



Mer-Thane 500

Urethane, Elastomeric Pedestrian Decking System

MINIMUM DRY FINISHED THICKNESS

60 mils (1.5mm) (Over Plywood)

MATERIAL STANDARDS

- ASTM D2369
- ASTM D624
- ASTM D2369-81
- ASTM D412
- ASTM D2697
- ASTM D2240

SPECIFICATION CLASSIFICATIONS

- 07 14 16 Cold Fluid-Applied Waterproofing
- 07 35 00 Elastomeric Deck Coatings
- 07 18 13 Pedestrian Traffic Coatings
- 07 19 00 Water Repellents
- 07 55 53 Elastomeric Protected Membrane Roofing
- 07 55 56 Fluid-Applied Protected Membrane Roofing

MATERIALS NEEDED

- Mer-Thane 300SC Primer (A:B)
 - Minimum 1.75 Galvanized Expanded Metal Lath (When Installed Over Plywood)
- Mer-Thane 500 Waterproofing Membrane
- #20 Silica Sand
- Mer-Thane Aggregate R
- Mer-Thane 300R Waterproofing Membrane Topcoat
 - (Optional) Mer-Thane Accelerator T
- Pigment Paste (if required for colorant)
- Mer-Thane Fiber Tape*

**As needed for crack & joint treatment.*

SKID-RESISTANCE

Skid-resistance is incorporated into the Mer-Thane 500 system by broadcasting Mer-Thane Aggregate R (white, 16/30 mesh, rubber) onto the wet slurry basecoat.

SUBSTRATES

Mer-Thane 500 can be installed over properly prepared plywood and concrete substrates.

USES/APPLICATIONS

- Elevated Pedestrian Traffic Areas
- Walkways, Breezeways, Stairs
- Balconies & Foot Bridges
- Rooftop Sun Decks & Sports Decks
- Over Occupied Space
- Equipment Pads

COLORS

Mer-Thane 300R Topcoat is available in 7 standard colors. Consult the Color Selection Guide for additional details. Custom colors are available upon request.

SYSTEM DESCRIPTION

Mer-Thane 500 is an elastomeric, fluid applied, metal lath reinforced, high-performance polyurethane waterproof decking system. This easy-to-use, fast setting system provides superior adhesion, abrasion and impact resistance, flexibility, chemical resistance and weatherability. Mer-Thane 500 is specifically engineered to protect plywood and concrete surfaces from deterioration due to water penetration, waterborne chlorides and exposure to common chemicals and biodegradable materials found in exterior pedestrian traffic applications. It is engineered to seal the substrate from moisture penetration during freeze-thaw cycling or high temperature/high humidity thermal cycling and expand and contract with normal structural movements.

Mer-Thane 500 installs at a minimum 60 mils (1.5mm) DFT and is designed for use over properly prepared plywood and concrete substrates. This seamless system is applied at flashing areas, drains, and can be applied to trenches, curbs, vertical wall terminations and other surface transition areas to provide seamless waterproofing protection.

ADVANTAGES

- Seamless, monolithic membrane
- Solvent-free
- Low odor
- Fast curing
- Excellent weatherability
- Excellent adhesion to sound, dry substrates
- Can be installed over new or existing surfaces
- Maintains elastomeric properties at low temperatures
- Elastomeric properties help compensate for thermal building movement
- Resists degradation from UV, ozone and weathering
- Superior chemical resistance to oils, fuels and many chemicals
- Outstanding long-term durability and performance
- Meets California VOC & AQMD requirements

INSTALLATION CONDITIONS

The Mer-Thane 500 waterproofing membrane is suitable for applications in temperatures as low as 20 °F. It may be applied in a single or multiple applications. Mer-Thane 500 is also relatively insensitive to moisture and temperature allowing applications in various temperatures and humidity's. Mer-Thane 300R topcoat must not be installed if the surface or ambient temperature is below 50°F (10°C) or above 100°F (37.8°C). Temperature should be at least 5°F above the dewpoint. Do not install during damp weather or when rain is expected within 24 hours.

SUBSTRATE PREPARATION

The substrate surface must be clean, dry and free of dust and any other contaminants at the time of material application. A minimum finished deck slope of 2% (1/4 unit vertical in 12 units horizontal) is required for proper drainage. Use No. 26 gage bonderized steel or equivalent flashing around the perimeter; clean and degrease all metal flashings with Xylene or MEK. Do not use copper perimeter flashings. Stainless steel requires scuffing with the use of 100-120 grit sand paper prior to cleaning.

Plywood Surfaces

Plywood substrates shall be a minimum 5/8 inch thick (16mm) exterior grade, PS 1, exposure one, plywood, complying with and installed in accordance with the 2006 International Building Code and or 2009 International Building Code with all edges blocked. Face plies must be perpendicular to the supports. The plywood must be attached to all

COVERAGES

Coverage rates are approximate only and can vary greatly due to surface conditions, humidity, temperature and installation techniques.

Base Flashing

Primer Coat

Mer-Thane 300SC Primer.....250-300 ft² (23.2-27.9 m²)/gallon (3.8 L)
Yield 3 mil (0.08mm) DFT

Base Flashing – Waterproofing Membrane

Mer-Thane 500
Waterproofing Membrane.....33ft² (3 m²)/gallon (3.8 L)
Yield 20 mil (0.5mm) DFT

Horizontal Deck Surface

Primer Coat

Mer-Thane 300SC Primer.....250-300 ft² (23.2-27.9 m²)/gallon (3.8 L)
Yield 3 mil (0.08mm) DFT

Mer-Thane 500 Waterproofing

Membrane Slurry83 ft² (7.7 m²)/5 gallon mix (18.9 L)
Yield 40 mil (1.0mm) DFT

Mer-Thane Aggregate R10 lbs/100 ft² (4.5 kg/9.3 m²)

Mer-Thane 300R Topcoat

First Application.....100 ft² (9.3 m²)/gallon (3.8 L)
Yield 12 mil (0.3mm) DFT

Second Application133 ft² (12.35 m²)/gallon (3.8 L)
Yield 8 mil (0.2mm) DFT

**TOTAL FINISHED THICKNESS60 mils (1.5mm) DFT
(When Installed Over Plywood)**

blocking and end bearings with countersunk wood screws, screw or ring-shank nails equivalent to 8d common nails, spaced 4 inches (101.6mm) on center at sheet perimeters and 8 inches (203.2mm) on center in the field.

Concrete Surfaces

Concrete surfaces must have a finish equivalent to steel troweling with a fine hair brooming. The surface must be clean, sound and provide a uniform surface free of depressions and ridges. Prepare concrete surfaces using a power sprayer, grinder or shot blast as required to produce a clean, sound substrate. All holes must be cleaned and filled with an appropriate Mer-Ko Underlayment. All high spots must be removed by chipping or grinding. Concrete control joints should coincide with stress relief concentration points, with a maximum spacing of 20 ft (6.1 m).

Surface imperfections, if left untreated, will be noticeable in the finished application. Concrete not meeting the above requirements should be prepared and properly abraded by shotblasting and/or hydro-blasting (10,000-20,000 psi). If water is used, allow to dry completely. Neat cement sacking is not an acceptable surface preparation.

Sloping

Sloping can be created as necessary by adding either #20 Silica Sand or Mer-Thane Aggregate R granules into Mer-Thane 500 Waterproofing Membrane mix using a ratio from 0.5 to 1.5 by volume.

APPLICATION INSTRUCTIONS

While material application is in process, all other trade work should be stopped during installation and 72 hours after the application is complete. Read all instructions before starting application.

1. Primer Coat

Apply Mer-Thane primer to metal flashing and any concrete surfaces to receive the coating.

Mixing

The mixing ratio for Mer-Thane 300SC Primer is one Part A to one Part B. Mer-Thane 300SC Primer Part A and Part B should be thoroughly mixed individually prior to combining to ensure a homogeneous material. The combined components should be thoroughly mixed using a mechanical mixer at slow speed for 1 to 2 minutes until a uniform color is achieved.

PACKAGING

Primer

Mer-Thane 300SC Primer Part A5 gallon pail..... 18.9 liter pail
Mer-Thane 300SC Primer Part B5 gallon pail..... 18.9 liter pail

Waterproof Membrane

Mer-Thane 500 Waterproofing
Membrane, Part A.....1&5 (net 4) gallon pail...3.8&18.9 (net 15.14)
liter pail

Mer-Thane 500 Waterproofing
Membrane, Part B1 quart & 1 gallon can.....0.95 & 3.8 liter can

Aggregate

Mer-Thane Aggregate R.....50 lb. bag..... 22.7 kg bag

Topcoat

Mer-Thane 300R Topcoat.....5 gallon pail..... 18.9 liter pail

Accelerator

(Optional) Mer-Thane Accelerator T.1 quart can..... 0.95 liter can

Crack Treatment

Mer-Thane 500 Waterproofing
Membrane, Part A.....1&5 (net 4) gallon pail...3.8&18.9 (net 15.14)
liter pail

Mer-Thane 500 Waterproofing
Membrane, Part B1 quart & 1 gallon can.....0.95 & 3.8 liter can

Mer-Ko Fiber Tape..... 4in x 150..... 101.6mm x 45.7
LFT roll meter roll

Applying

Apply Mer-Thane 300SC Primer using a brush or phenolic resin core roller. Allow Mer-Thane 300SC Primer to become tack free prior to applying the coating. Do not mix more material than can be used for the appropriate primers pot life.

Mer-thane 500 Waterproofing Membrane must be applied over the primer application within 24 hours at 70°F (21°C) 50% RH (within 16 hours if the substrate temperature is 85°F [29°C] or above).

2. Crack & Joint Treatment

Plywood Surfaces

All plywood substrate joints must be open a minimum of 1/8 inch and clean. Apply a "NEAT" mixture of Mer-Thane 500 Waterproofing Membrane reinforced with Mer-Ko Fiber Tape around all pipes and drains.

Concrete Surfaces

All control joints in the concrete substrate must be clean and open a minimum of 1/8 inch. Stripe coat all concrete control joints, and sheet metal termination/transitions and any other openings with a "NEAT" mixture of Mer-Thane 500 Waterproofing Membrane and reinforce with Mer-Ko 4" Fiber Tape embedded for a distance of 2 inches on both sides.

Additionally, stripe coat any other cracks in the concrete using Mer-Thane 500 Waterproofing Membrane and embed Mer-Ko 4" Fiber Tape for a distance of 2 inches on either side of the crack. **Do not mix more material than can be used in 20 minutes.** Allow the surface to cure for 6 to 8 hours.

3. Metal Lath - Over Plywood

Install a minimum 1.75 gauge, hot dipped, galvanized expanded metal lath, perpendicular to plywood sheets over the entire deck area with the seams butted together and not overlapped. Lath must be installed over metal flashing, stopping approximately 1 inch (25.4mm) from any deck edge or vertical juncture. The lath seams must be staggered a minimum of 2 inches (51mm) from plywood joints. Minimum 3/4" Crown X 5/8" Leg Staples spaced no more than 6 inches in any direction are required to attach the lath to the plywood substrate. In addition, the lath sheet end terminations are staggered a minimum 12 inches from one another, and seams are attached to the plywood substrate with 2 staples per LFT (7 staples per meter) with the staples crossing the seam. Staples should be placed from the center of the lath to the outside edges so as not to form bulges.

4. Waterproofing Membrane – “NEAT” Mixing

Using a mechanical mixer, mix Mer-Thane 500 Waterproofing Membrane Part A and Part B materials separately. Scrape the sides and the bottom of each pail during the mixing to ensure complete incorporation of all solids. Then, while mixing, slowly pour Part B into Part A. Mechanically mix at slow speed for 1 to 2 minutes.

5. Applying

Apply “NEAT” Mer-Thane 500 Waterproofing Membrane to the primed base flashing metal, using a trowel or brush to completely cover it, at a rate of 1 gallons/33 ft² (3.8L/3 m²) (20 mil minimum DFT). Apply with continuous coverage to minimize lines and/or streaking.

6. Waterproofing Membrane – Slurry

To mix the Slurry coat, split the previously mixed “NEAT” material into two separate pails and mix it with #20 Silica Sand at a 0.5:1 to 1:1 ratio by volume using a mechanical mixer.

Apply Mer-Thane 500 Waterproofing Membrane slurry over the concrete or metal lath using a trowel to completely encapsulate it, at a rate of 5 gallon mix/83 ft² (37.9L/7.7 m²) (40 mil minimum DFT). Apply with continuous coverage to minimize lines and/or streaking.

Aggregate

While the Mer-Thane 500 Membrane slurry material is still wet broadcast Mer-Thane Aggregate R (16/30 white rubber granules) onto the 500 Membrane material. Aggregate should sink only partially onto the basecoat slurry. If aggregate sinks completely into the membrane, apply additional aggregate.

Broadcast Aggregate R at a rate of 10 lbs/100 ft² or as required to achieve a skid-resistant finish. Ensure complete coverage (to refusal). Allow to cure until the basecoat is stiff enough to walk on without making impressions. Then, remove all loose aggregate, dust or debris using an industrial blower or by sweeping. Immediately proceed with the topcoat application.

The topcoat MUST BE applied within 24 hours of the base membrane application. Surface temperatures should be 50°F (10°C) and at least 5°F above dewpoint. Sloped or pitched surfaces will require additional material applications to achieve the desired thickness. Mer-Thane Accelerator T can be added to the 300R waterproofing membrane topcoat to allow for a shortened cure time for rehabilitation or repair projects. Refer to the Accelerator Use Instructions provided within this application guide.

7. Topcoat - First Application

Mer-Thane Topcoat and Pigment Paste should be thoroughly mixed individually prior to combining to ensure homogeneous material and color. While mechanically mixing the Topcoat using a mechanical mixer at slow speed, add 1 quart of Pigment Paste and thoroughly blend the components until a uniform color is obtained. Then, pour a small amount of the Topcoat into the Pigment Paste container and scrape the sides thoroughly. Pour back into the Topcoat material and again thoroughly blend the combined components, until a uniform color is obtained. Use care when mixing to avoid air bubbles. Mer-Thane Accelerator T can be added to the topcoat material to allow for a shortened cure time for rehabilitation or repair projects. Refer to the Accelerator Use Instructions provided within this application guide. If multiple containers of Topcoat and Pigment Paste are used, it is recommended that the material is “boxed” to ensure a uniform color.

Apply Mer-Thane 300R Topcoat to the perimeter vertical flashing using a brush or phenolic resin core roller and then over the entire deck surface at a rate of 1 gallon per 100 ft² (3.8 L/9.3 m²). Apply with continuous coverage to minimize lines and/or streaking. When mixing Mer-Thane 300R Topcoat material, use extra care NOT to entrap air into the mixture. This can result in pinholes, blisters, and/or shortened pot life.

Allow Mer-Thane 300R Topcoat to cure a minimum of 24 hours and a

PHYSICAL CHARACTERISTICS - MEMBRANE

VOC Content	55 g/L (ASTM D2369-81)
Pot Life	15-20 minutes at 75°F (24°C) RH 50%
Hardness	61-67 (ASTM D2240, Shore A)
Tear Resistance	205-225 PLI (ASTM D624, Die C)
Elongation	900-1,100% (ASTM D412)
Solids Content (% by Volume)	95% (ASTM D2697)
Tensile Strength	1,400-1,600 psi (ASTM D412)

PHYSICAL CHARACTERISTICS - TOPCOAT

VOC Content	99 g/L (ASTM D2369-81)
Hardness	85-95 (ASTM D2240, Shore A)
Tear Resistance	350-450 PLI (ASTM D624, Die C)
Elongation	200-300% (ASTM D412)
Solids Volume (% by Weight)	85% (ASTM D2369)
Solids Content (% by Volume)	83% (ASTM D2697)
Specific Gravity	1.2
Tensile Strength	3,700-4,300 psi (ASTM D412)

Accelerator T Use Instructions

Accelerator T will shorten the cure time of Mer-Thane 300R Topcoat material by 6 to 8 hours depending upon usage and environmental conditions. Accelerator use level is variable up to a limit of one quart per 5 gallons of material. The higher the level of addition (to the maximum limit), the faster the cure rate. Typical use levels are:

≤ 0.5 pint/gallon OR ≤ 1 quart/5 gallon pail

Mixing Accelerator into Mer-Thane Materials

Mer-Thane Accelerator T is added to the moisture-cured urethanes at the job site. Mix the base membrane using mechanical agitation at slow speed and gradually add the accelerator. Mix for 5 minutes or until a uniform mixture and color is attained. Take care not to entrap air during mixing. Proper incorporation of the accelerator into Mer-Thane materials will allow a 1 to 3 hour pot life for application at 75°F (24°C) and 50% relative humidity.

Recoats must be applied within 8 to 12 hours of becoming tack-free.

CAUTIONS:

Excessive addition of Mer-Thane Accelerator will result in a drastic reduction of physical properties of the membrane which could lead to cracking and general premature degradation of the membrane. Mix and apply all Mer-Thane materials in well ventilated areas and observe normal safety precautions. Keep containers tightly sealed when not in use. DO NOT USE accelerator additive if it has been contaminated by water, detectable by a strong acid odor and darkening color.

maximum of 48 (at 70°F/21°C, RH 50%) hours before proceeding with the second topcoat application to ensure proper adhesion. The surface must be tack-free before continuing with additional applications. Additional coats must be applied within 48 hours. If more than 48 hours elapses between coats, the surface must be primed.

8. Topcoat - Second Application

Apply a second application of Mer-Thane 300R Topcoat to the perimeter vertical flashing using a brush or phenolic resin core roller and then over the entire deck surface. Apply with continuous coverage to minimize lines and/or streaking using the same methods as the with the first. Allow to cure completely before returning to service. Mer-Thane 300R Topcoat will be dry to touch within 16 hours (at 70°F/21°C, RH 50%). Light foot traffic can be introduced a minimum of 24 hours after application. Return to full service after a minimum 72 hour cure.

CAUTIONS & LIMITATIONS

The substrate surface must be structurally sound, clean, dry and free of dirt, dust, oil, grease, paint or other contaminants at the time of material application.

- Do not install during damp weather or when rain is expected within 24 hours.
- Mer-Ko waterproof deck systems are designed for professional installation.
- System warranties require installation by currently listed applicators.
- Rubber aggregate must be properly topcoated to prevent algae or mold.
- Not suitable for below-grade, split slab, or slab-on-grade without on-grade vapor barrier
- Not for use on sandwich slabs without a vapor barrier or with insulation, slabs over unvented metal pans, suspended pool decks, swimming pools, magnesite, lightweight concrete, asphalt surfaces or asphalt overlays.
- Concrete substrates must have a minimum compressive strength of 3,000 psi tested by "point loading" technique.
- The moisture content of the substrate should be checked and approved by a qualified professional prior to installation.
- When installing a deck system over an unheated enclosed space (e.g., garage, etc.) provision must be made to vent the area.
- Containers that have been opened should be used within 48 hours. The product is moisture-reactive and will gel or set up when exposed to moisture in the atmosphere. A polyethylene sheet must be used as a protective blanketing prior to re-sealing the lid on a partially used container. Keep the lid tightly sealed when the material is not in use.
- Before using Mer-Thane products, read all container labels, MSDS, application instructions and storage and handling information carefully. Applicators should wear an approved respirator, protective glasses, clothing and gloves, avoid contact of material with skin or eyes and avoid breathing vapors. Mix and apply materials in well ventilated areas and observe normal safety precautions. Mer-Thane materials are classified as corrosive material and contain isocyanates and curatives which can cause irritation in prolonged exposure. Wash skin thoroughly with soap and water if product(s) contact skin. Consult the Material Safety Data Sheet for additional information and precautions.
- Protect all finished surfaces that are not intended to receive the deck

coating system materials.

- Application in direct sunlight during high temperatures may adversely affect aesthetics.
- Mix ratios must be accurate, the physical properties of the membrane will be affected if ratios are off and material may not cure.
- Not suitable as a finished surface, topcoat must be applied.
- Not designed for heavy steel wheeled traffic.
- Not suitable for applications where chained or studded tires may be used.

CARE & MAINTENANCE

Mer-Thane 500 systems topcoat is designed to provide easy cleanability and low-maintenance.

The colored topcoat is designed to resist direct exposure to environmental elements and withstand normal wear. To extend the life of the wearing surface to its maximum potential, establish a regular cleaning schedule. Use a mild detergent (e.g. Trisodium Phosphate) and water or pressure washing to remove tough stains and contaminants. Use a stiff broom or scrub brush to remove any contaminants on the surface of the deck. Rinse thoroughly with clean water after scrubbing. Never use alcohol or petroleum based products.

Decks should be re-sealed every 5 years for best results, or per the schedule listed on the warranty issued. (**Note: The functionality of the Mer-Thane 500 system is not impacted by aesthetic imperfections.**) Allow the deck surface to dry prior to re-sealing, then prime and apply a fresh coat of Mer-Thane 300R Topcoat in the desired color. Refer to Mer-Thane's Care & Maintenance Instructions for more detailed information on proper care and re-sealing.

STORAGE & HANDLING

Store all Mer-Thane materials in a dry environment at temperatures between 65 to 70°F (18 to 21.1°C). All materials should be stored in compliance with local fire and safety requirements. Do not store at high temperatures or in direct sunlight. Do not allow uncured materials to freeze. Store materials in tightly closed original containers, off the ground, on plywood or non-asphaltic insulation board. Avoid moisture contamination.

Always wear proper safety equipment, including an approved respirator, eye protection and gloves when mixing and/or applying these products. Do not breathe vapors. Do not keep opened containers in confined spaces. Consult published OSHA (Occupational Safety and Health Administration) regulations for additional information and compliance information.

SHELF LIFE

The shelf life is one (1) year from the date of manufacture in the original, unopened metal container when the material is properly stored.

WARRANTY

Five (5), ten (10) and fifteen (15) year warranties are available depending upon product selection and project design. Contact Mer-Ko's Customer Service Department for specific warranty information.

Any recommendation or suggestion relating to the use of MER-KO products made via current technical literature, marketing materials, technical application guides, specifications, and the like, or in response to specific inquiry or otherwise, is based on data believed to be reliable. However, the products and information are intended for use by Buyers having requisite skill and know-how in the industry. Therefore, it is the responsibility of the Buyer to satisfy the necessary requirements of suitability of the products for its own particular use, and it shall be deemed that Buyer has done so, at its sole discretion and risk. Variation in environment, changes in procedures of use, or extrapolation of data may cause unsatisfactory results. Mer-Ko believes the information contained herein is true and accurate as of the date of publication. Information contained here is for evaluation only. Mer-Ko reserves the right to modify and/or change products or literature at any time and without prior notice.

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