

PORTLAND STATE UNIVERSITY

Peter Stott Center Roofing Project

ADDENDUM #3

June 4, 2013

This Addendum is issued to provide answers to questions from potential bidders and to inform you of the following revisions to the above-referenced ITB and the Contract Documents for the Project. Where this Addendum is inconsistent with the ITB or any previous addenda, this Addendum shall control. Proposals shall conform to this Addendum. Unless specifically changed by this Addendum, all other requirements, terms and conditions of the ITB, and any previous addenda, remain unchanged and can be modified only in writing by PSU.

A. CHANGES TO ITB:

None

B. DRAWINGS:

None

C. CLARIFICATIONS:

None

D. SUBSTITUTIONS:

1. Section 071416, page 4, 2.1.A.1 Two-Component Polyurethane Waterproofing: Vulkem 360NF/951NF (Deck Coating System) is an approved substitution. Please see attached Proposed substitution request form and information

E. ATTACHMENTS:

1. Substitution request form for Vulkem Deck Coating System.

If you have any questions, e-mail to: proposals@pdx.edu

END OF ADDENDUM #3

SUBSTITUTION REQUEST

*The Construction Specifications Institute
Northwest Region*

TO: PSU FACILITIES AND PROPERTY MANAGEMENT

PROJECT: PETER STOTT CENTER CONCRETE DOCK COATING PROJECT

SPECIFIED ITEM:

<u>07116</u>	<u>4</u>	<u>2.1</u>	<u>TWO-COMPONENT POLYURETHANE WATER PROOF</u>
Section No.	Page	Paragraph	Description

PROPOSED SUBSTITUTION: VULKOM 360NF/95NF (DOCK COATING SYSTEM)

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

R
Name (Print)

RICHARD T. FLOTCHER
Signature

Richard Fletcher
Firm Name

D & R MASONRY RESTORATION, INC.
Address

8890 SE McLOUGHLIN BLVD.
City, State, Zip

MILWAUKIE OR 97222
Date

5-30-13
Telephone

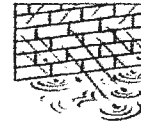
503-353-1650 Fax 503-654-1291

D & R MASONRY RESTORATION, INC.
General Contractor (if after award of Contract)

For use by A/E:	
<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Approved as Noted
<input type="checkbox"/> Not Approved	<input type="checkbox"/> Received Too Late
By <u>Dale Apple</u>	
Date <u>6/3/13</u>	
Remarks	

Attachments

D&R MASONRY RESTORATION, INC.



8890 SE McLoughlin Blvd.
Milwaukie, OR 97222

CCB#99196 (WA) DRMASRI006BS

Phone (503) 353-1650
Fax (503) 654-1291

www.drmasnry.com

Date: 5-30-13

Ref.: Peter Stott Center Concrete Deck Coating Project, Substitution Request

Attached you will find the following substitution information data for Vulkem 360NF/ 951NF, Two Component Polyurethane Waterproofing, Deck Coating System by Tremco.

- Substitution Request Form
- Material Sample
- Coatings Color Chart
- Application Instructions Vulkem 360NF/ 951NF
- Primers Data Sheet
- Vulkem 360NF Data Sheet
- Vulkem 951NF Data Sheet
- Vulkem 45 SSL Data Sheet
- Dymeric 240FC Data Sheet
- Vulkem 360 NF Patching Data Sheet
- Vulkem Pedestrian Deck Coating System Recommended Maintenance Procedures
- Typical Properties of Vulkem 360/951 vs Lymtal 750 Base/Top Coats
- Records of Performance
- Applicator Approval Letter
- Certification Letter of System Use
- Independent Lab Report on System

Sincerely,

Rich Fletcher, Estimator



Vulkem® 360NF/950NF and/or 951NF

Medium & Heavy Duty Deck Coating System

1. Purpose

1.1 The purpose of this document is to establish uniform procedures for applying the VULKEM Neighbor Friendly Medium and Heavy Duty DECK COATING SYSTEM.

1.2 The techniques involved may require modifications to adjust to job site conditions. Consult your Tremco Representative for specific design requirements.

2. Scope

2.1 This document will provide the necessary instructions for the application of the VULKEM NEIGHBOR FRIENDLY MEDIUM AND HEAVY DUTY DECK COATING SYSTEM to qualify for the manufacturer's warranty.

3. Conditions of Concrete Surfaces

3.1 Concrete shall be water cured and in place according to the industry standard of 28 days and is our recommendation prior to installing the coating materials. Twenty-eight days is usually sufficient to allow excess moisture to leave a concrete slab. Should the coating application have to be applied prior to 28 days, please contact your local Tremco Representative or Tremco Technical Services.

3.2 Concrete shall be finished with a light steel trowel followed by a light broom finish.

3.3 Surface to receive coating, sealant or liquid applied flashing material shall be sound, dry, clean and free of all dirt, dust, oil, grease, wax, tar, asphalt, mildew, mold, paint, sealers, coatings, curing agents, loose particles, laitance and other contamination or foreign matter which may interfere with the adhesion.

Job site conditions may require use of a Vulkem Primer. Consult a Tremco Representative for recommendations prior to installing materials.

3.4 The condition of "dry" shall be determined by fastening a rubber mat to the concrete deck for a minimum of six hours. The mat shall be located in an area exposed to the sun. After six hours (minimum), the surface beneath the rubber mat shall show minimal evidence of moisture or dampness.

3.5 Structural or shrinkage cracks in the concrete surface which are greater than 1/16 inch (1.5mm) wide shall be ground out to a minimum of 1/4 inch by 1/2 inch (6mm x 12mm) deep and treated following section 7, Detail Work.

3.6 In the event of exposed reinforcing steel, the exposed portions of steel shall be ground to expose clean, bright metal and primed with Vulkem Primer #171 or TREMprime Multi-Surface Urethane Primer*.

3.7 Surfaces shall be made free of defects which may telegraph and show through the finished coating. Surfaces that are rough (fins, ridges, exposed aggregate, honeycombs, deep broom finish, spalls, etc.) shall be leveled and made smooth by grinding or by applying a nonshrink grout. Repaired areas must be primed with Vulkem Primer #171 or TREMprime Multi-Surface Urethane Primer*.

3.8 All drains shall be cleaned and operative. Drains shall be recessed lower than the deck surface. The surface shall be sloped to the drain to provide positive drainage. Primer may be required. See Section 5.

3.9 If the project is restorative in nature, old sealant and backing material shall be removed. The joint interface may require a thorough wire brushing, grinding, sandblasting, solvent washing and/or a primer.

4. Conditions For Wood Surfaces

4.1 Wood must be firm and ring-shank screwed in place, with proper consideration given to joints and movement.

4.2 Wood surfaces must be primed with Vulkem Primer #171 or TREMprime Multi-Surface Urethane Primer* typically do not need primed when applying Vulkem 360NF basecoat. A mock-up is necessary to assure proper adhesion.

4.3 Wood shall be 5/8" exterior-grade plywood, A-side up.

*Note: Allow Vulkem Primer #171 to dry to slightly tacky before proceeding. Allow TREMprime Multi-Surface Urethane Primer to dry completely, at least 30 minutes.

5. Special Surfaces

5.1 Vulkem 360NF requires TREMprime non-porous primer on metal surfaces. Lap joints must be sealed with Dymeric 240FC sealant and coated with Vulkem 360NF in order to cover seams, bolts and rivets prior to applying the system.

6. Materials

6.1 Recommended materials and their uses are as follows:

DYMERIC 240FC SEALANT. A two-part chemically curing, gun grade polyurethane deck joint sealant for use in sealing cracks, expansion joints, control joints and for use in forming cants.

VULKEM 360NF COATING. A two-part, slightly thixotropic, self-leveling polyurethane coating used as the elastomeric waterproofing base coat. In addition Vulkem 360NF, when mixed with proper amounts of aggregate, can be used as a patching and sloping material.

VULKEM 950NF COATING. A two-part aromatic, low odor, 99% solids polyurethane topcoat providing a chemical resistant, weatherproof wearing surface.

VULKEM 951NF COATING. A two-part aliphatic, low odor, 99% solids polyurethane topcoat providing a chemical and UV resistant, color stable, weatherproof wearing surface.

TREMPRIME MULTI-SURFACE URETHANE PRIMER. A two-part, very low odor, quick drying, ultra-low VOC primer for use between urethane and wood, concrete and other urethane surfaces.

VULKEM PRIMER #171. A one-part, film forming primer to be used on porous surfaces to improve adhesion and to reduce pinholes in the membrane. Also used in expansion joints subject to continuous immersion or subject to water intrusion from hydrostatic conditions.

TREMPRIME NON-POROUS PRIMER. A one-part primer for use on any metal surface to which any Vulkem product will be applied.

VULKEM PRIMER #191. A one-part interlaminar primer for use when applying a fresh coat of Vulkem urethane after the preceding coat has been exposed for over 24 hours and/or has lost its surface tack.

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

7. Detail Work

Note: Do not apply sealant or coatings to a frosty, damp or wet surface or when air 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% relative humidity. A decrease in ambient temperature will significantly lengthen the cure time.

7.1 Mix the Dymeric 240FC using a suitable size mixing blade in a slow speed electric or air powered drill motor. Avoid trapping air into the mixture. Move the mixing blade around the inside of the container to assure complete disbursement of the catalyst.

7.2 At horizontal and vertical surface junctures lay a 1/4" inch (6mm) diameter backer rod into the corner (such as: curbs, wall sections, columns or penetrations through deck) Apply a bead of Dymeric 240FC Sealant, one inch (2.5cm) in width, over the Backer Rod. Tool the sealant bead to form a 45 cant. Use sufficient pressure to force out any entrapped air and to assure complete wetting of the surface. Remove excess sealant from the deck or wall surface.

7.3 In expansion and seismic joints, install a Backer Rod, 1/8 inch to 1/4 inch (3mm to 6mm) diameter larger than the joint

width to all prepared expansion 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 is as follows:

For joints 1/4 inch (6.4mm) to 1/2 inch (12.7mm) wide, the width to depth ratio should be equal. Joints 1/2 inch (12.7mm) wide or greater should have a sealant depth of 1/2 inch (12.7mm). Minimum joint size is 1/4 inch by 1/4 inch (6.4mm by 6.4mm).

7.4 Completely fill joint with Dymeric 240FC Sealant or Vulkem 360NF. For cracks, tool sealant flush with the surface. For expansion joints, tool Dymeric 240FC Sealant slightly concave so the surface of the sealant is below the surface of the deck.

7.5 Allow Dymeric 240FC Sealant to cure overnight.

7.6 Apply a strip of tape (masking tape or duct tape) to the vertical sections, two or three inches above the Dymeric 240FC Sealant cant to provide a neat termination of the vertical detail coat. Apply a 25 mil (.64mm) thick detail coat of Vulkem 360NF over the treated cant and extend the Vulkem 360NF to the tape on the vertical surface and 4 inches (10.2cm) onto the horizontal surface. Feather the terminating edge of the Vulkem 360NF detail coat on the horizontal surface to prevent these edges from showing through the finished coating.

7.7 Apply a 30 mil (.75mm) thick detail coat of Vulkem 360NF, 6 inches (150mm) wide centered over all untreated cracks, all routed and sealed cracks and over all cold joints. Feather terminating edge of detail coat to prevent these edges from showing through the finished coating.

7.8 All Vulkem 360NF detail coats can be recoated immediately with Vulkem 360NF.

NOTE: Expansion and Seismic joints should not be coated over.

8. Coating Application

8.1 Thoroughly mix Vulkem 360NF prior to adding water.

8.2 Apply Vulkem 360NF at 25 mils (0.64mm) thickness to the entire area to be coated, including over all detail coats, but excluding expansion joints. The most popular method of application is with a notched trowel. Backroll to evenly distribute coating and to eliminate pinholes. Vulkem 360NF can also be applied with a roller equipped with a solvent resistant roller sleeve.

8.3 Allow Vulkem 360NF to cure for a minimum of 6 hours and a maximum of 24 hours at 75°F (24°C), and 50% relative humidity.

8.4 When a faster cure time is desirable, Vulkem 360NF Quick Cure Catalyst can be added after the water has been added and mixed into the system. The Vulkem 360NF Quick Cure

Catalyst will enable the applicator to topcoat the system within 3 hours at 75°F (24°C), and 50% relative humidity.

NOTE: The Vulkem 360NF should have a slightly tacky surface to aid in the adhesion of the Vulkem Ultra-High Solids Topcoats. If the membrane coat has reached a tack-free cure, the surface must be cleaned with a cloth which has been wet with Xylol (Xylene). **DO NOT SATURATE THE SURFACE WITH SOLVENT. IF THE MEMBRANE COAT HAS BEEN ALLOWED TO BE EXPOSED FOR MORE THAN 24-36 HOURS, IT SHOULD BE CLEANED, THEN PRIME COATED WITH VULKEM PRIMER #191 or TREMPRIME MULTI-SURFACE URETHANE PRIMER.** Contact your local Tremco representative in these situations.

8.5 Pre-mix the Vulkem 950NF or Vulkem 951NF base component, Part A to assure no settlement of the material is in the bottom of the pail and the color of the material is consistent with no streaks or striations. Open, mix and use one pail at a time.

Empty contents of the curative, Part B into the base, Part A. Using a jiffiler type blade and slow speed drill, carefully mix the two components for 3 minutes, scrape down the sides of the pail, mix an additional 1-2 minutes. Use care to not incorporate air into the product.

For Heavy Duty Applications: Allow the first coat of the Vulkem NF Topcoat to cure a minimum of 6 hours up to 24 hours prior to applying a second coat. Repeat.

Vulkem 950NF or Vulkem 951NF topcoats are applied with a medium nap roller at the rate of 125 sq. ft./gal (3.2sq.m/L) to yield approximately 12 wet mils (0.30mm) thickness over the cured Vulkem 360NF. Remove excess material from the roller by using a screen in the pail to avoid puddles or ponding of the material. Broadcast 15-18 lbs. of 30-40 as sold by Best Sand or equivalent mesh silica sand per gallon (0.5kg/L) immediately into the wet topcoat and back roll with a pre-wetted roller to evenly distribute the aggregate.

Allow the system to cure 12 hours prior to foot traffic and 24 hours prior to vehicular traffic.

Consult your Tremco Technical Service Representative for specific design requirements.

9. Slip Resistance

The non-slip properties of the finished deck coating system is determined by the applicator. We suggest installing a test patch and obtaining customer acceptance.

10. Clean Up

10.1 Clean all adjacent areas to remove any stains or spills with MEK, Toluene or Xylene.

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

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

11. Usage

The following is a guide to estimate material usage:

DYMERIC 240FC. For a one inch (25.4mm) cant bead over a 1/4 inch (6mm) backer rod, 1 gallon of sealant for every 20 linear feet is required (1 liter for 8 meters).

VULKEM 360NF COATING. Apply at a rate of 64 square feet per gallon (1.57m²/L) for a wet mil thickness of 25 mils (.64mm) for vehicular application. A detail coat which extends 4 inches (10.2cm) on the horizontal deck requires 1 gallon of coating for every 90 linear feet (1 liter for 7.3 meters). A detail coating (6 inches x 25 mils) (15.2cm x 0.64mm) over a crack requires 1 gallon of coating for every 120 linear feet (1 liter for 9.7 meters)

VULKEM 950NF OR VULKEM 951NF TOPCOAT. Apply at a thickness of 12 mils (0.30mm). *NOTE: Second coat may yield less coverage compared to initial due to increased surface area caused by impregnated sand.



Primer Selection & Usage Guide

Primer Selection By Application

Porous Surface Primers

- Vulkem® Primer # 171 – Urethane sealants, deck coatings, and TREMproof® membranes.
- TREMprime® Silicone Porous Primer – Silicone sealants
- Tremco Primer #1 – Urethane sealants (Not for use in the United States).
- Deckline Primer – THC-900 and THC-901.
- TREMprime Multi-Surface Urethane Primer – Urethane coatings.

Non-Porous Surface Primers

- Tremco Silicone Metal Primer #10 – Silicone sealants.
- TREMprime Non-Porous Primer – Urethane sealants, coatings, and TREMproof membranes.

Urethane Tie-Ins

- Vulkem Primer # 191 / # 191 Low-VOC – Urethane sealants, coatings, and TREMproof membranes.
- TREMprime Multi-Surface Urethane Primer – Urethane coatings.

Hot Applied Membrane Specific Primers

- TREMprime WB.
- TREMprime QD Low Odor Primer.

General Application Guidelines - Detailed instructions specific to each primer are listed below.

Limitations

- Do not apply over contaminated or damp surfaces.
- Do not thin.

Packaging

Tremco Primers are available in multiple packaging options. Please contact Tremco Customer Service or your local Tremco Field Representative.

Application

All surfaces must be sound, clean, dry and free from contamination. A thorough wire brushing, grinding, sandblasting or solvent cleaning may be required to expose clean, sound, virgin surfaces. All coverage rates listed are approximate and may differ depending upon texture of the substrate finish. Any questions regarding drying times, coverage rates and unique application techniques regarding the individual primers should be directed to Tremco Technical Services or your local Tremco Field Representative.

Tremco Silicone Metal Primer #10

Usage: Non-porous surfaces, silicone sealants.

A one-component primer used to enhance adhesion of silicone sealants on non-porous surfaces such as metals and plastics. Tremco Silicone Metal Primer #10 is also approved for Structural Glazing applications.

- Apply with a clean brush or cloth. Remove all excess primer from brush or cloth to ensure a very thin layer is applied.
- Dry time is 15 minutes at 70°F. Primer must be completely dry before applying sealant.
- Silicone sealants can be applied up to 8 hours after primer has been applied. After 8 hours, the surface must be cleaned with IPA and reprimed with Tremco Silicone Metal Primer #10.
- Coverage Rate: 1400 - 1800 sq. ft. per gallon.

TREMprime WB

Usage: Porous and non-porous surfaces, TREMproof 6100, 6100BM and 6145.

High-solids, water-based primer for use in preparing porous and non-porous surfaces for application of TREMproof 6100, 6100BM and 6145.

- Apply with roller or airless spray equipment.
- Coverage Rate: Concrete: 150 - 300 sq. ft. per gallon; Metal: 300 - 350 sq. ft. per gallon.

TREMprime Silicone Porous Primer

Usage: Porous surfaces, silicone sealants.

One-component primer used to enhance adhesion of silicone sealant to porous surfaces such as concrete and limestone.

- Apply generously with a clean brush or cloth.
- Dry time is 30-45 minutes at 70°F. Primer must be completely dry before applying sealant.
- Silicone sealants can be applied up to 8 hours after primer has been applied. After 8 hours, the surface must be cleaned with IPA and reprimed with TREMprime Silicone Porous Primer.
- Coverage Rate: 500 - 600 sq. ft. per gallon 9600 lf/gal - 1/2" band.

Tremco Primer #1 (Not for use in the United States)

Usage: Porous surfaces, urethane sealants (Dymonic, Dymonic FC, Dymeric 240, Dymeric 240FC).

Quick-drying, one-part, moisture-curing primer used as an adhesion promoter for urethane sealants on porous surfaces such as concrete and wood.

- Apply generously with a clean brush or cloth.
- At 70°F, allow 30-45 minutes for primer to become tacky before applying sealant. Do not allow primer to dry completely. The tackiness window is approximately 2-4 hours depending on temperatures and wind speeds.
- Primed areas should be sealed the same day the primer was applied.
- Coverage Rate: 100 - 600 sq. ft. per gallon.

TREMprime Non-Porous Primer

Usage: Non-porous surfaces, urethane sealants and coatings. A low-VOC, water-based, quick-drying, one-part primer. TREMprime Non-Porous Primer is not a film-forming primer. It is used as an adhesion promoter for urethane sealants and coatings on non-porous surfaces such as metals and plastics.

- Apply with a clean cloth. Remove all excess primer from cloth to ensure a very thin layer is applied.
- Dry time is 15 minutes at 70°F. Primer must be completely dry before applying sealant or coating.
- Urethane sealants and coatings can be applied up to 8 hours after primer has been applied. After 8 hours, the surface must be cleaned with a Tremco approved solvent and reprimed with TREMprime Non-Porous Primer.
- Coverage Rate: 1400 - 1800 sq. ft. per gallon.

Vulkem Primer # 171

Usage: Porous surfaces, urethane sealants, Vulkem Coating Systems and TREMproof membranes.

Quick-drying, one-part, moisture-curing primer. It is used as an adhesion promoter for Vulkem brand urethane sealants and coatings and TREMproof membranes on porous surfaces such as concrete and wood.

- Apply generously with a clean brush or roller. Do not apply in excess where it will puddle or pond.
- At 70°F, allow 30-45 minutes for primer to become tacky before applying sealant, coating or membrane. Do not allow primer to dry completely.
- Do not apply sealant or coating if primer becomes hard or glossy. If it does, clean with a Tremco approved solvent and coat with Vulkem Primer No. 191.
- Coverage Rate: 100 - 600 sq. ft. per gallon.

TREMprime Multi-Surface Urethane Primer

Usage: Porous surfaces, interlaminary, urethane coatings.

Low-VOC (<60 g/L), two-part epoxy primer used to condition and prep porous surfaces and existing coatings for application of a new coating layer.

- Apply with a short nap roller or brush evenly to the surface.
- Primer must dry completely before coating application as indicated by turning from milky-white to completely clear.
- Coverage Rate: 200 - 300 sq. ft. per gallon.

Vulkem Primer # 191

Usage: Urethane sealants, coatings and TREMproof membranes. It is used to prepare surfaces of cured urethane sealants, coatings and TREMproof membranes that will be sealed with a fresh coat.

- Apply with a clean brush or roller. Do not apply in excess or allow to puddle. Use a short nap roller only.
- Dry time is 15-45 minutes at 70°F. Apply coating or sealant within one hour after application when primer is still tacky but does not come off substrate. Primer will yellow with time if left exposed. Do not apply in excess to other substrates not intended to be coated.
- Do not apply sealant or coating if primer becomes hard or glossy. If it does, clean with a Tremco approved solvent and reprime with Vulkem Primer #191.
- Coverage Rate: 450 - 600 sq. ft. per gallon.

Vulkem Primer # 191 Low-VOC

Usage: Urethane sealants, coatings and TREMproof membranes. It is used to prepare surfaces of cured urethane sealants, coatings and TREMproof membranes that will be sealed with a fresh coat.

- Apply with a clean brush or roller. Do not apply in excess or allow to puddle. Use a short nap roller only.
- Dry time is 30-45 minutes at 70°F. Apply coating or sealant within 3-5 hours after application when primer is still tacky but does not come off substrate. Primer will yellow with time if left exposed. Do not apply in excess to other substrates not intended to be coated.
- Do not apply sealant or coating if primer becomes hard or glossy. If it does, clean with a Tremco approved solvent and reprime with Vulkem Primer #191 Low-VOC.
- Coverage Rate: 400 - 450 sq. ft. per gallon for interlaminary applications.
- VOC-compliant.

Deckline Primer

Usage: Porous surfaces, THC-900 and THC-901. Single-component, moisture-curing primer. It is used as an adhesion promoter for horizontal applications of THC-900 and THC-901 on porous surfaces such as concrete.

- Apply generously with a clean brush.
- Dry time is 1-2 hours at 70°F. Primer must be dry to the touch prior to application of the sealant.
- THC-900 and THC-901 can be applied up to 48-72 hours after primer has been applied, depending on temperature.
- Coverage Rate: 200 - 250 sq. ft. per gallon.

TREMprime QD Low-Odor Primer

Usage: Porous and non-porous surfaces, TREMproof 6100, 6100BM and 6145.

High-solids, solvent-based primer for use in preparing porous and non-porous surfaces for application of TREMproof 6100, 6100BM and 6145.

- Coverage Rate: Concrete: 150 - 300 sq. ft. per gallon;
Metal: 300 - 350 sq. ft. per gallon.

Warranty

Tremco warrants its products to be free of defects in materials, but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied, including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE, with respect to Tremco products. Tremco's sole obligation shall be, at its option, to replace or refund the purchase of the quantity of Tremco product proved to be defective and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.



Vulkem® 360NF

Rapid Cure Low-Odor/VOC Compliant Sloping/Patching/Waterproofing Membrane

Product Description

Vulkem® 360NF is a low-odor, VOC compliant, water-cured, rapid-setting polyurethane basecoat that possesses tenacious adhesion primarily to clean and dry concrete, but also to wood and metal. Vulkem 360NF is a versatile basecoat that can be applied at various thicknesses. Vulkem 360NF is mixed with water as the curative at a ratio of five parts membrane to one part water.

Basic Uses

Vulkem 360NF has been specially formulated for the odor sensitive applications created in heavily occupied areas. Vulkem 360NF is ideal for plazas, vehicular and recreation decks, balcony terraces, mechanical rooms, restrooms, kitchens, stadiums, ramp areas, elevated plenums and other primarily concrete/masonry surfaces. Vulkem 360NF is ideal for restoration work where both time and odor are a concern.

Compatible Vulkem Intermediate and Topcoats

Tremco offers a complete line of time-tested, compatible Vulkem intermediate and topcoats that form a strong interlaminary bond to the Vulkem 360NF. Compatible topcoats are Vulkem 351, 351NF, 346, 951NF and 950NF (indoor only for 950NF). Compatible intermediate coats are Vulkem 345 and 950NF. These Vulkem coatings when used in conjunction with the recommended aggregate, create a tough, aesthetically pleasing, abrasion resistant wearing surface over the Vulkem 360NF basecoat.

Standard Color

Grey

Packaging

5 gal. (19L) pails
55 gal. (208L) drums

Quick Cure Catalyst

Available upon request. Refer to Application Instructions for specific information.

Mixing Instructions

One part of water is added for every five parts of coating. Mix until the water is completely incorporated into the base polymer, resulting in a viscous, elastomeric coating.

SEALANT - WATERPROOFING & RESTORATION INSTITUTE	
Issued to: Tremco Incorporated	
Product: Vulkem 360 NF SL Basecoat & 951 NF Topcoat	
ASTM D 412: Tensile Strength of Top Coat	
Vulkem 951	Pass ✓
Tensile Strength: 5,180 psi;	
Elongation: 260%	
ASTM D 4541: Adhesion of Base Coat	
Vulkem 360 NF SL	
Pull-off Adhesion: 350 psi	Pass ✓
ASTM D 4060: Abrasion Resistance of Top Coat	
Vulkem 951	
Abrasion Resistance: 33 mgms loss	Pass ✓
- mgms loss/1,000 cycles	
Validation Date: 3/8/07-3/7/12	
No. 367—VBT360951 Copyright © 2007	
DECK COATING VALIDATION	
www.swrionline.org	

Installation

Refer to Vulkem 360NF Application Instructions for specific application details. The techniques involved may require modification to adjust to job-site conditions. Consult your local Tremco Sales Representative or Tremco Technical Services for specific design requirements.

Availability

Immediately available from your local Tremco Sales Representative, Tremco Distributor or Tremco Warehouse.

Warranty

Tremco warrants its Products to be free of defects in materials, but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied, including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE, with respect to Tremco Products, sole obligation shall be, at its option, to replace, or to refund the purchase price of the quantity of Tremco Product proven to be defective and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

TYPICAL PHYSICAL PROPERTIES

Property	ASTM Method	Vulkem 360NF
Shore A Hardness	D 2240	40-50
Tensile Strength, psi	D 412	275 psi
% Elongation	D 412	500%
100% Modulus, psi	D 412	130 psi
Tear Strength, psi	D 642	60-80 psi
Peel Strength, pli (concrete)	C 794	45 pli
Peel Strength, pli (plywood)	C 794	40 pli
Crack Bridging	C 836	1/8"
Peel-off Adhesion	D 4541	350 psi



Tremco Commercial Sealants & Waterproofing

3735 Green Road, Beachwood, OH 44122 // Phone: 216.292.5000 // 800.321.7906
220 Wicksteed Avenue, Toronto, ON M4H 1G7 // Phone: 416.421.3300 // 800.363.3213
1451 Jacobson Avenue, Ashland OH 44805 // Phone: 419.289.2050 // 800.321.6357

Vulkem® 950NF & 951NF Topcoats

Neighbor-Friendly, Low-Odor/Low-VOC Topcoats for Pedestrian and Vehicular Application

Product Description

Vulkem® 950NF and 951NF Topcoats are high-performance, Neighbor-Friendly, two-part polyurethane coatings for vehicular (heavy duty) and pedestrian (medium duty) applications where low-odor and extremely durable coatings are desired. These topcoats are applied over a cured Vulkem basecoat.

Vulkem 950NF Topcoat can be used both as an intermediate coat for the Tremco heavy duty system and a topcoat for interior applications. Vulkem 951NF is a low-odor topcoat designed for exterior applications and for use over Vulkem 950NF in heavy duty applications.

The recommended basecoats for use with Vulkem 950NF and Vulkem 951NF are Vulkem 350NF and Vulkem 360NF. Vulkem 350NF is a single-component, fast-curing, low-odor polyurethane basecoat that possesses tenacious adhesion primarily to clean and dry concrete, but also to wood and metal. Vulkem 360NF is a low-odor, VOC-compliant, water-cured, rapid-setting polyurethane basecoat that also possesses tenacious adhesion primarily to clean and dry concrete, but also to wood and metal.

Basic Uses

Medium Duty applications consist of a 25-mil coat of Vulkem 360NF and a 12-mil coat of one of the Vulkem NF topcoats with backrolled aggregate. This deck coating system is designed for waterproofing plaza decks, recreation decks, balconies, mechanical rooms, stadiums, parking stalls and similar primarily concrete and masonry applications requiring an elastomeric waterproofing system.

Heavy Duty applications consist of a 25-mil coat of Vulkem 360NF and two 12-mil coats of one of the Vulkem NF topcoats with backrolled aggregate. This deck coating system is a cold applied vehicular traffic deck coating system designed for waterproofing concrete slabs and protecting occupied areas underneath from water damage. Additionally, the system will protect concrete from damaging effects of water deicing salts, chemicals, gasoline, oils and antifreeze.

Features

- Low-odor.
- Quick turnaround time.
- Extremely tough topcoats.
- Reduced number of coats for both the medium and heavy duty systems.
- Topcoats need only 24 hours cure prior to vehicular traffic, 12 hours cure prior to foot traffic.

Applicable Standards

Conforms to ASTM C 957.

Packaging

Vulkem 360NF Basecoat - 5 gal. (18.9L) in an Imperial 5 gal. (22.7L) pail

Vulkem 950NF Topcoat - Total of 4.2 gal. kit - Part A 3.25 gal. (12.3L) in a 5 gal. (18.9L) pail, Part B 0.95 gal. (3.6L)

Vulkem 951NF Topcoat - Total of 4.6 gal. kit - Part A 3.75 gal. (14.2L) in a 5 gal. (18.9L) pail, Part B 0.85 gal. (3.2L)

Color

Vulkem 950NF or Vulkem 951NF topcoats are available in Gray, Slate Gray or Beige. High-reflectivity, Energy-Star™ White is available as a made-to-order. Vulkem 951NF also comes in Clear (pedestrian only) and Black. Other colors are available via special ordering.

Installation

Concrete shall be water cured and in place according to the industry standard of 28 days, which is our recommendation, prior to installing the coating materials. Concrete finish shall be a light steel trowel followed by a fine hair broom finish, or equivalent finish. New or existing slabs must be dry, clean, sound and free of all contaminants which may interfere with adhesion or proper curing.

Chemical and/or mechanical surface preparation may be required.

Refer to Vulkem 360NF/950NF/951NF Application Instructions for specific application details. For specialty applications such as roof decks, tennis courts and others, visit www.tremcosealants.com. The techniques may require modifications to adjust to the job-site conditions. Consult your local Tremco Sales Representative or Tremco Technical Services for specific design requirements.

Note: For installation of 951NF - Clear, please refer to the Color-quartz application instructions for Vulkem 951NF - Clear.

Availability

Immediately available from your local Tremco Sales Representative, Tremco Distributor or Tremco Warehouse.

Limitations

- Do not apply to damp or contaminated surfaces.
- Use with adequate ventilation.

Warranty

Tremco warrants its Products to be free of defects in materials, but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied, including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE, with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace, or refund the purchase of the quantity of Tremco Products proven to be defective and Tremco shall not be liable for any loss or damage.

TYPICAL PHYSICAL PROPERTIES

Property	Test Method	360NF Base Coat	950NF Top Coat	951NF Top Coat
Tensile	ASTM D 412	275 psi	4200 psi	5000+ psi
Elongation	ASTM D 412	500%	100%	260%
100% Modulus	ASTM D 412	130 psi	N/A	N/A
Hardness	ASTM C 661	40-50 Shore A	75 Shore D	50 Shore D
Permeability	ASTM E 96	0.12 metric perms	N/A	N/A
Viscosity, cps	Brookfield HBT	8-10,000	2000	2500
Cure Time at 77° F, 50% R.H.	ASTM D 1640	6 hrs. min.	24 hours, traffic	24 hours, traffic
Solids Content	ASTM C 792	>90%	99+%	>98%
Crack Bridging	N/A	1/8"	N/A	N/A
Tear Strength, psi	ASTM D 642	60-80	N/A	N/A
Peel Strength to Base Coat	N/A	N/A	100% c.f.	100% c.f.
Peel Strength, pli (concrete)	ASTM C 794	40-45	Concrete Fail.	N/A
Peel Strength, pli (plywood)	ASTM C 794	35-40	N/A	N/A
Peel-off Adhesion	ASTM D 4541	350 psi	N/A	N/A
Abrasion Resistance	120 psi cycles	N/A	100,000	100,000
Abrasion Loss (1000 cycles)	ASTM D 4060	N/A	N/A	33mgms

TYPICAL PHYSICAL PROPERTIES

Property	Test Method	Vulkern 350NF (SL)	Vulkern 350NF (R)
Tensile	ASTM D 412	440-460 psi	220-240 psi
Elongation	ASTM D 412	600-700%	600-700%
S100	ASTM D 412	220-260 psi	110-120 psi
Hardness, Shore A	ASTM C 661-83	50-60	45-50
Peel Strength – On Concrete	ASTM C 794	25 – 30pli, 100% Cohesive Failure	20-25pli, Cohesive Failure
Permeability	ASTM E 96	.15 perm-inches	.1 perm-inches
Vertical Hold		N/A	>50 mils
Weight % Solids		90-92%	97-98%
Non-Volatile Content	ASTM D 1353	<90 g/l	<20 g/l
Viscosity, cps	Brookfield C&P	4-6000 cps	15,000-20,000
Cure Time to Recoat @ 77°F (25°C) 50% R.H.	ASTM D 1640	4-6 hours	5-7 hours
Flash Point	Setaflash	160°F	>200°F
Pull-Off Adhesion	ASTM D 4541	min 400 psi	min 275 psi



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Vulkem® 45 SSL

One-Part, Semi-Self-Leveling Sealant

Product Description

Vulkem 45 SSL is a one-part, moisture-curing, low-modulus polyurethane sealant. It provides exceptional wear and tear resistance required in high traffic areas.

Features and Benefits

Vulkem 45 SSL is a traffic rated, pourable, semi-self-leveling sealant with exceptional primerless adhesion and movement capability. Vulkem 45 SSL is suitable for continuous immersion in non-chlorinated water and can be applied to damp and green concrete. The technology in Vulkem 45 SSL provides the sealant with greater UV resistance and will not out gas.

Uses

Vulkem 45 SSL is formulated for use in expansion joints in sidewalks, swimming pool decks, plazas, floors and any other horizontal surface with slopes up to 6% (e.g. 1" rise for every 16" run).

Colors

Black, Buff, Gray, Limestone, White.

Packaging

Quart (850mL) cartridges; 2 gallon (7.6 L) and 5 gallon (18.9 L) pails; 55 gallon (208 L) drums.

Coverage Rate

308 linear feet of joint per gallon for a 1/4" x 1/4" joints.
For specific coverage rates that include joint size, and usage

efficiencies, visit our website usage calculator at www.tremcosealants.com.

Applicable Standards

Vulkem 45 SSL meets or exceeds the requirements of the following specifications:

- ASTM C 920, Type S, Grade P, Class 50, Use T, M, A, O and I (Class 2)
- CAN/CGSB 19.13-M87, MC-1-25-B-N

Joint Design

Vulkem 45 SSL may be used in any horizontal joint designed in accordance with accepted architectural/engineering practices. Joint width should be 4 times anticipated movement, but not less than 1/4" (6.4mm).

Joint Backing

Closed cell or reticulated polyethylene backer rod is recommended as joint backing to control sealant depth and to ensure intimate contact of sealant with joint walls. Backer rod needs to be properly friction fitted for use with self-leveling sealants to prevent leak out of sealant during cure. Where depth of joint will prevent the use of backer rod, an adhesive backed polyethylene tape (bond breaker tape) should be used to prevent three-sided adhesion. All backing should be dry at time of sealant application.

TYPICAL PHYSICAL PROPERTIES

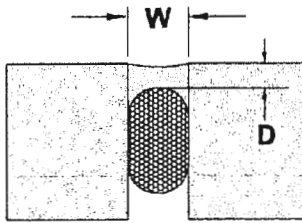
(Results of recent testing at 72°F (22°C) after 21 days cure time.)

Property	Test Method	Typical Value
Rheological Properties	ASTM C 639	Semi-self-leveling, levels moderately* Holds up to 6% Slope
Weight Loss	ASTM C 1246	3%
Hardness Properties, scale "A"	ASTM C 661	40-45
Skin Time (tooling time)		1.5-2 hours
Tack-Free Time	ASTM C 679	<5 hours
Stain & Color Change	ASTM C 510	No stain, No color change
Adhesion to Concrete	ASTM C 794	Before water: 31 pli After water: 28 pli Green: >15 pli Wet: >15pli
Accelerated Weathering	ASTM C 793	Pass
Movement Capability	ASTM C 719	+100% / -50%
Tensile Strength	ASTM D 412	250-300 psi
Elongation	ASTM D 412	600-750%
Tear Strength	ASTM D 412	35 pli (156N)

*There is no method specific in ASTM C 920 that defines the rheology of a semi-self-leveling sealant.

Sealant Dimensions

W = Sealant width, D = Sealant depth,



EXPANSION JOINTS - The minimum width and depth of any sealant application should be 1/4" by 1/4" (6mm by 6mm).

The depth (D) of sealant may be equal to the width (W) of joints that are less than 1/2" wide. For joints ranging from 1/2" to 1" (13mm to 25mm) wide, the sealant depth should be approximately one-half of the joint width.

The maximum depth (D) of any sealant application should 1/2" (13mm). For joints that are wider than 1" (25 mm) contact Tremco's Technical Service Department, or your local Tremco field representative.

Surface Preparations

Surfaces must be sound, clean, and dry. All release agents, existing waterproofing, dust, loose mortar, laitance, paints, or other finishes must be removed. This can be accomplished with a thorough wire brushing, grinding, sandblasting, or solvent washing, depending on the contamination.

Tremco recommends that surface temperatures be 40°F (5°C) or above at the time the sealant is applied. If sealant must be applied in temperatures below 40°F, please refer to the Tremco Guide for Applying Sealants in Cold Weather that can be found on our website at www.tremcosealants.com.

Priming

Where deemed necessary, use Vulkem Primer #171 for porous surfaces, and TREMPreme Non-Porous Primer for metals. Vulkem 45 SSL typically adheres to concrete and stone without primers; however, Tremco always recommends that a mock-up or field adhesion test be performed on the actual materials being used on the job to verify the need for a primer. A description of the field adhesion test can be found in appendix X1 of ASTM C 1193, Standard Guide for Use of Joint Sealants.

Application

Vulkem 45 SSL is easy to apply with conventional caulking equipment. Ensure that the backer rod is friction fitted properly

to provide the proper width-to-depth ratio and any primers have been applied. Fill the joint completely from the backer rod up, and allow the sealant to self-level to a smooth, even finish. For a cleaner finish, mask the sides of the joint with tape prior to filling.

Cure Time

At 75°F (23.9°C), 50% R.H. a skin forms within 5 hours. Curing continues at a rate of approximately 1/16" (1.6mm) depth per day. The cure time will increase as the temperature and/or humidity decrease. A good rule of thumb is one additional day of cure for every 10°F decrease in temperature. Cure time can be increased by adding water when using pails of Vulkem 45 SSL. Please refer to the Technical Bulletin on Vulkem 45 SSL Activator that can be found on our website at www.tremcosealants.com.

Damp/Green Concrete

Vulkem 45 SSL can be applied to green concrete 24 hours after the forms have been removed. All concrete sealers or curing agents need to be removed by grinding before applying sealant. The concrete can be damp during application, but do not apply sealant where there is standing water in or close to the joints. It is recommended to catalyze with water when applying sealant on damp surfaces.

Clean up

Excess sealant adjacent to the joint interface can be carefully removed with xylene or mineral spirits before the sealant cures. Any utensils used for tooling can also be cleaned with xylene or mineral spirits.

Limitations

- Do not apply over contaminated surfaces.
- Do not use in immersed conditions that contain chlorinated water.
- Use with adequate ventilation.
- Always utilize the accompanying MSDS for information on Personal Protective Equipment (PPE) and health hazards.

Warranty

Tremco warrants its sealants to be free of defects in materials, but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE, with respect to Tremco sealants. Tremco's sole obligation shall be, at its option, to replace or refund the purchase of the quantity of Tremco sealant proven to be defective and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.



Tested system numbers FF-D-1062 and FW-D-1058

Dymeric® 240FC

High Performance Multi-Component Polyurethane Sealant

Product Description

Dymeric® 240FC is a gun grade, multi-component, chemically curing, polyurethane sealant that includes a tintable base, curative packet, and a choice of 70 standard colors. A Limestone Pretinted version is available.

Basic Uses

Dymeric 240FC applications range from pre-cast tilt-up concrete, masonry, and exterior insulating and finishing systems (EIFS), to metal curtain walls, and perimeter joints around doors and windows. It can also be used in certain water immersion applications.

Features and Benefits

Dymeric 240FC is an all around general-purpose sealant that provides flexible, long life and durable waterproofing for both new construction and restoration projects in a fast curing formulation. Dymeric 240FC is formulated to be a lightweight material designed for extremely easy mixing, even in cold temperatures. Dymeric 240FC is a solvent-free product that is compliant with all existing VOC regulations. Please contact your local Sales Representative or Tremco's Technical Service Department for information regarding immersed conditions.

Colors

Dymeric 240FC is available as a base and curative that can be tinted to your choice of 70 standard colors, or we can match a special color for you. A color pak is not required for the pretint version.

Packaging

1.5 gallon (5.7 L) and 3 gallon (11.4 L) kits with pre-measured pouches of curing agent. Pretint in 1.5 gallon (5.7 L) only.

Coverage Rates

308 linear feet of joint per gallon for a 1/4" X 1/4" joint. For specific coverage rates that include joint size, and usage efficiencies, visit our website usage calculator at www.tremcosealants.com.

Applicable Standards

Dymeric 240FC meets or exceeds the requirements of the following specifications:

- ASTM C 920-02 Type M, Grade NS, Class 50, Use I (Class 2), T, NT, M, A and O (granite)
- U.S. Federal Specification TT-S-00227E Class A, Type II
- CAN/CGSB 19.24-M90 Class B, Type II

Joint Design

Dymeric 240FC may be used in any vertical or horizontal joint designed in accordance with accepted architectural/engineering practices. Joint width should be 4 times anticipated movement, but not less than 1/4" (6.4mm).

Joint Backing

Closed cell or reticulated polyethylene backer rod is recommended as joint backing to control sealant depth and to ensure intimate contact of sealant with joint walls when tooling. Where depth of joint will prevent the use of backer rod, an adhesive backed polyethylene tape (bond breaker tape) should be used to prevent three-sided adhesion. All backing should be dry at time of sealant application.

Pot Life (after curative packet added)

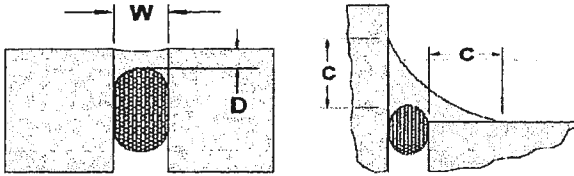
3.0-3.5 hours at 77°F (25°C)
1.5-2.0 hours at 95°F (35°C)
1.0-1.5 hours at 120°F (48.9°C)

TYPICAL PHYSICAL PROPERTIES

Property	Test Method	Typical Value
Low Temperature Flexibility	ASTM C 793	Passes at -65°F (-54°C)
Hardness, durometer scale "A"	ASTM C 661	30 ±3
Weight Loss	ASTM C 1246	Passes
Skin Time (tooling time)		3 hours
Tack Free Time	ASTM C 679	19 hours
Stain & Color Change	ASTM C 510	No stain, No color change
Adhesion-in-Peel	ASTM C 794	>10 pli (pass)
Accelerated Weathering	ASTM C 793	Pass
Movement Capability	ASTM C 719 modified	±50%

Sealant Dimensions

W = Sealant width, D = Sealant depth, C = Contact area.



EXPANSION JOINTS - The minimum width and depth of any sealant application should be 1/4" by 1/4" (6mm by 6mm).

The depth (D) of sealant may be equal to the width (W) of joints that are less than 1/2" wide. For joints ranging from 1/2" to 1" (13mm to 25mm) wide, the sealant depth should be approximately one-half of the joint width.

The maximum depth (D) of any sealant application should be 1/2" (13mm). For joints that are wider than 1" (25 mm) contact Tremco's Technical Service Department, or your local Tremco field representative.

WINDOW PERIMETERS – For fillet beads, or angle beads around windows and doors, the sealant should exhibit a minimum surface contact area (C) of 1/4" onto each substrate.

Surface Preparations

Surfaces must be sound, clean, and dry. All release agents, existing waterproofing, dust, loose mortar, laitance, paints, or other finishes must be removed. This can be accomplished with a thorough wire brushing, grinding, sandblasting, or solvent washing, depending on the contamination.

Tremco recommends that surface temperatures be 40°F (5°C) or above at the time the sealant is applied. If sealant must be applied in temperatures below 40°F, please refer to the Tremco Guide for Applying Sealants in Cold Weather that can be found on our website at www.tremcosealants.com.

Priming

Where deemed necessary, use Tremco Primer #171 for porous substrates and TREMprime Non-Porous Primer for metals and plastics. Dymeric 240FC typically adheres to common construction substrates without primers; however, Tremco always recommends that mock-up or field adhesion test be performed on the actual materials being used on the job to verify the need for a primer. The field adhesion test can be found in appendix X1 of ASTM C 1193, Standard Guide for Use of Joint Sealants.



UL Tested Systems FF-D-1061, FF-S-1030, FW-D-1057, FW-S-1014, WW-D-1052, WW-S-1033, HW-D-1052, HW-S-1011

Application

Mix in accordance with instructions on the pail using the entire pre-measured curative packet and your selected Universal Color Pak. One color pack should be used with 1.5 gallon pails and 2 color packs should be used in the 3 gallon pail. Mix all three parts for a minimum of 6 minutes, scraping the sides of the pail and until there are no color striations. A color pak is not required for the pretint version.

Ensure the backer rod is friction fitted properly and any primers have been applied. Apply sealant with conventional caulking equipment filling the joint from the backer rod up. Immediately tool the sealant with a spatula to ensure intimate contact with the joint walls. Dry tooling is always preferred, although xylene can be used in limited amounts to slick the spatula if needed. For a cleaner finish, mask the sides of the joint with tape prior to filling.

Cure Time:

At 72°F (22°C) Dymeric 240FC will reach full cure in about 48 hours. As the temperatures decrease, the cure time will increase. A good rule of thumb is an additional 24 hours for every 10°F decrease in temperature.

Clean up

Excess sealant and smears adjacent to the joint interface can be carefully removed with xylene or mineral spirits before the sealant cures. Any utensils used for tooling can also be cleaned with xylene or mineral spirits.

Limitations

- Do not apply Dymeric 240FC to damp or contaminated surfaces.
- Always utilize the accompanying MSDS for information on Personal Protective Equipment (PPE) and health hazards.
- For best results, always use a Universal Color Pak.

Warranty

Tremco warrants its sealants to be free of defects in materials, but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE, with respect to Tremco sealants. Tremco's sole obligation shall be, at its option, to replace or refund the purchase of the quantity of Tremco sealant proven to be defective and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

Vulkem 360 NF

Sloping/Patching/Waterproofing Membrane Rapid Cure-Low Odor/V.O.C. Compliant

Purpose

The purpose of this document is to establish uniform procedures for using Vulkem 360NF in conjunction with Tremco deck coating systems as a sloping and/or patching material.

Product Description

Vulkem 360 NF is a low odor, V.O.C. compliant, water-cured, rapid setting polyurethane product that possesses tenacious adhesion to clean and dry concrete, wood and metal.

Basic Uses

When mixed with aggregate, Vulkem 360 NF can be used to slope decks and to fill in low and spalled concrete. Vulkem 360 NF is compatible for use with Tremco topcoats as a pedestrian or traffic waterproof deck coating system. (See Tremco published application instructions for deck coatings.) Note: The Vulkem 360 NF is not intended for use as a patching or sloping material where vehicular traffic patterns are continuous over the deck coating system. Use an approved concrete or patching material as approved by Euclid Chemical Company for these areas.

Sloping And Patching Application

Thoroughly mix Vulkem 360 NF in original pail prior to adding water. Thoroughly mix 4 parts of Vulkem 360 NF base with 1 part of water (by volume).

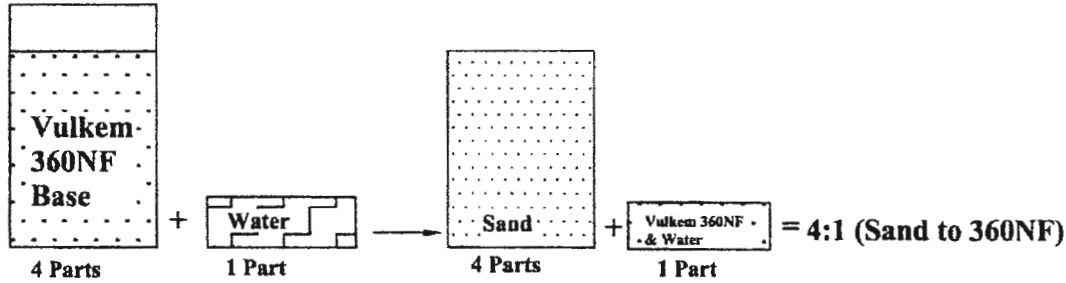
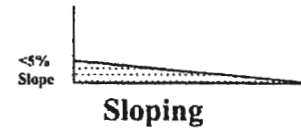
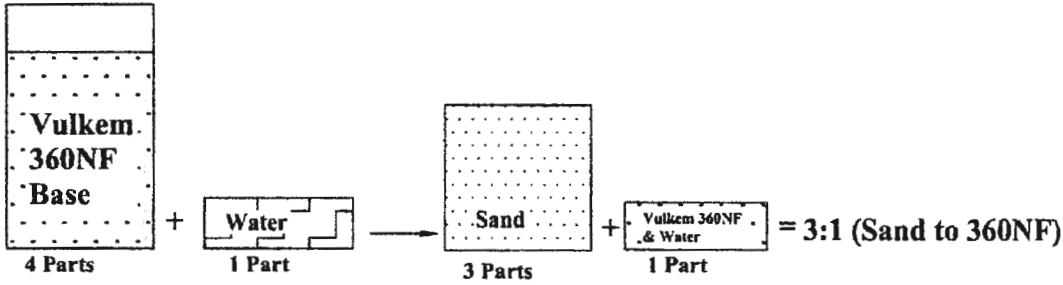
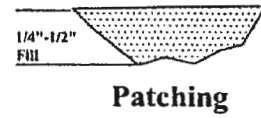
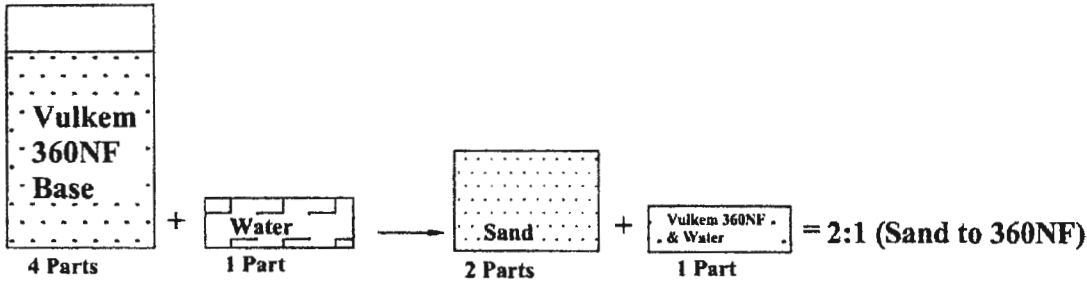
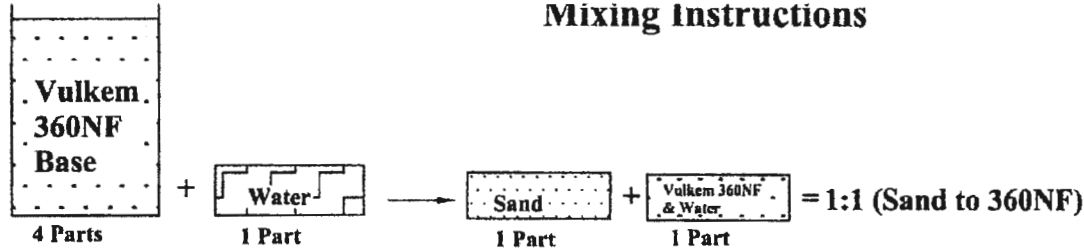
In a rotating-bucket mixer, begin adding sand to the mixed Vulkem 360 NF until desired consistency is reached. Use 40-50 mesh silica sand or aluminum oxide for optimum workability. Trowel the mixture in the area to be filled or sloped. The following table provides a general guideline for approximating the mix ratios and usage rates of Vulkem 360NF base. Contact Tremco Technical Services for use in high traffic areas. **Note: All patching and sloping areas must have a field coat of Vulkem 360 NF applied before application of intermediate or top coats.**

SAND: 360NF MIX	@ 1/8" DEPTH	@ 1/4" DEPTH	@ 1/2" DEPTH
1:1	19ft ² /gal		
2:1		13ft ² /gal	6ft ² /gal
	Sloping	Sloping	
3:1 (<5% slope)	578 in ³ /gal	1/3 ft ³ /gal	
4:1 (>5% slope)	693 in ³ /gal	1/2 ft ³ /gal	

Detailing And Coating

Treat all vertical to horizontal junctures with a one-inch cant bead of Vulkem 227/Dymeric 240 FC per Tremco coating application instructions. This includes areas that will be sloped with the Sand/Vulkem 360 NF mixture. All Vulkem 360 NF detail coats, patching and sloping areas may be recoated immediately with neat Vulkem 360 NF base coat that has been mixed with water. See Tremco coating application instructions for installation of the complete coating system.

Mixing Instructions



Vulkem Pedestrian Deck Coating System

Recommended Maintenance Procedures

Vulkem 350NF/951NF

Vulkem 350NF/351NF

Vulkem 350NF/351

Vulkem 350NF/950NF (indoor)

Vulkem 350NF/351NF/351NF

Vulkem 350NF/951NF/951NF

Vulkem 360NF/351NF

Vulkem 360NF/951NF

Vulkem 360NF/351

Vulkem 360NF/950NF (indoor)

Vulkem 360NF/351NF/351NF

Vulkem 360NF/951NF/951NF

GENERAL

A. Maintenance of THE VULKEM PEDESTRIAN DECK COATING SYSTEM must be performed at regular intervals to assure that the coating system will continue to provide the service for which it was intended.

B. Maintenance procedures should include:

- a. Periodic physical inspections
- b. Cleaning
- c. Snow removal and ice control (where applicable)
- d. Repairs to deck coating system and periodic replacement of topcoat
- e. Repairs to structure

INSPECTIONS

A. The deck coating system is subject to extreme abrasive conditions as well as to physical damage from general use and damage resulting from structural problems. Periodic inspections will provide a basis for the proper maintenance work to assure a long life expectancy of the coating system.

B. Monthly – Make a physical inspection to determine if there are any areas of excessive wear or physical damage to the coating.

C. Semi-annually – make a thorough physical inspection. Such inspections should include (but are not limited to):

- a. Inspect the sealant in joints for proper adhesion. Also determine if there is any cohesive failure or physical damage to the sealant from traffic.
- b. Inspect the underside of the joints for evidence of leaks where possible.
- c. Inspect drains or scuppers to assure there is nothing clogging or blocking them to avoid ponding water on the deck.
- d. Inspect coating surface to determine if there are any substantial structural cracks in the substrates which have caused the coating to crack.
- e. Inspect the areas where beams are resting on columns for evidence of stress cracking or excessive movement.
- f. Inspect the entire structure from the underside for cracks which show evidence of a difference in the plane of the materials on each side of the crack.

- g. Inspect area at juncture of horizontal and vertical sections (parapet walls, planter walls, building walls, etc.) to determine if there has been excessive movement at this point which may have caused the coating to crack.

CLEANING

A. The use and location of the deck will cause the cleaning frequency to vary. Our recommendation for cleaning is as follows:

- a. Weekly – Sweep or vacuum deck to remove all loose debris and dirt. Truck driven vacuums are not recommended as they may gouge the deck surface.
- b. Monthly – Thoroughly clean deck to remove dirt, debris, oil or grease drippings. Cleaning may be by:
 1. Power scrubbing with low suds or biodegradable detergent. Detergent shall not be of an abrasive type. When using power scrubbing equipment, the use of soft bristles is required. Thoroughly rinse to avoid becoming slippery when wet or stains from detergent residue.
 2. High pressure water blast not greater than 1,000 psi at nozzle. *When using this method, maintain at least a 24" distance from the surface, using a continuous back & forth motion.*
 3. Natural citrus peel cleaning products, such as Karna Klean, are recommended.
- c. Avoid the use of strong bases and acids.
- d. Diluted Simple Green or equal product is also a recommended cleaner. Contact Tremco Technical Services prior to using any chemicals or detergents.

SNOW REMOVAL & ICE CONTROL

A. It should be recognized that piled snow can significantly load the deck surface beyond its design load capacity resulting in significant structural cracks and/or more serious structural damage. Therefore, immediate removal of piled snow is recommended.

B. The use of metal blades should be avoided at all times to prevent physical damage to the coating system.

C. Snow blowers (with rubber blades) and snow brooms are recommended, as opposed to heavy snow removal equipment.

D. Ice should be removed with chemical deicing materials. Acceptable deicing materials could include calcium chloride, potassium chloride or magnesium chloride. Sand, aggregate or rock salt is not an acceptable form of deicing.

REPAIRS TO STRUCTURE

A. All structural damage repairs should be at the direction of a structural engineer.

REPAIRS TO DECK COATING MATERIALS

A. Minor repairs may be made by owner's maintenance people, however, it is suggested that to protect the manufacturers warranty, major repairs should be accompanied by the original approved applicator.

B. Physical damage to the coating system.

- a. Remove loose damaged coating materials to expose a sound substrate.
- b. Thoroughly clean exposed substrate and existing coating surrounding the area with a cloth which has been wet with an approved Tremco solvent.
- c. Allow an approved Tremco solvent to evaporate (1 hour at 75°F, 50% R.H.).

- d. Apply Vulkem Primer 191 or 191 Low VOC Primer in a thin film (450 sq. ft/gal.) to the cleaned, existing coating surrounding the area to be replaced.
- e. Allow the Vulkem Primer 191 or 191 Low VOC Primer to dry until tacky, 10-20 minutes, at standard temperature (75°F, 50% R.H.).
- f. Install the coating system to the original film thickness, extending each coat onto the existing coating, feather-edging the terminating edge of the coating.
- g. Allow the repaired area to cure for 24 hours minimum before opening area to pedestrian traffic.

In addition to these general maintenance and cleaning procedures, it should be noted that spills of petroleum distillates, hydrocarbon type solvents, lighter fluid, oil, gas and alcohols should be cleaned up as soon as possible to avoid damage to the deck coating. Also, hot coals from charcoal grills, along with cigarettes, must not be allowed to drop on the deck coating to prevent burns.

Lawn furniture should have blunt tips or end caps to prevent puncturing the deck. Spiked golf shoes should also not be worn on the coated deck.



TYPICAL PROPERTIES OF VULKEM 360/951 vs Lymtal 750 Base/Top Coats

Property	Test Method	Basecoat Vulkem 360NF	Topcoat Vulkem 951NF	Basecoat Lymtal 750	Top Coat Lymtal 750 AL
Tensile Strength	ASTM D412	275 psi	5000+ psi	1200psi	2500psi
Solids (by weight)*	ASTM C-792	>90%	>98*%	90%	80%
Viscosity, cps*	Brookfield HBT	8-10,000	2500	4-8,000	1,500-3000
Cure Time @77 F, 50% RH	ASTM D 1640	30 mil film 6 hours min.	15min 24 hours	6-8 hours	24 hours
Elongation	ASTM D 412	500%	300%	350%	100%
Adhesion (Peel Strength)	ASTM D903/C794	Unprimed Concrete 40-45 lb/in	Vulkem 951NF Base Coat 100% cohes.	50 pli	Not Listed
VOC Content	EPA Method 24	90 g/l	16 g/l	Not Listed	Not Listed
Pearmeability	ASTM E 96/E398	0.12 metric perms	N/A	1.6 perms	1.6 perms
Weathering Resistance	ASTM D 822 Weatherometer 350 hours	N/A	No effect	N/A	No Effect
100% Modulus	ASTM D-412	130 psi	N/A	Not Listed	Not Listed
Salt Spray	ASTM B 117	N/A	No effect	N/A	No Effect
Abrasion	ASTM D4060	N/A	.033 grams loss	N/A	.03 grams loss
Accelerated Aging	ASTM D573	No loss of elongation or tensile strength.	No loss of elongation or tensile strength.	Not Listed	Not Listed

N/A = Not applicable to component, data is applicable to System or Topcoat only.
NOTE: These are typical values listed on data guides available 05.28.13.

Company Name	Address	City	State	Zip	Phone	Fax	Website	Product Line	Market Segment
12305 SW 100th St	Portland, OR 97224	Portland	OR	97224	503-253-1234			Construction Systems	Construction
12345 Main St	Portland, OR 97201	Portland	OR	97201	503-555-1234			Construction Systems	Construction
6789 Market St	Portland, OR 97202	Portland	OR	97202	503-555-5678			Construction Systems	Construction
10111 12th Ave	Portland, OR 97203	Portland	OR	97203	503-555-9012			Construction Systems	Construction
13141 15th St	Portland, OR 97204	Portland	OR	97204	503-555-3456			Construction Systems	Construction
16171 18th Dr	Portland, OR 97205	Portland	OR	97205	503-555-7890			Construction Systems	Construction
19201 21st Pl	Portland, OR 97206	Portland	OR	97206	503-555-1122			Construction Systems	Construction
22231 24th Ln	Portland, OR 97207	Portland	OR	97207	503-555-3344			Construction Systems	Construction
25261 27th St	Portland, OR 97208	Portland	OR	97208	503-555-5566			Construction Systems	Construction
28291 30th Dr	Portland, OR 97209	Portland	OR	97209	503-555-7788			Construction Systems	Construction
31321 33rd Pl	Portland, OR 97210	Portland	OR	97210	503-555-9900			Construction Systems	Construction
34351 36th Ln	Portland, OR 97211	Portland	OR	97211	503-555-1213			Construction Systems	Construction
37381 39th St	Portland, OR 97212	Portland	OR	97212	503-555-3425			Construction Systems	Construction
40411 42nd Dr	Portland, OR 97213	Portland	OR	97213	503-555-5637			Construction Systems	Construction
43441 45th Pl	Portland, OR 97214	Portland	OR	97214	503-555-7849			Construction Systems	Construction
46471 48th Ln	Portland, OR 97215	Portland	OR	97215	503-555-9061			Construction Systems	Construction
49501 51st St	Portland, OR 97216	Portland	OR	97216	503-555-1273			Construction Systems	Construction
52531 54th Dr	Portland, OR 97217	Portland	OR	97217	503-555-3485			Construction Systems	Construction
55561 57th Pl	Portland, OR 97218	Portland	OR	97218	503-555-5697			Construction Systems	Construction
58591 60th Ln	Portland, OR 97219	Portland	OR	97219	503-555-7909			Construction Systems	Construction
61621 63rd St	Portland, OR 97220	Portland	OR	97220	503-555-9121			Construction Systems	Construction
64651 66th Dr	Portland, OR 97221	Portland	OR	97221	503-555-1333			Construction Systems	Construction
67681 69th Pl	Portland, OR 97222	Portland	OR	97222	503-555-3545			Construction Systems	Construction
70711 72nd Ln	Portland, OR 97223	Portland	OR	97223	503-555-5757			Construction Systems	Construction
73741 75th St	Portland, OR 97224	Portland	OR	97224	503-555-7969			Construction Systems	Construction
76771 78th Dr	Portland, OR 97225	Portland	OR	97225	503-555-9181			Construction Systems	Construction
79801 81st Pl	Portland, OR 97226	Portland	OR	97226	503-555-1393			Construction Systems	Construction
82831 84th Ln	Portland, OR 97227	Portland	OR	97227	503-555-3605			Construction Systems	Construction
85861 87th St	Portland, OR 97228	Portland	OR	97228	503-555-5817			Construction Systems	Construction
88891 90th Dr	Portland, OR 97229	Portland	OR	97229	503-555-8029			Construction Systems	Construction
91921 93rd Pl	Portland, OR 97230	Portland	OR	97230	503-555-9241			Construction Systems	Construction
94951 96th Ln	Portland, OR 97231	Portland	OR	97231	503-555-1453			Construction Systems	Construction
97981 99th St	Portland, OR 97232	Portland	OR	97232	503-555-3665			Construction Systems	Construction
10001 100th Dr	Portland, OR 97233	Portland	OR	97233	503-555-5877			Construction Systems	Construction

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smartin@tremcoinc.com

May 28, 2013

Mr. Ray Elkins
D&R Masonry Restoration, Inc.
8890 SE McLoughlin
Milwaukie, OR 97222

Dear Ray,

This is to certify that D&R Masonry Restoration – Milwaukie, OR is **recognized as an approved applicator** of Tremco Commercial Sealants, Waterproofing, Traffic Coatings and Air Barrier Systems. Your firm has been and continues to be in good standing with Tremco Incorporated. This Letter of Recognition is valid May 28, 2013 through December 31, 2014 or until notified otherwise in writing.

Regards,

Scott Martin

Cc: Central File

Tremco Incorporated

3735 Green Road Beachwood, OH 44122 216.292.5000 www.tremcosolutions.com



CERTIFICATION LETTER

We certify that the Vulkem® 360NF/950NF Intermediate Coat/951NF Topcoat Neighbor-Friendly, Low Odor Pedestrian and Vehicular Deck Coating Systems have been tested against ASTM C 957, Standard Specification for High-Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane with Integral Wearing Surface and conforms to the specification requirements.

Vulkem 360NF/950NF Intermediate Coat/951NF Topcoat Neighbor-Friendly, Low Odor Pedestrian and Vehicular Deck Coating Systems may be used in official establishments operating under the **United States Department of Agriculture** Federal Meat and Poultry products inspection program. Tremco certifies Vulkem 360NF/ 950NF Intermediate Coat/951NF Topcoat Neighbor-Friendly, Low Odor Pedestrian and Vehicular Deck Coating Systems meets the compositional requirements for use in USDA regulated facilities for situations involving incidental food contact provided the coating be used in a manner that prevents indirect contamination of edible products. The coating must be allowed to cure according to manufacturer's recommendations prior to any indirect food contact. The coating does not contain antimony, arsenic, cadmium, selenium, carcinogens, mutagens or teratogens.



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Accredited by National Voluntary Laboratory Accreditation Program - Lab Code 100252
ISO / IEC 17025 and relevant requirements of ISO 9002

February 8, 2007

Tremco Incorporated
3735 Green Road
Beachwood, OH 44122

Att: **Mr. Al Hendking, Jr.**
Technical Services

DL-14922
Via FAX (216) 766-5543

OBJECTIVE

To test Tremco Vulkem 360NF/950NF/951NF Vehicular System for conformance to the requirements of ASTM C 957, "Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane with Integral Wearing Surface".

PRODUCTS TESTED

The following materials were submitted by Tremco for this testing:

Vulkem 360 NF-SL Basecoat
Color: White

Vulkem 950 Two Components, Aromatic NF Intermediate Coat
Color: Gray

Vulkem 951 Two Components, Aliphatic NF Topcoat
Color: Slate Gray

TEST PROCEDURE

The Vulkem system was tested following procedures outlined in the specification. Primer 171 was applied to the concrete/mortar substrates to be used for Adhesion-in-Peel after Water Immersion test. The base coat was allowed to cure overnight before applying the top coats.

This report may contain test data obtained from test methods not covered by NVLAP accreditation. See reverse side for those test methods which are covered.
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TEST RESULTS

The test results are shown below:

<u>Par.</u>	<u>Test</u>	<u>Requirement</u>	<u>Results</u>
4.3	Weight Loss - Base Coat	40% maximum	6.5%
4.4	Low Temperature Flexibility & Cracking Bridging - System	No Cracking	No Cracking
4.5	Adhesion-in-Peel After Water Immersion - Mortar - Primed	5 lbf / in min.	21 lbf/in
4.6	Chemical Resistance Tensile Retention		
	- Water	70% min.	
	Base Coat		71%
	Intermediate Coat		77%
	Top Coat		70%
	- Ethylene Glycol	70% min.	
	Base Coat		77%
	Intermediate Coat		80%
	Top Coat		74%
	- Mineral Spirits	45% min.	
	Base Coat		62%
	Intermediate Coat		118%
	Top Coat		67%
4.7	Weathering Resistance and Recovery from Elongation (System)		
	- Elongation Recovery	90% min.	96%
	- Tensile Retention	80% min.	83%
	- Elongation Retention	90% min.	94%
4.8	Abrasion Resistance (System)		
	- Weight loss	50 mg max.	34.8 mgms



CONCLUSION

The submitted samples of Tremco Vulkem 360NF/950NF/951NF Vehicular System conforms to the requirements as outlined in ASTM C 957, to the extent tested.

DL Labs, Inc.

A handwritten signature in black ink, appearing to read 'Thomas J. Sliva', is written over a faint, larger version of the signature.

Thomas J. Sliva
Vice President /
Technical Director

cc: M. Lazaro, Jr.