# Matacryl®

# WPM

Seamless Waterproofing System with Overlay

## System Description

Matacryl® WPM is a cold-applied liquid membrane system for use on concrete, steel, and FRP panel substrates. The system is designed for use under asphalt or concrete overlays to provide heavy-duty waterproofing, corrosion protection, and tenacious and tested interlayer bond to the asphalt. The chemistry is based on polyurethane methyl methacrylate (PUMA) and exceeds the performance of traditional MMA as well as conventional epoxy and polyurea resins. Matacryl WPM is a layered system including primer, membrane, sealing top coat and tack coat (when required). Layer thicknesses and membrane material selection may vary by specification; typical values are shown herein.

## Basic Uses

Matacryl WPM can be applied at a range of ambient and substrate temperatures -4 to 95 °F (-20 to 35 °C) onto cementitious based screeds, concrete, filled bitumen/asphalt, metal, ceramic tile and wood substrates. Waterproofing applications include:

- Bridge decks onto which rolled asphalt at temperatures up to 382 °F (194 °C) can be directly applied.
- Bridge decks onto which concrete overlays are applied.

## Features and Benefits

- Highly-flexible crack bridging system with excellent performance characteristics; low modulus system for greater flexibility in cold climate regions -22 °F (-30 °C).
- Fast curing layers, typically 30 to 60 minutes per layer. Rapid cure time allows for quick installation at temperatures ranging from -4 °F (-20 °C) to 95 °F (35 °C), letting projects continue in colder months.
- Adheres to many types of substrates.
- Unique chemistry promotes interlayer adhesion, allowing for easy repairs.
- Easy to apply using rollers, squeegees or spray application equipment.
- Excellent chemical, abrasion, impact and puncture resistance.
- Withstands movement and stress in the substrate.

## Physical Properties*

### PRIMER CM

| Property | Test Method | Value |
|---|---|---|
| VOC Content | Definition | 0.0 g/l |
| Viscosity @ 77 °F (25 °C) | DIN 53019 | 100 - 130 mPa*s |
| Density @ 77 °F (25 °C) | ISO 2811 | 0.99 g/ml |
| Pot life @68 °F (20 °C) | | approx. 15 minutes |
| Curing Time @ 68 °F (20 °C) | | approx. 30 minutes |
| Adhesion to Concrete | ASTM D7234 | > 500 psi |
| Adhesion to Steel | ASTM D4541 | > 500 psi |

### MEMBRANE

| Property | Test Method | Value |
|---|---|---|
| VOC Content | Definition | 0.0 g/l |
| Viscosity @ 77 °F (25 °C) | DIN 53019 | 490 - 830 mPa*s |
| Density @ 77 °F (25 °C) | ISO 2811 | 1.30 g/ml |
| Curing Time @ 68 °F (20 °C) | | approx. 60 minutes |
| Elongation @ 73 °F (23 °C) | ASTM D638 | > 250 % |
| Tensile Strength @ 73 °F (23 °C) | ASTM D638 | > 1,400 psi |
| Shore D Hardness | ASTM D2240 | > 41 |
| Crack Bridging @ -15 °F (-26 °C) | ASTM C1305 | Pass – 40 cycles |
| Water Vapor Permeance | ASTM E96 A&B | < 0.05 perms |
| Adhesion to Concrete** | ASTM D7234 | > 300 psi (or failure in concrete) |
| Adhesion to Steel** | ASTM D4541 | > 1,000 psi |
| Pliability | ASTM D146 Sec 14 | Pass – no cracking |
| Electrical Resistivity | ASTM D3633 | 5,600,000 Ohms |
| Extensibility after Heat Aging | ASTM C1522 | Pass – no cracking |

**membrane applied to primed substrate

## Physical Properties* - continued

### SEALING TOPCOAT

| Property | Test Method | Value |
|---|---|---|
| VOC Content | Definition | 0.0 g/l |
| Viscosity @ 77 °F (25 °C) | DIN 53019 | 190-270 mPa*s |
| Density @ 77 °F (25 °C) | ISO 2811 | 1.10 g/ml |
| Curing Time @ 68 °F (20 °C) | | approx. 60 minutes |
| Tensile Strength @ 75 °F (24 °C) | ASTM D638 | > 800 psi |
| Shore A Hardness | ASTM D2240 | 85 |
| Shore D Hardness | ASTM D2240 | 41 |

** The values shown are based on system testing under laboratory conditions. Different field application conditions or lab equipment configurations may result in system value variances.*

## Packaging

- 6 US gal /pails

## Installation - Primer

### Surface Preparation

- All substrates must be dry, firm, solid and free of dust, grease and oil. Laitance and loose particles must be thoroughly removed, usually by shot or sand blasting to attain correct surface profile. Newly poured concrete must have reached adequate strength to receive Matacryl system.
- Prepare surface structure for the correct application of the primer. Mechanical preparation should expose concrete aggregate. Fill visible pin holes and craters using filled primer or suitable cement mortar.
- Substrate tensile strength = min 1.5 MPa.
- Concrete surface profile of 5-7. Relative Humidity of slab max 75% - Refer to application instructions for detailed requirements.

### Mixing

- Prior to use, Matacryl Primer CM must be carefully stirred in its original container to achieve uniform appearance of resin, normally a minimum of three (3) minutes.
- Matacryl Primer CM is thoroughly mixed with Matacryl Catalyst (50 % dibenzoyl peroxide), in accordance with the following guidelines. The amount of initiator powder to be added depends on the substrate temperature.

| Temp F | Temp C | Matacryl Catalyst | Matacryl Accelerator |
|---|---|---|---|
| 86 °F | 30 °C | 1 % by weight of resin | n/a |
| 68 °F | 20 °C | 2 % by weight of resin | n/a |
| 50 °F | 10 °C | 4 % by weight of resin | n/a |
| 32 °F | 0 °C | 6 % by weight of resin | n/a |
| <32 °F | <0 °C | 6 % by weight of resin | 1-3 % by weight of resin |

*Note: For safety reasons, Matacryl Accelerator must be added to reactive resin PRIOR to adding any initiator. See TDS Matacryl Accelerator for more details.*

### Application

After the initiator has been stirred in, the primer is poured on to the substrate in strips and distributed with a short-pile paint roller. A notched rubber squeegee may be used for fast distribution of large quantities; this may consume more material. Apply at a thickness between 13 to 20 mils, depending on density and porosity of the substrate. Continue applying primer until saturation occurs to obtain a continuous resin film. On porous substrates, a second prime coat may be required. When a continuous resin film is obtained, broadcast fire-dried quartz sand (particle size 0.7 to 1.2 mm or 0.3 to 0.7 mm) into the still wet primer (consumption of broadcast sand; approximately 0.3 kg/m$^2$).

- Coverage Rate: at 20 mils, 1 gal = 7.5 m$^2$ or 80 ft$^2$
- Do not apply when surface temperature is above 104 °F (40 °C) and/or rapidly rising. Special care must be observed if area is exposed to direct sunlight. Do not proceed when the UV index is 7 or higher.
- Substrate temperature must be at least 5° over actual dew point and rising.

## Installation – Manual Membrane (Manual/Manual LM)

### Surface Preparation

- Prior to applying Matacryl Membrane, a suitable Matacryl Primer, including sanding when appropriate, must be applied.

### Mixing

- Prior to use, Matacryl Membrane must be carefully stirred in its original container to achieve uniform appearance of resin, normally a minimum of three (3) minutes.
- Matacryl Membrane is thoroughly mixed with Matacryl Catalyst (50 % dibenzoyl peroxide), in accordance with the following guidelines. The amount of initiator powder to be added depends on the substrate temperature.

| Temp F | Temp C | Matacryl Catalyst | Matacryl Accelerator |
|---|---|---|---|
| 86 °F | 30 °C | 1 % by weight of resin | n/a |
| 68 °F | 20 °C | 1.4 % by weight of resin | n/a |
| 50 °F | 10 °C | 2.4 % by weight of resin | n/a |
| 32 °F | 0 °C | 4 % by weight of resin | n/a |
| <32 °F | <0 °C | 4 % by weight of resin | 1-3 % by weight of resin |

*Note: For safety reasons, Matacryl Accelerator must be added to reactive resin PRIOR to adding any initiator. See TDS Matacryl Accelerator for more details.*

### Application

Matacryl Membrane is manually applied using a roller or squeegee.
If extending an existing Matacryl application, the new membrane should overlap by a minimum of 50 mm.

- Coverage Rate: at 80 mils, 1 gal = 1.9 $m^2$ or 20 $ft^2$
- Do not apply when surface temperature is above 104 °F (40 °C) and/or rapidly rising. Special care must be observed if area is exposed to direct sunlight. Do not apply when the UV index is at 7 or higher.
- Substrate temperature must be at least 5° over actual dew point and rising.

## Installation – Machine Membrane (Machine/Machine LM)

### Surface Preparation

- Prior to applying Matacryl Machine, a suitable Matacryl Primer, including sanding when appropriate, must be applied.

### Mixing

- Prior to use, both Part A and Part B of Matacryl Machine must be carefully stirred in its original container to achieve uniform appearance of resin, normally a minimum of three (3) minutes.
- Matacryl Machine Part B is thoroughly mixed with Matacryl Catalyst (50 % dibenzoyl peroxide), in accordance with the following guidelines. The amount of initiator powder to be added depends on the substrate temperature. Percentage by weight is based on Part B only, not the combined weight of Part A and Part B.

| Temp F | Temp C | Catalyst | Accelerator |
|---|---|---|---|
| 86 °F | 30 °C | 2.2 % by weight of resin Part B | n/a |
| 68 °F | 20 °C | 3 % by weight of resin Part B | n/a |
| 50 °F | 10 °C | 4.4 % by weight of resin Part B | n/a |
| 32 °F | 0 °C | 7.4 % by weight of resin Part B | n/a |
| <32 °F | <0 °C | 7.4 % by weight of resin Part B | 1-3 % by weight of resin Part B |

*Note: For safety reasons, Matacryl Accelerator must be added to reactive resin PRIOR to adding any initiator. See TDS Matacryl Accelerator for more details.*

### Application

Matacryl Machine is spray-applied using plural component (1:1 by volume), high-pressure, airless spray equipment with pump capacity suitable for the application and material viscosity. Per layer of membrane, a minimum thickness of 1 mm (= 1.23 kg/$m^2$) should always be applied. If extending an existing Matacryl application, the new membrane should overlap by a minimum of 50 mm.

- Coverage Rate: at 80 mils, 1 gal = 1.9 $m^2$ or 20 $ft^2$
- Do not apply when surface temperature is above 104 °F (40 °C) and/or rapidly rising. Special care must be observed if area is exposed to direct sunlight. Do not apply when the UV index is at 7 or higher.
- Substrate temperature must be at least 5° over actual dew point and rising.

## Installation – Sealing Top Coat (STC)

### Surface Preparation

- The Matacryl system to be sealed must be dry, clean and free from dust and grease.
- Any membrane coat must be completely cured.
- For broadcast systems, all loose aggregate or flakes must be thoroughly removed prior to applying STC.

### Mixing

- Prior to use, STC must be carefully stirred in its original container to achieve uniform appearance of resin, normally a minimum of three (3) minutes.
- STC is thoroughly mixed with Matacryl Catalyst (50 % dibenzoyl peroxide), in accordance with the following guidelines. The amount of initiator powder to be added depends on the substrate temperature.

| Temp F | Temp C | Matacryl Catalyst | Matacryl Accelerator |
|---|---|---|---|
| 86 °F | 30 °C | 1 % by weight of resin | n/a |
| 68 °F | 20 °C | 2 % by weight of resin | n/a |
| 50 °F | 10 °C | 4 % by weight of resin | n/a |
| 32 °F | 0 °C | 5 % by weight of resin | n/a |
| <32 °F | <0 °C | 5 % by weight of resin | 1-3 % by weight of resin |

*Note: For safety reasons, Matacryl Accelerator must be added to reactive resin PRIOR to adding any initiator. See TDS Matacryl Accelerator for more details.*

### Application

Immediately after the initiator is added, STC is spread onto the Matacryl base coat or wear coat using a roller or squeegee. Consumption of STC depends on the system and varies from 20 to 35 mils.

- Coverage rate: at 30 mils, 1 gal = 5 $m^2$ or 53 $ft^2$
- Do not apply when surface temperature is above 104 °F (40 °C) and/or rapidly rising. Special care must be observed if area is exposed to direct sunlight. Do not apply when the UV index is at 7 or higher.
- Substrate temperature must be at least 5° over actual dew point and rising.

## Installation – Tack Coat (as required by specification)

### Surface Preparation

- The Matacryl system to be coated must be dry, clean and free from dust and grease.
- Any membrane coat must be completely cured.
- For broadcast systems, all loose aggregate or flakes must be thoroughly removed prior to applying Matacryl HM Tack Coat.

### Melting

Matacryl HM Tack Coat should be broken into small pieces, placed in a bitumen boiler and stirred to prevent local overheating. More can be added until there is sufficient molten adhesive for project size and the bitumen reaches its working temperature of 392 °F (200 °C). The use of a thermostatically controlled boiler is recommended to ensure the bitumen is not overheated.

- ***Do not heat Matacryl HM Tack Coat above 428 °F (220 °C).***

### Application

Hot Matacryl HM Tack Coat is poured and spread quickly using a rubber squeegee to give a continuous coating on the substrate. Consumption of Matacryl HM Tack Coat is approximately 0.6 to 1.0 kg/$m^2$. Only trained applicators should use hot bitumen. Always wear gloves and suitable personal protection equipment. **Do not apply additional tack coat products to this system prior to paving.**

For all Matacryl Materials, the installation techniques may require modification to adjust to job-site specific conditions. Consult your FPT Infrastructure Sales Representative or FPT Infrastructure Technical Services for site conditions and requirements. For further installation details, see our General Preparation and Application Guidelines for “Matacryl Systems”.

## Limitations/ Shelf Life

Two (2) years when stored in a dry place in original, closed packaging. Optimal storage temperature: 60 to 70 °F (15 to 20 °C).

## Warranty

FPT Infrastructure 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, FPT Infrastructure makes no other warranty, expressed or implied, including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE with respect to FPT Infrastructure Products. FPT Infrastructure's sole obligation shall be, at its option, to replace or to refund the purchase price of the quantity of FPT Infrastructure Products proven to be defective, and FPT Infrastructure shall not be liable for any loss or damage.

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

NOTE: All FPT Infrastructure Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.