APPLICATION INSTRUCTIONS

VULKEM® 350NF/ 346TC

Pedestrian and Waterproofing System

1. PURPOSE

1.1 The purpose of this document is to establish uniform procedures for applying the Vulkem® 350NF/346TC Pedestrian Deck Coating System. The techniques involved may require modifications to adjust to jobsite conditions. If you have any questions about your application, contact your local Tremco Sales Representative for specific design requirements.

1.2 This document will provide the necessary instructions and troubleshooting 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. 213.2R-2013 – Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings and Polymer Overlays for best practices on selecting the appropriate method of concrete preparation. Thin film or high-build coatings will require the surface profile, CSP 2-4.

3. CONDITIONS FOR CONCRETE SURFACES

3.1 Concrete shall be water-cured and attain a psi minimum compressive strength. Moisture content in the concrete must be lower than 4.5% as measured using 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 free of any laitance which can usually be achieved by shot-blasting (preferred method) or sandblasting the surface. For proper methods, refer to ICRI's Technical Guideline No. 03732.

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, coatings, curing agents, loose particles, and other contamination or foreign matter that may interfere with the adhesion. Job-site conditions may require the use of a Vulkem primer.

3.4 Shrinkage cracks in the concrete that are 1/16" (1.6 mm) wide or greater shall be ground out to a minimum 1/4" wide x 1/2" deep (6 mm x 12 mm) and treated according to the instructions in Section 7, 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 7, Detail Work.

3.6 Spalled areas shall be cleaned free of loose contaminants prior to repair. Because job-site conditions vary, it is recommended that you contact Tremco Technical Services at 866-209-2404 for the best method of repair.

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

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. The 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) key way 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. SPECIAL SURFACES

4.1 Vulkem 350NF requires TREMprime® Non-Porous Primer on metal surfaces. Lap joints must be sealed with Dymonic® 100 and coated with Vulkem 350NF in order to cover seams, bolts and rivets to apply the system.

5. JOBSITE MATERIALS

5.1 Recommended materials and their uses are as follows:

5.2 **Dymonic® 100:** A one-part, moisture-curing, gun grade polyurethane sealant for use in precast, masonry, expansion joints, control joints and for use in forming cants.

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

5.4 **Vulkem 346TC:** a one-part, aliphatic polyurethane top coat providing a chemical- and UV-resistant, color-stable, weatherproofing wearing surface.

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

5.6 **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.

5.7 **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.

5.8 **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.

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

5.10 **Aggregate:** 30-40 mesh (0.6-0.7 mm diameter) silica sand or aluminum oxide which imparts a textured finish. NOTE: Aggregate may not be required for vertical applications.

5.11 Refer to the project manager for your specific job requirements.

6. DETAIL WORK

6.1 Note: Do not apply sealant or coatings to a frosty, damp, or wet surface or when substrate 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), 50% RH. A decrease in ambient temperature and humidity will significantly lengthen the cure time.

6.2 Lay a 1/4" (6 mm) diameter backing 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” (2.5cm) 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.

6.3 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 backer rod to the top of the concrete surface.) Proper depth of sealant as follows:

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

6.4 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. A full line of expansion joint solutions is available from Tremco Construction Products Group companies. For treatment of expansion joints, contact your local Tremco Sales Representative.

6.5 Allow sealant to cure overnight.

6.6 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. When job site conditions of a finished façade occur, terminate the coating at the sealant cant bead on the horizontal. Please consult your local technical sales representative if there are any questions.

6.7 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 min. For further detail, please refer to the Vulkem 350NF Mixing Guide at www.tremcosealants.com.

6.8 Apply a 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.

6.9 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 coating to keep these edges from showing through the finished coating.

6.10 Allow all detail cots for a minimum of 4 to 6 hr depending on temperature and humidity.

6.11 **NOTE:** recommended coverage rates are approximate. Sand loading methods and concrete surface profiles may increase the amount of material required to obtain uniform coverage.

7. COATING APPLICATION

7.1 Please refer to mixing instructions in Section 6.6.

7.2 BASE COAT: Apply Vulkem 350NF at 40-64 ft^2/gal or 25-40 wet mils (0.6-1 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 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.

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

7.4 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 re-primed. 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.

7.5 Mix the Vulkem 346TC Top Coat using an appropriate mixing blade and an electric drill to assure there is no settlement in the bottom of the pail and the color of the material is consistent with no streaks or striations. For recommendations on mixer options, contact Tremco Technical Services. Boxing of pails is recommended for color consistency between different lots.

7.6 TOP COAT: There are two acceptable methods for installing the topcoat. They are as follows:

7.7 **Method A**

7.8 Apply the mixed Vulkem 346TC with a medium-nap, solvent-resistant roller sleeve at a rate of 105 ft^2/gal (2.6 M^2/L) to yield approximately 15 wet mils. Remove excess material from the roller by using a screen in the pail to avoid puddles or ponding.

7.9 Apply the Vulkem 346TC in sections that can be easily reached for back-rolling. Immediately after applying the Vulkem 346TC, broadcast a 30 to 40 mesh (0.4 to 0.5 mm diameter) silica sand or aluminum oxide into the wet Vulkem 346TC and back-roll to evenly distribute the aggregate. For a moderately textured finish, use 15 to 18 lb of sand/gal of Vulkem 346TC (1.8 to 2.2 kg/L). Back-rolling is necessary regardless of how the sand is broadcast (i.e. hand, seed spreader, etc.) to ensure that all of the sand is completely encapsulated into the liquid.

7.10 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.

7.11 Do not open to foot traffic for a minimum of 24 hr following full cure of Vulkem 346TC.

7.12 **Method B**

7.13 Apply the mixed Vulkem 346TC with a medium nap solvent resistant roller at a rate of 200 ft²/gal (5 M²/L) to yield 8 wet mils. Take care to apply an even coat without puddles or thick roller edge lines.

7.14 Broadcast to refusal the aggregate onto the wet surface of the Vulkem 346TC coat. Cover the entire surface leaving no wet spots.

7.15 Allow the Vulkem 346TC to cure overnight.

7.16 Sweep and vacuum off all loose, unbound aggregate.

7.17 Mix the Vulkem 346TC topcoat as specified in 7.5

7.18 Apply Vulkem 346TC with a medium nap solvent resistant roller sleeve at a rate of 200 ft²/gal (5 M²/L) to yield 8 wet mils. Take care to evenly apply the coating with no puddling. Remove excess material from the roller by using a screen in the pail to avoid puddles or ponding of the material.

7.19 Allow the Vulkem 346TC to cure for 24 hr prior to pedestrian traffic or placement of deck furniture.

7.20 The textured properties of the finished deck coating system contribute to the system's wear resistance and slip resistance. Tremco recommends installing a test patch and gaining customer acceptance prior to installation.

8. CLEAN UP

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

8.2 Clean tools or equipment with Toluene, or Xylene before materials cure.

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

9. USAGE

9.1 The following is a guide to estimate material usage.

9.2 **Dymonic 100:** For a 1" (25 mm) cant bead over a 1/4" (6 mm) backer rod, 1 case of sealant for every 48 If (14.6 M) is required.

9.3 **Vulkem 350NF Base Coat:** Application at a rate of 40-64 ft²/gal (1.01-1.57 M²/L) will yield a mil thickness of 25-40 mils.

9.4 **Vulkem 346TC Top Coat:** Application at a rate of 105 ft ²/gal (2.6 M²/L) will yield a mil thickness of 15 mils wet.

9.5 **Aggregate:** Approximately 15 to 18 lb of approved aggregate will be used with each gallon of Vulkem 346TC as described in Section 7.

10. TROUBLESHOOTING

10.1 This section describes common industry application issues when certain environmental conditions exist and their remedies. If any of these should occur, it is always recommended that you contact your local Tremco Sales Representative or Tremco Technical Services.

10.2 **Tremco requires that any possible re-coating job be reviewed and approved by your Sales and/or Technical Representative prior to installation.**

10.3 When a deck contains too much moisture, the 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.

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

10.5 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 Technical Services should this occur.

10.6 If the previous coating application has not fully cured, solvent may become trapped between the coats and lead to large blisters. When cut out, they may still be tacky on the underside. Blisters may be cut out and repaired after the surface has been allowed to fully dry.

11. WEATHER IMPACT ON COATING APPLICATION

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

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

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

11.4 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.

11.5 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	25-40	Minimum 4 to 6 hr	40-64
Top Coat for Method A	Vulkem 346TC	15	6 to 8 hr	89 - 107
Top Coat for Method B	Vulkem 346TC	8	6 to 8 hr	200

*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 346TC
40-55 °F 4.4-12.8 °C	48+	40
55-65 °F 12.8-18.3 °C	16 to 24	12 to 24
65-85 °F 18.3-29.4 °C	4 to 6	6 to 8
85 °F 29.4 °C	< or = 4	2 to 4

11.6 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.

Tremco Construction Products Group (CPG) brings together Tremco CPG Inc. and its Dryvit and Nudura brands; Willseal; Prebuck LLC; Tremco Barrier Solutions, Inc.; Weatherproofing Technologies, Inc. and its Pure Air Control Services and Canam Building Envelope Specialists offerings; and Weatherproofing Technologies Canada, Inc.

TREMCO

tremcosealants.com | 800.321.7906

TREMCO

Construction Products Group

3735 Green Rd. | Beachwood, OH 44122
800.321.7906 | tremcocpg.com