APPLICATION INSTRUCTIONS

VULKEM® 350NF/ EPOXY WC/951NF

Epoxy Wear Coat, Waterproof Traffic Deck Coating System

1. PURPOSE

1.1 The purpose of this document is to establish uniform procedures for applying the Vulkem® 350NF/Epoxy WC/951NF Traffic Deck Coating System. This document describes application procedures for medium and heavy-duty requirements. The techniques involved may require modifications to adjust to jobsite conditions. If you have any questions at all about your application, contact your local Tremco Field Sales Representative for specific design requirements.

1.2 This document will provide the necessary instructions and troubleshooting necessary for the application of the Vulkem Pedestrian Deck Coating System to qualify for the manufacturer's warranty.

2. INSPECTION OF JOBSITE CONDITIONS

2.1 Investigation of the substrate should be performed to determine the type of surface preparation that will need to take place to achieve the appropriate surface profile required for the coating application. Depending on the condition of the concrete, one or more types of surface preparations may be required. Refer to ICRI's Technical Guideline No. 310.2R2013 - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays and Concrete Repair for best practices on selecting the appropriate method of concrete preparation. Thin film and high-build coating applications will require the surface profile, CSP 2-4.

3. CONDITIONS FOR CONCRETE SURFACE

3.1 Concrete shall be water-cured and attain a 4000 psi minimum compressive strength. Moisture content in the concrete must be lower than 4.5% as measured by a Tramex CME 4 Moisture Meter. Depending on concrete construction and job site location, additional concrete testing may be required. Please contact your local Tremco Sales or Technical Representative.

3.2 Concrete shall be made free of any laitance which can usually be achieved by shotblasting (preferred method) or sandblasting the surface. For proper methods, refer to ICRI's Technical Guideline No. 310.2R-2013.

3.3 Concrete surface shall be properly cleaned so that the surface to receive the coating, sealant or liquid-applied flashing is free of mold, paint, sealers, coating, curing agents, loose particles and other contamination or foreign matter which may interfere with the adhesion. Job site conditions may require the use of a Vulkem primer.

3.4 Shrinkage cracks in the concrete surface that are 1/16" (1.6 mm) wide or greater shall be ground out to a minimum 1/4" wide x 1/2" (6 mm x 12 mm) deep and treated according to the instructions in Section 5, Detail Work.

3.5 Structural cracks regardless of width shall be ground out to a minimum 1/4" wide x 1/2" (6 mm x 12 mm) deep and treated according to the instructions in Section 5, Detail Work.

3.6 Spalled areas shall be cleaned and free of loose contaminants prior to repair. Because jobsite conditions vary, it is recommended that you contact Tremco Technical Service or your local Tremco Sales.

3.7 In the event of exposed reinforcing steel, it is recommended that the structural engineer of record be contacted for investigation of the condition and for the best method of repair.

3.8 Surfaces shall be made free of defects that may telegraph and show through the finished coating. Surfaces that are rough (fins, ridges, exposed aggregate, honeycombs, deep broom finish, etc.) shall be leveled and made smooth by applying a coat of sand-filled epoxy.

3.9 All drains shall be cleaned and operative. Drains shall be recessed lower than the deck surface. Surface shall be sloped to drain to provide positive drainage. Drains should be detailed as instructed below:

- Cut a 1/4" wide x 1/2" deep (6 mm x 12 mm) keyway into the concrete surface at any point where the coating will have an exposed terminating edge-- that is, any point where the coating will end in an open area subject to traffic, for example, at the end of a ramp, around drains and alongside expansion joints.

3.10 If the project is a restoration deck, old sealant and backing material shall be removed. The joint interface will require a thorough wire brushing, grinding, sandblasting, solvent washing and/or primer.

4. JOBSITE MATERIALS

4.1 Recommended materials and their use are as follows:

4.2 **Dymonic® 100:** A one-part, moisture-curing, gun grade polyurethane sealant for use in sealing cracks, control joints, drain detailing, and in forming cants.

4.3 **Vulkem 350NF Base Coat:** A one-part, low odor, low VOC, polyurethane coating used as the elastomeric waterproofing membrane of the system available in an R (roller) grade and SL (self-leveling) for vertical and horizontal applications.

4.4 **Vulkem Epoxy WC Wear Coat:** A two-part, (1:1) high solids, low odor, VOC compliant, epoxy wear coat providing chemical resistance and a weatherproof wear surface.

4.5 **Vulkem 951NF Top Coat:** A two-part, aliphatic, low odor, VOC compliant, high-solids polyurethane top coat providing a chemical- and UV-resistant, color stable, weatherproof wear surface.

4.6 **Backer Rod:** A closed-cell polyethylene back-up material used in expansion joints and at the base of cants to prevent three-sided adhesion, and to control the depth of the sealant.

4.7 **Vulkem Primer #171:** A one-part, film-forming primer to be used on porous surfaces.

4.8 **Tremco® Epoxy Primer:** A two-component (1:1) primer recommended for use as a porous primer and is also used as a compatible tie-in to create connectivity between TREMproof® below-grade waterproofing membranes, Vulkem® urethane coatings and ExoAir® air barrier membranes.

4.9 **TREMprime VB Plus Primer:** A two component, modified epoxy primer designed to seal concrete and reduce moisture vapor transmission on concrete slabs with elevated levels of moisture.

4.10 **TREMprime® Non-Porous Primer:** A one-part primer for use on metal surfaces.

4.11 **TREMprime Multi-Surface Urethane Primer:** A low VOC, quick drying, two- part primer for use between urethanes and urethanes, wood, concrete, PVC and steel.

4.12 **Vulkem 191 Primer:** A low VOC compliant one-part porous and interlaminary primer for use in applying a fresh coat of Vulkem coating or sealant after preceding coat has been exposed for long periods of time.

4.13 **Aggregate:** 16-30 mesh silica sand or alumina oxide, which imparts a textured finish and contributes to slip and wear resistance.

5. DETAIL WORK

5.1 Note: Do not apply sealant or coatings to a frosty, damp or wet surface or when air or surface temperature is below 40 °F (4 °C) or the surface temperature is above 110 ˚F (43 ˚C). Cure times as stated below are based upon standard ambient conditions of 75 °F (25 °C), with 50% RH. A decrease in ambient temperature and humidity will significantly lengthen the cure time.

5.2 Lay a 1/4" (6 mm) diameter backer rod into the corner at the juncture of all horizontal and vertical surfaces such as curbs, wall sections, columns, or penetrations through the deck. Apply a bead of Dymonic 100 1" (2.5 cm) wide over the backer rod. Tool the sealant bead to form a 45° cant. Use sufficient pressure to force out any trapped air and to assure complete wetting of the surface. Remove excess sealant from the deck or wall joint. NOTE: Backer rod is only required for moving joints.

5.3 Install a backer rod, 1/8" to 1/4" (3 mm to 6 mm) diameter larger than the joint width to all prepared control joints. Set depth of backer rod to control the depth of the sealant. (Depth of sealant is measured from the top of the concrete surface.) Proper depth of sealant is as follows:

- For joints 1/4" (6.4 mm) to 1/2" (12.7 mm) wide, the width to depth ratio should be equal.

- Joints 1/2" (12.7 mm) wide or greater that are not expansion joints should have a sealant depth of 1/2" (12.7 mm). The minimum joint size is 1/4" x 1/4" (6.4 mm x 6.4 mm).
- All cracks and joints shall be sealed with Tremco approved sealant, and tooled flush with the surface. Note: Expansion joints should not be coated over. For treatment of expansion joints, contact your local Tremco Sales Representative.

5.4 Allow sealant to cure overnight.

5.5 Apply a strip of masking tape or duct tape to the vertical sections, 2" or 3" above the Dymonic 100 Sealant's cant to provide a neat termination of the vertical detail coat.

5.6 Prior to use, Vulkem 350NF should be mixed with a spiral paint mixing paddle at a rate of 500 rpm for a minimum of 5 minutes.

5.7 Apply 25-mil (.64 mm) thick detail coat of Vulkem 350NF Roller Grade over the treated cant, and extend it to the tape on the vertical surface and 4" (100 mm) onto the horizontal surface. Feather-edge the terminating edge of the Vulkem 350NF Roller Grade detail coat on the horizontal surface so it will not show through the finished coating.

5.8 Apply a 25-mil (.64 mm) thick detail coat of Vulkem 350NF Roller Grade 6" (150 mm) wide centered over all untreated cracks, all routed and sealed cracks and over all cold joints. Feather-edge terminating edge of detail coat to keep these edges from showing through the finished coating.

5.9 Allow all detail coats to cure for a minimum of 4 to 6 hr depending on temperature and humidity.

6. COATING APPLICATION

Note: Recommended coverage rates are approximate. Sand loading methods and concrete surface profiles may increase the amount of material required to obtain uniform coverage. Please refer to mixing instructions in Section 5.5.

6.1 BASE COAT: Apply Vulkem 350NF at 64 ft²/gal or 25 wet mils (.64 mm) thick to the entire area to be coated, including over all detail coats, but excluding expansion joints. The recommended method of application is with a notched squeegee. Cross-rolling may follow in the event that the coating needs to be leveled. Vulkem 350NF can be applied with a solvent-resistant, medium-nap (3/8” to 1/2”/9.5 mm to 12.7 mm) roller sleeve.

6.2 Allow Vulkem 350NF a minimum of 4 to 6 hr and a maximum of 24 hr. Cure rates depend on temperature and humidity. Refer to cure rate guideline in chart at the end of this document.

6.3 If Vulkem 350NF has been applied for 24 hours or longer (under ideal temperature conditions—see chart on the last page), the surface should be cleaned with a damp cloth of Xylene (do not saturate). The standard prime coat is Vulkem 191 Primer. If using Vulkem 191 Primer, it must be tacky without transfer at the time of topcoat application. If it fully dries and loses tack, it must be reprimed. Tremco Epoxy Primer may also be used as an interlaminary primer. We highly recommend consulting your local Tremco Sales Representative with any questions regarding appropriate priming.

6.4 Thoroughly mix the Vulkem Epoxy WC with an appropriate paddle mixer taking care not to trap air bubbles within the coating. Approximate mixing time should be 1 minute. Scrape down the sides of each pail and mix for an additional 1 to 2 minutes. Proportion equal parts per volume of part A & B and mix together for 3-5 minutes scraping down the sides of the pail as mixing.

6.5 WEAR COAT: MEDIUM DUTY Vulkem Epoxy WC is applied with a v-notched squeegee and backrolled to even it out with a medium-nap roller at the rate of 125 ft²/gal (3.1 M²/L) to yield approximately 12 wet mils (0.30 mm) thickness to the entire deck to be coated.

6.6 WEAR COAT: HEAVY-DUTY APPLICATION, Vulkem Epoxy WC is applied with a v-notched squeegee and backrolled to even out with a medium-nap roller at the rate of 100 ft²/gal (2.4 M²/L) to yield approximately 16 wet mils (0.36 mm) thickness to the entire deck to be coated.

6.7 Immediately following the application of the Vulkem Epoxy WC as indicated in 6.5 or 6.6, broadcast to refusal (flood coat) the material with 0.6 to 1.2 mm (16-30 mesh) sized silica sand. Allow the application to cure about 8 -16 hrs during ideal ambient temperatures. Before proceeding, sweep or blow off any excess sand proceed to Step 6.8 TOP COAT. Make sure the excess sand is removed prior to beginning Step 6.8. Note: Differences in silica sand mesh size may be approved by your local Tremco sales or technical representative.

6.8 TOP COAT: Note: When mixing Vulkem 951NF Part B must be well shaken prior to mixing with Part A. Apply Vulkem 951NF Top Coat with a medium-nap, solvent-resistant roller sleeve at a rate of 105 ft²/gal or 15 mils.

Note: The textured properties of the finished deck coating system aid in the system's wear and slip resistance. Tremco recommends a test patch be completed by the applicator and customer acceptance obtained prior to the application.

6.9 Tremco recommends a minimum of 24 hr after the final topcoat has cured before allowing vehicular traffic on the deck, but 3 days is preferable.

7. CLEAN UP

7.1 Clean all adjacent areas to remove any stains or spills with Toluene or Xylene

7.2 Clean tools or equipment with Toluene, or Xylene before material cures.

7.3 Clean hands by soaking in hot, soapy water then brushing with a stiff bristle brush.

8. MATERIAL USAGE GUIDELINES

8.1 **Dymonic 100:** For a 1" (25.4 mm) cant bead over a ¼" (6 mm) backer rod, 1 case of sealant for every 48 lf (14.6 M) is required. Vulkem 350NF Base Coat: When applied at 64 ft²/gal (1.6 M²/L), will yield a mil thickness of 25 wet mils

8.2 **Vulkem Epoxy WC Wear Coat:** When applied at 100 ft²/gal (2.6 M²/L), will yield a mil thickness of 16 wet mils. When applied at 125 ft²/gal (3.1 M²/L), will yield a mil thickness of 12 wet mils

8.3 **Vulkem 951NF Top Coat:** When applied at 89 to 105 ft2/gal, will yield a mil thickness of 15 to 18 wet mils.

8.4 **Aggregate:** Approximately 40 lb. of approved aggregate will be used with each gallon of Vulkem Epoxy WC as prescribed in Section 6.

8.5 Due to the number of variables present related to aggregate broadcast method and topcoat application technique coverage rates may vary.

9. TROUBLESHOOTING

9.1 This section describes common industry application issues when certain environmental conditions exist. Below are some commonly seen issues and remedies. If any of these should occur, it is always recommended that you contact your local Tremco Sales Representative or Tremco Technical Service.

9.2 **Tremco requires that any possible recoating job be reviewed and approved by your Sales and/or Technical Representative prior to installation.**

9.3 For any restoration opportunity or application, compatibility and adhesion testing need to be completed in the field.

9.4 When a deck contains too much moisture, that moisture may change into a vapor, which then condenses at the concrete-membrane interface before the coating has cured and may cause blisters or bubbles, ultimately interfering with proper adhesion. If this should occur, the blisters can be cut out, allowing moisture to escape. After moisture has escaped and the surface is dry, the area can be repaired.

9.5 If the coating application has been installed at a thickness that is greater than directed in our installation instructions, pinholes, blisters or bubbles may occur in the coating. To avoid this occurrence, the material should be applied in accordance to the installation instructions.

9.6 If the coating is applied in very hot ambient temperatures, the air in the small spaces between the concrete particles increases in volume and forms blisters. Contact Tremco Technical Services should this occur.

9.7 If the previous coating application has not fully cured, solvent may become trapped between the coats and lead to large blisters that will most likely be tacky on the backside. Blisters may be cut out and repaired after the surface has been allowed to fully dry.

9.8 **This section discusses the impact of applying these coatings outside the ideal temperature application range of 65 to 85 °F (18.3 to 29.4 °C) at 50% RH.**

9.9 At temperatures lower than the ideal range, the material will become more viscous and it will cure at a slower rate. Refer to the chart below for approximate cure rates at varying temperatures.

10. WEATHER IMPACT ON COATING APPLICATION

10.1 Deck temperatures may affect cure rates even when ambient temperatures are high.

10.2 Enclosed areas may slow the cure rate of the coating because humidity levels tend to be low in these conditions due to the low exchange of air over the membrane.

10.3 In extremely dry conditions, with RH less than 50%, even when temperatures are high, cure rates can still be extended.

QUICK REFERENCE APPLICATION CHART

LAYER	PRODUCT	WET MILS	CURE TIME*	SQUARE FEET PER GALLON
Base Coat	Vulkem 350NF	25	Min 4-6 hours	64
Wear Coat – Medium Duty OR Wear Coat- Heavy Duty	Vulkem Epoxy WC	12 16	6 to 8 hours	125 100
Top Coat	Vulkem 951NF	15-18	2 to 4 hours	89 - 107

*Cure times are based on ideal ambient temperature at 50% RH. See chart below for ideal temperature range.

APPROXIMATE CURE TIMES IN HOURS AT 50% RH

TEMPERATURE AT 50% RH	VULKEM 350NF	VULKEM EPOXY WC	VULKEM 951NF
40°-55 °F 4.4°-12.8 °C	48	Not Advised below 50°F	40 to 48 hours
55°-65 °F 12.8°-18.3 °C	16 to 24 hours	12 to 24 hours	3 to 6 hours
65°-85 °F 18.3°-29.4 °C	4 to 6 hours	6 to 8 hours	2 to 4 hours
85 °F 29.4 °C	< or = 4 hours	< or= 2 hours	< or = 2 hours

10.4 Variations in temperature and humidity can affect the cure rate of the coating. The above chart should be used as a guide only to determine the approximate rate of cure. Other factors can also influence the cure rate such as substrate temperature and enclosed environments. For more information about proper application procedures please refer to the Installation Instructions or contact Technical Services

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