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Vulkem NEM

One Part, Single Coat Application, Polyurethane Waterproofing Membrane

PRODUCT DESCRIPTION

Vulkem NEM is a single component, moisture curing, high tensile strength and tough curing polyurethane membrane that has been a market leader in Australia for more than 20 years. Single coat application makes Vulkem NEM ideal for internal and external areas where fast pace construction occurs.

USAGE/PURPOSE

Vulkem NEM may be used to apply a seamless, monolithic waterproof membrane to a variety of substrates in areas such as:

- ❑ Showers
- ❑ Bathrooms
- ❑ Balconies
- ❑ Terraces
- ❑ Other areas which are to be tiled and protected from UV and traffic

FEATURES & BENEFITS

- ❑ Tested successfully to AS 4654.1 ensures it meets the requirements set forth by the National Construction Code of Australia.
- ❑ Meets the requirements for waterproofing materials (AS 4858) used for internal wet areas as determined by AS3740 and the National Construction Code of Australia.
- ❑ Class III membrane allows for high flexibility and movement accommodation.
- ❑ Single Coat vertical application eliminates the risk of membrane delamination between layers.
- ❑ Due to solvent cure, high humidity does not slow down the curing of the membrane, making it a great solution for application in the hot, humid summer months.

PACKAGING

18.9L Pails

COLOUR

Grey

SHELF LIFE

12 months when stored as recommended in original unopened packaging.

STORAGE

Store in a dry cool place in an upright position in original unopened packaging.

TYPICAL PHYSICAL PROPERTIES		
PROPERTY	**TEST METHOD**	**Vulkem NEM**
Drying Time @ 23°C - 50% RH	ASTM D1640	4 hours
Full Cure Time @ 23°C - 50% RH	ASTM D1640	24 hours per coat
% Solids	By Volume	85%
% Solids	By Weight	72%
Bond Strength	ASTM C794	Concrete Masonry - 33 N Plywood - 129 N Fibre Cement - 170 N
Cyclic Movement	CSIRO Moving Joint Test	Pass
Elongation at Break	AS4654.1 Appendix A	397%
Heat Ageing	AS/NZ S4858	2.29 MPa, 207% Elongation
Temperature Resistance	AS4654.1 Clause 2.6	Pass
Ultraviolet Resistance	AS4654.1 Table A4	N/A - Non-Exposed
Tensile Strength	AS4654.1 Table A4	1.69 MPa
Durability	AS4654.1 Table A4	Pass
Water Vapour Transmission Rate	ASTM E96	16.0 g/m²/24hours

** Drying times will vary depending on ambient temperature and relative humidity*

LIMITATIONS

- ❑ Not to be used as a trafficable or UV stable waterproof membrane.
- ❑ Not to be used below grade.
- ❑ Do not apply to damp or contaminated surfaces.
- ❑ The surface temperature for product application should be between 10°C - 30°C. The curing process will slow down substantially when substrate or ambient temperatures are below 10°C.

SUBSTRATE PREPARATION FOR CONCRETE SURFACES

1. Concrete shall be water-cured and attain a 20 MPa 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 Representative. Pending environmental conditions, this moisture reading is usually achieved prior to 28 days.
2. All surfaces must be structurally sound, free of dirt, grease, oil, release agents and or other contaminants.
3. All surface imperfections, non-structural cracks etc should be repaired with an appropriate repair mortar from Tremco's TREMcrete product range.

SUBSTRATE PREPARATION FOR METAL SURFACES

All surfaces shall be sand-blasted to meet the requirements in AS1627.4, class 2.5 for "Near White Metal".

JOBSITE MATERIALS

Recommended materials and their uses are as follows:

- ❑ TREMproof 200EC Primer: A low-VOC, two-part, water based epoxy primer for use on porous substrates, such as wood and concrete to provide a vapour retarder. Also can be used on concrete based substrates to provide an efflorescence barrier.
- ❑ Vulkem 171 Primer: A one-part, film-forming primer to be used on porous surfaces.
- ❑ Vulkem 191 QD Primer: A low-VOC compliant, one-part, interlaminar primer for use in applying a fresh coat of Vulkem coating or sealant after preceding coat has been exposed to rain or for periods of time greater than 24 hours.
- ❑ TREMprime Multi-Surface Urethane Primer: A low-VOC, rapid drying, two-part primer for use between urethane coatings or on porous substrates such as, wood and concrete.
- ❑ TREMprime Non-Porous Primer: A low-VOC primer for use in applying urethanes to non-porous substrates such as metal, PVC and glass.
- ❑ Dymonic 100: A one-part, exceptional movement (+100/-50%) moisture-curing, gun grade polyurethane sealant for use in precast, masonry, expansion joints, control joints and for use in forming cant/fillet bead.
- ❑ TREMflex 50: A one-part, high movement (+/-50%) moisture-curing, gun grade polyurethane sealant for use in precast, masonry, control joints and for use in forming cant/fillet bead.

USAGE

The following is a guide to estimate material usage:

Product	Coverage Rate		Thickness	
Vulkem NEM	0.8m²/L	15m²/Pail	1.2 mm WFT	1.0 mm DFT

** All coverage rates are approximate & vary with substrate condition.*

PRIMING

Note: Do not apply primers, sealant or membranes to a frosty, damp or wet surface or when substrate temperature is below 4°C or the surface temperature is above 43°C. Cure times as stated below are based upon standard ambient conditions of 23°C, 50% RH. A decrease in ambient temperature and humidity will significantly lengthen the cure time.

1. Vulkem NEM requires a Tremco approved primer on all porous substrates such as concrete, masonry, brick or stone prior to application of the Vulkem NEM membrane. TREMproof 200EC primer, TREMprime Multi-Surface Urethane Primer or Vulkem 171 primer should be used depending on site conditions and requirements of the project. Please refer to appropriate product data sheet regarding application instructions.
2. Vulkem NEM requires TREMprime Non-Porous Primer on metal and PVC surfaces, such as puddle flanges or flashing. Please refer to appropriate product data sheet regarding application instructions.

CRACK PREPARATION

- ❑ Shrinkage cracks in the concrete < 2mm wide nominally can be detailed with a 150mm wide x 1mm WFT strip of Vulkem NEM.
- ❑ Shrinkage and non-structural cracks >2mm wide must be appropriately prepared and filled prior to application of the Vulkem NEM membrane.
  - Grind out cracks to a minimal 6mm wide x 12mm deep.
  - Remove all loose debris and concrete dust that may inhibit adhesion.
  - Apply closed cell polyethylene backer rod or bond breaker tape into joint to prevent 3 sided adhesion of the sealant.
  - Install appropriate Tremco polyurethane sealant, TREMflex 50 or Dymonic 100 into the crack in the correct depth to width ratio.
  - Apply a 150mm wide x 1mm WFT strip of Vulkem NEM un-reinforced.

JOINT PREPARATION

- ❑ All joints must be clean, sound, dry, and free of dirt, grease, oil, release agents and other contaminants.
- ❑ All floor to wall and hob to wall joints must have a 35mm wide bond breaker sealant of Tremco's TREMflex 50 or Dymonic 100 prior to installation of the Vulkem NEM membrane.
- ❑ All expansion and movement joints should be treated with the appropriate Tremco sealant, TREMflex 50 or Dymonic 100, based on joint expected movement requirements, and applied to the correct width to depth ratio (2:1). A closed cell polyethylene bond breaker tape must be used prior to sealant installation to prevent 3 sided adhesion.
  - If the joint is expected to expand to a full width > 50mm, Tremco's Dualflex or Hypaflex membrane will be needed in lieu of sealant.
- ❑ When tiling over joints, Tremco highly encourages that the joint is expressed through to the surface of the tiles. Between the tiles, fill the joint with the appropriate Tremco joint sealant. Depending on the tile composition, polyurethane or silicone sealant may be recommend. Contact Tremco for further assistance.

METHOD OF APPLICATION

1. Minimum application requirements set forth by the NCC and relevant standard (AS 3740) should be followed, as well as project specific detail requirements/recommendations by Tremco.
2. Using a medium-nap (9mm to 13mm) roller cover, apply Vulkem NEM at the following rates to the entire area to be coated, including over applications of Vulkem NEM detail coats, but excluding expansion joints.

Application Coat	Coverage Rate	Thickness	
Floor Coat	0.8m²/L	1.2 mm WFT	1.0 mm DFT
Wall Coat	1.6m²/L	0.6mm WFT	0.5mm DFT

3. Allow Vulkem NEM to cure a minimum of 4 hours between coats to reduce the risk of moisture entrapment between coats. Cure rates depend on temperature and humidity. Refer to cure rate guidelines in chart at the end of this document. If the Vulkem NEM has been applied for 24 hours or longer during the ideal temperature application range (see chart on last page of document), it should be cleaned with a damp cloth of Tremco Xylol (do not saturate it). Prime coat it with Vulkem Primer 191 QD. We highly recommend that you contact your local Tremco Representative with any questions on the appropriateness of priming.

CLEAN UP

- ❑ Clean all adjacent areas to remove any stains or spills with Tremco Xylol.
- ❑ Clean tools or equipment with Tremco Xylol before materials cure.
- ❑ Clean hands by soaking in hot, soapy water, then brushing with a stiff-bristle brush.

TROUBLESHOOTING

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 Representative:

1. When a deck contains too much moisture, the moisture may change into a vapour, 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.
2. If the coating application has been installed at a thickness that is greater than our installation instructions, dry times could be extended significantly. As a result, Tremco recommends that the material is applied in accordance with the installation instructions.
3. 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 should this occur.
4. If the previous coating application has not fully cured, water 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. Also, additional application will dramatically reduce the rate the material cures and full cure will take dramatically longer than normal.

WEATHER IMPACT ON COATING APPLICATION

This section discusses the impact of applying these coatings outside the ideal temperature application range of 18 to 30°C at 50% RH.

1. 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 temperatures.
2. Storing materials at cooler or warmer temperatures than ideal, will affect the handling and curing characteristics of the materials.
3. Substrate temperatures may affect cure rates even when ambient temperatures are high.
4. Enclosed areas may slow the cure rate of the coating because air flow tends to be minimal in these areas.
5. On high temperature substrates, or when the membrane is in direct sunlight, the Vulkem NEM may blister as a result of vapour drive. For these applications, Tremco highly encourages using TREMproof 200EC primer or TREMprime Multi-Surface Urethane Primer as a vapour retarding primer to reduce the probability of these blisters occurring.

APPROXIMATE CURE TIMES IN HOURS AT 50% RH

The following is a guide to estimate cure time:

Temperature at 50% RH	Vulkem NEM
4.4 - 12.8°C	24 to 96 hours
12.8 - 18.3°C	6 to 24 hours
18.3 - 29.4°C	4 to 6 hours
29.4°C	< or = 4 hours

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.

HEALTH & SAFETY PRECAUTIONS

The Safety Data Sheet (SDS) must be read and understood prior to use.

TECHNICAL SERVICE

Tremco has a team of Representatives who provide assistance in the selection and specification of products. For more detailed information or service and advice, call Customer Service on (02) 9638 2755 or fax (02) 9638 2955.

GUARANTEE/WARRANTY

TREMCO products are manufactured to rigid standards of quality. Any product which has been applied (a) in accordance with TREMCO written instructions and (b) in any application recommended by TREMCO, but which is proved to be defective, will be replaced free of charge.

Any information provided by TREMCO in this document in relation to TREMCO's goods or their use is given in good faith and is believed by TREMCO to be appropriate and reliable. However, the information is provided as a guide only, as the actual use and application will vary with application conditions which are beyond our control. TREMCO makes no representation, guarantee or warranty relating to the accuracy or reliability of the information and assumes no obligation or liability in connection with the information. To the extent permitted by law, all warranties, expressed or implied are excluded.

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