems installed over concrete slabs with 100% relative humidity, the **KRETUS® Epoxy MVR System** was designed to mitigate moisture's harmful effects. At 12 mils thickness, it can withstand moisture vapor emission rates of 10-15 lbs per 1,000 sf over a 24-hr period. When applied at or above 15 mils, it can withstand 15-20 lbs.

Every system includes fast-, medium-, and slow-cure hardener options—with up to 30 minutes of working time.



- MVR Coat: Top Shelf® Epoxy A-Resin with MVR-EZ or MVR-FC hardener

## USES

Designed to be installed on the negative side of concrete, the **KRETUS® Epoxy MVR System** is applied to the inside face of a concrete slab to protect against excess moisture seeping through the concrete into an occupied space and contaminating the flooring system above.

- Concrete slabs can be above-, on-, and below-grade and should be no less than 7 days old.
- Flooring systems include carpet, hardwood, and resilient floor coverings, such as VCT and resinous flooring systems.

## ADVANTAGES

- **compliant:** meets USDA, FDA, SCAQMD, and VOC requirements
- **anti-microbial:** protects against bacterial and fungal growth
- **cold cure:** can be applied at or above 40°F
- **elongation:** resists damage and cracking when stretched
- **ez clean:** requires little effort to maintain
- **flexibility:** has high elasticity
- **green building:** eligible for LEED points, produced in California from partially recycled materials
- **high-traffic resistant:** stands up to vehicle traffic and continuous pedestrian traffic
- **high shine:** gives high gloss and reflectivity to surface
- **hot-tire resistant:** curbs delamination caused by hot tires
- **impact resistant:** fortifies against damage from dropped tools
- **low odor:** has zero to low VOC — no offensive odor during application and cure
- **moisture vapor resistant:** reduces moisture vapor emissions
- **waterproofing:** protects surfaces and underlying areas from water intrusion

## LIMITATIONS

- All epoxy will amber over time. If color stability is important, consider a UV-resistant color top coat, such as KRETUS® Polyaspartic or Polyurethane.

## ASTM C722 CHEMICAL AND STAIN RESISTANCE

Without any additional top coats, KRETUS® Epoxy MVR Systems withstand most chemicals, food and alcohol spills, and automotive grease and oil. The following chemicals have no adverse effect on fully cured coating if removed within 24 hours:

- ammonia, 30%
- anti-freeze
- brake fluid
- citric acid, 30%
- chlorinated pool water/hard water
- jet fuel
- motor oil
- whisky
- premium gasoline

For all test results, review the Chemical Resistance Guide available at [kretus.com/project-planning](http://kretus.com/project-planning).

## MAINTENANCE AND CLEANING

For daily cleaning, use KRETUS® Coating Cleaner or similar pH-neutral cleaning product.

## SYSTEM OPTIONS

When outgassing occurs, a prime coat may be required.

PROPERTY/TEST METHOD	EPOXY MVR SYSTEM	
NOMINAL THICKNESS	12 mils	16 mils
MOISTURE VAPOR EMISSION RATE, lbs./1,000 sf/24 hrs (ASTM F1869)	10-15	15-20
RELATIVE HUMIDITY (ASTM F2170)	100%	100%
ADHESION TO CONCRETE, psi (ASTM D4541)	700	NC
COMPRESSIVE STRENGTH, psi (ASTM D695)	Resin only: 9,000-10,000	NC
FLAME SPREAD/NFPA 101 (ASTM E84)	Class A	NC
FLAMMABILITY (ASTM D635)	Self-extinguishing	NC
IMPACT RESISTANCE (MIL-D-24613)	Pass: No chipping, no cracking Indentation (24 hrs): 0.001	NC
OIL ABSORPTION (MIL-D-3134)	0%	NC
PERM RATING, perms (ASTM E96)	>0.1	NC
SHORE D HARDNESS (ASTM D2240)	75-80	NC
TENSILE STRENGTH, psi (ASTM D638)	1,100 Resin only: 4,000	NC
WATER ABSORPTION (ASTM D570)	0%	NC

## PRODUCT GUIDE

Most KRETUS® 2- and 3-component products have fast- and slow-cure hardeners. Before making a selection, consider jobsite temperature, MVER, applicator's skill level, and time available for installation. FC and FAST hardeners are recommended only for experienced installers or at low temperatures.

	TOP SHELF® EPOXY (2-COMPONENT)	
	MVR-EZ	MVR-FC
Application Temperature	60-95°F <90% RH	41-77°F <90% RH
Working Time	25-30 min	15 min
Recoat Time	8.5-24 hrs	3-16 hrs
Return to Service	24 hrs	5-6 hrs
Full Cure	7 days	5 days

All times recorded using A-Resin in 1-qt. sample at ambient temperature of 70°F and 50% humidity.

## STORAGE AND HANDLING

Store materials in a cool, dry place out of direct sunlight. DO NOT mix materials that are warmer than 85°F. Sealed, unopened Parts A and B and Solvent Cleaner can be placed in an ice bath to bring the temperature of the material down. DO NOT place any other KRETUS® products in ice bath. products in ice bath. DO NOT let water into material.

## SAFETY

Review current Safety Data Sheet(s) and all relevant KRETUS® documentation. Safety conditions and personal protective equipment must be considered before mixing or installing any KRETUS® product.

## IDEAL CONDITIONS

Apply material when temperature is decreasing—adhere to the KRETUS® Dew Point Calculation Chart available at [kretus.com/project-planning](http://kretus.com/project-planning). DO NOT apply under direct sunlight. DO NOT install if rain is forecasted during time allotted for installation.

- ↑ higher temperature and/or humidity = ↓ reduced working times
- ↓ lower temperature and/or humidity = ↑ increased working times

## TESTING AND WARRANTY

Before you begin installation, review Pre- and Post-Job Checklists available at [kretus.com/project-planning](http://kretus.com/project-planning). Test and look for any unknown site conditions and/or defects.

## ON-SITE APPLICATION TESTING

To ensure desired results are achieved, the system should be tested in a small area on site before beginning installation.



## SURFACE PREPARATION

Before installing KRETUS® System, substrate must be

- **Clean:** Remove any and all contaminants.
- **Profiled (concrete floor):** Mechanically prepare surface to ICRI CSP 4-5. The required CSP may vary based on the condition of the concrete. Always adhere to International Concrete Repair Institute's current standards.
- **Sound:** Treat all joints (terminations and transitions) and random cracks with manufacturer-approved crack and joint repair.

**NOTE (concrete floor):** Coatings tend to pull away from free edges—termination points (anywhere concrete ends), joints, cracks, gutters, drains. Anchor joints may need to be added 6" from termination points. Joints and cracks may need to be expanded to 2x the width and 1x the depth. Edges around drains and gutters may need a deeper slope.

## MIXING STATION GENERAL OVERVIEW

Organize and inspect products, equipment, and tools to minimize delays during installation. For mixing station examples, review KRETUS® Mixing Station photo gallery available at [kretus.com/project-planning](https://kretus.com/project-planning).

Select a well-ventilated area outside of application zone and out of direct sunlight. Ideal mixing station is 4-by-4-feet or larger level surface protected by cardboard or plastic liner.

**DO NOT** mix or install material in confined space without proper ventilation.

## Check and Compare Like Materials

Separate products by type: Top Shelf® Epoxy Parts A and B.

- **Parts A:** If pigmented, check to see that color is correct and that batch numbers are the same. If different batch numbers, box (or mix) batches to keep color consistent throughout application. Make sure unpigmented products are clear.
- **Parts B:** Make sure product has no gelation or crystallization. If this occurs, contact KRETUS® distributor.

## GENERAL MIXING GUIDE

- Use a low-RPM, low-torque drill and Jiffler double-bladed mixer.

**DO NOT** mix materials by hand.

Premeasure components before combining. Mix materials in clean buckets. Use paint stick to scrape sides and bottom of mixture. Change mix buckets every 2-5 batches. Use all material immediately after mix. Buildup on bucket or transfer of buildup to new batch can shorten product's working time.

**DO NOT** mix more product than can be applied in the working time allotted. **DO NOT** leave mixed material in mass. **REMEMBER** more material = more heat. Mixing large batches will shorten a product's working time.

**DISCLAIMER:** The information contained in this document is intended for use by KRETUS® qualified and trained professionals. This is not a legally binding document and does not release the specifier from his/her responsibility to apply materials correctly under the specific conditions of the construction site and the intended results of the construction process. The most current valid standards for testing and installation, acknowledged rules of technology, as well as KRETUS® technical guidelines must be adhered to at all times. The steps given in this document and other mentioned documents are critical to the success of your project.

## EQUIPMENT CHECKLIST

### Safety

- ☐ KRETUS® Safety Data Sheets
- ☐ gloves
- ☐ hard hat
- ☐ knee pads
- ☐ respirator
- ☐ safety glasses
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_

### Mixing

- ☐ variable speed mixing drill
- ☐ mixing blades (Jiffler double-bladed mixer)
- ☐ paint mixing sticks
- ☐ measuring pails
- ☐ 1-, 2-, and 5-gallon pails (metal and/or plastic)
- ☐ masking/rosin paper
- ☐ cardboard, painter's plastic
- ☐ painter's tape
- ☐ duct tape
- ☐ cooler and ice
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_

### Clean-Up

- ☐ rags
- ☐ stiff-bristle broom(s)
- ☐ cordless electric leaf blower and extra batteries
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_

### Additional Tools/Products

- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_

### Surface Preparation

- ☐ calcium chloride and pH test kit
- ☐ Wagner Rapid RH® test kit
- ☐ 10-gauge extension cords, 100'
- ☐ HEPA vacuum
- ☐ power source or generator
- ☐ Clarke 17" floor maintainer
- ☐ 17" sanding discs, 36 and 60 grit
- ☐ 17" sanding screens, 80 and 120 grit
- ☐ sanding/rubbing stones
- ☐ concrete grinding equipment
- ☐ diamond or shotblast tooling to achieve CSP 3
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_

### Application

- ☐ chip brushes
- ☐ paint accessories—extension rods, frames, and pans
- ☐ roller covers, 3/8" nap, non-shed (18", 9", 6")
- ☐ blades—flat rigid, 8-12, and 15-20 WFT (wet film thickness) mil
- ☐ spiked shoes
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_

## KRETUS® PRODUCT CHECKLIST

- ☐ Top Shelf® Epoxy Part A, A-Resin
- ☐ Top Shelf® Epoxy Part B, MVR-EZ or MVR-FC
- ☐ Solvent Cleaner
- ☐ Power Cleaner
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_

This serves as a general guide and is not a comprehensive list.

## SYSTEM ACTION GUIDELINE

## Epoxy MVR



This serves as a general installation guide. Before you begin, review all relevant documents.

## Surface Preparation and Testing

**NOTE:** For low to moderate moisture reading (10-15 lbs.), application must be 12 mils thick. For high moisture reading (15-20 lbs.), application must be 16 mils thick. When outgassing occurs, a prime coat may be required.

	1 PRIME COAT —if needed	2 MVR COAT
PRODUCT	A (Top Shelf® Epoxy Part A, A-Resin) + B (Top Shelf® Epoxy Part B, any hardener) + SC (Solvent Cleaner)	A (Top Shelf® Epoxy Part A, A-Resin) + B (Top Shelf® Epoxy Part B, MVR-EZ or MVR-FC)
STANDARD KIT MIX RATIO	A:B:SC = 1 gal.: 1/2 gal.: 1 qt.	A:B = 1 gal.: 1/2 gal.
MIXING INSTRUCTIONS	Mix A with B for 2 min. Add SC and mix for 1 min.	Mix A with B for 2 min.
METHOD/TOOLS	Apply with flat rigid blade and non-shed 3/8" nap roller.	<b>For 12-mil application:</b> Apply with 8-12 WFT mil blade and non-shed 3/8" nap roller. <b>For 16-mil application:</b> Apply with 15-20 WFT mil blade and non-shed 3/8" nap roller.
RECOAT TIME	When SC has evaporated.	Fast- and slow-cure hardeners available. See Product Guide.
COVERAGE RATE	450-600 sf/kit	<b>For 12-mil application:</b> 210-300 sf/kit <b>For 16-mil application:</b> 120-160 sf/kit

**NOTE:** Coverage rates are for estimating purposes only. Factors such as waste, unusual/abnormal substrate conditions, and other unforeseen jobsite conditions may affect actual product yields and are the responsibility of the installer.



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