

Mapecoat EPN

Two-Component, Chemical-Resistant, Epoxy-Novolac Coating for Industrial Flooring and Concrete Structures



DESCRIPTION

Mapecoat™ EPN is a two-component, high-solids, epoxy-novolac coating for industrial flooring and concrete structures such as water treatment plants. It creates an impermeable barrier that can withstand exposure to a wide range of chemicals – including acids, solvents and caustic substances – with stain resistance for easy maintenance.

FEATURES AND BENEFITS

- High-solids, low-VOC and solvent-free
- Can be easily applied on floorings and vertical surfaces
- Can be use as a topcoat with MAPEI's epoxy systems for added chemical protection
- Good abrasion resistance when incorporating silica sand
- Long-term corrosion resistance
- High chemical resistance
- Easy maintenance
- Can be mixed with dry silica sand to make an epoxy mortar for small patch repairs
- Available in RAL 7001 Silver Gray and RAL 3009 Oxide Red

WHERE TO USE

- Chemical and pharmaceutical industries
- Food and beverage industries
- Maintenance workshops, garages and loading ramps, storage and assembly, and mechanized warehouses
- Concrete containment tanks*, machine bases, plant floors and walls exposed to severe chemicals
- Concrete water tanks* in water treatment plants
- Secondary containment structures

* When using Mapecoat EPN for containment linings, consult MAPEI's Technical Services Department for installation recommendations regarding proper surface preparation and usage on vertical surfaces.

SUITABLE SUBSTRATES

- Cured concrete slabs (at least 28 days old) and polymer-modified self-leveling cementitious toppings (cured for at least 24 hours)
- Substrate must be sound and dry, with a minimum compressive strength of 3,600 psi (24.8 MPa) and a minimum pull-off strength of 200 psi (1.38 MPa).
- For interior use only
- Before application of *Mapecoat EPN*, determine the substrate's moisture content as well as the relative humidity (RH) and dew point.

Consult MAPEI's Technical Services Department for installation recommendations regarding substrates and conditions not listed.

SURFACE PREPARATION

- Concrete slabs must be prepared mechanically. Any cement laitance, dirt, crumbling, weak or detached portions present on the surface to be treated must be removed using a suitable mechanical process (such as shotblasting or diamond grinding) to achieve a concrete surface profile (CSP) of #3 to #4 according to the International Concrete Repair Institute (ICRI) classification.
- Fill in static cracks with low-viscosity epoxy crack-repair products such as from MAPEI's *Epojet*™ product family. Dynamic cracks as well as control, expansion and construction joints should be honored throughout the coating system unless otherwise directed by the engineer of record.
- Test the concrete substrate using appropriate methods for testing calcium chloride (ASTM F1869) and methods for testing surface moisture content (ASTM F2170). *Mapecoat EPN* can be applied when an effective moisture vapor retarder exists under the concrete (for slabs on or below grade), and at MVER values at no more than 5 lbs. per 1,000 sq. ft. (2.27 kg per 92.9 m²) and relative humidity values at no more than 85% with records confirming that the moisture is still dissipating (that is, moisture levels are dropping).
- Make sure the substrate is fully dry before installing *Mapecoat EPN*.

Steel details prep

- Clean to remove contaminants – such as rust, oil, dust and grease – that could affect the bond of *Mapecoat EPN*.
- Steel should be clean with a wire brush to a near-white finish.

MIXING

Before product use, take appropriate safety precautions. Refer to the Safety Data Sheet for details.

Do not dilute *Mapecoat EPN* with solvents or water. Do not mix partial quantities of the components; otherwise, the product may not perform to specification.

1. To ensure that all solids are evenly dispersed, mix Part A of *Mapecoat EPN* mechanically for about 1 minute.
2. Add all of the Part B hardener.
3. Mix thoroughly for at least 2 minutes using a low-speed drill (at 300 to 400 rpm) and an adequate mixing paddle until a uniform, lump-free mix has been achieved. Avoid overmixing to minimize air entrapment.
4. During the mixing process, scrape down the sides and bottom of the container to completely mix both components.
5. Apply the mixed *Mapecoat EPN* within the pot life indicated in the Application Properties table below. Higher ambient and substrate temperatures will reduce the pot life of the mix, while lower temperatures will increase its pot life, increase the viscosity and affect coverage.

PRODUCT APPLICATION

Read all installation instructions thoroughly before application.

Before application, ensure that the temperature of the concrete substrate is at least 5 degrees Fahrenheit (2.8 degrees Celsius) above the dew point during the application and curing of *Mapecoat EPN*.

For multi-coat flooring systems

1. **Primer:** Apply a priming coat of *Primer SN™* [NA] or *Mapecofloor™* I 900 [NA] at 9 to 15 mils with a notched squeegee. Back-roll with a short-pile roller (in a crisscross pattern) at a uniform coverage without ponding.
2. **Intermediate coat (optional):** Apply an intermediate coat of *Mapecoat EPN* at 12 to 15 mils with a notched squeegee. Back-roll with a short-pile roller (in a crisscross pattern) and (optionally) broadcast with *MAPEI Quartz 35* to rejection at 0.6 lbs. per sq. ft. (0.3 kg per 0.09 m²), which will create a slip-resistant surface.
3. **Finishing coat:** Apply a finishing coat of *Mapecoat EPN* at 9 to 12 mils with a notched squeegee and back-roll with a short-pile roller (in a crisscross pattern) at a uniform coverage without ponding.

A light broadcast of *MAPEI Quartz 35* to rejection at 10 to 15 lbs. per 100 sq. ft. (4.54 to 6.80 kg per 9.29 m²) may be applied on the finish coat if no quartz was broadcast onto the intermediate coat. This will create a slip-resistant surface.

Note that *Mapecoat EPN* can be applied on perimetral coves and walls. Contact MAPEI's Technical Services Department for installation recommendations regarding proper surface preparation and usage on vertical surfaces.

For high-build flooring systems

1. **First coat:** Apply a priming coat of *Primer SN* [NA] or *Mapecofloor I 900* [NA] at 9 to 15 mils with a notched squeegee. Back-roll with a short-pile roller (in a crisscross pattern) at a uniform coverage without ponding.
2. **Finishing coat:** Mix 8 to 10 lbs. (3.63 to 4.54 kg) of *MAPEI Quartz 60* into the combined mix of *Mapecoat EPN*. Apply *Mapecoat EPN* at 30 to 35 mils with a notched squeegee and back-roll with a spiked roller (in a crisscross pattern) at a uniform coverage.

Note that *Mapecoat EPN* can be applied on perimetral coves and vertical walls. Contact MAPEI's Technical Services Department for installation recommendations regarding proper surface preparation and usage on vertical surfaces.

For fiberglass-reinforced flooring systems

1. **First coat:** Apply a priming coat of *Primer SN* [NA] or *Mapecofloor I 900* [NA] at 9 to 15 mils with a notched squeegee. Back-roll with a short-pile roller (in a crisscross pattern) at a uniform coverage without ponding.
2. **Intermediate/saturant coat:** Apply a saturant coat of *Mapecoat EPN* at 20 to 25 mils with a notched squeegee. Back-roll with a short-pile roller (in a crisscross pattern). Ensure that the saturant coat is applied evenly with no ponding.
3. **Fiberglass mesh:** Immediately after applying the saturant coat, apply MAPEI's *Mapenet 150* [NA] fiberglass mesh into the wet coating. Press the mesh down into the coating to ensure maximum impregnation. Overlap edges of the mesh by 1/4" (6 mm). Roll the fiberglass mesh with a ribbed roller to release any built-up air. Apply additional *Mapecoat EPN* (using the dip-and-roll method) to confirm that the fiberglass mesh is completely embedded and covered with *Mapecoat EPN*.
4. **Finishing coat:** Apply a finishing coat of *Mapecoat EPN* at 12 to 15 mils with a notched squeegee and back-roll with a short-pile roller (in a crisscross pattern) at a uniform coverage without ponding.

The grid pattern of the fiberglass mesh may be slightly visible once the complete system has cured. This is to be expected and is acceptable; it does not affect the integrity or the performance of the system.

Note that *Mapecoat EPN* can be applied on perimetral coves and vertical walls. Contact MAPEI's Technical Services Department for installation recommendations regarding proper surface preparation and usage on vertical surfaces.

For concrete structures and water tanks

1. If the existing substrate is textured and has a surface profile of CSP #2 or higher, apply *Triblock™ P* [NA] as a primer to prevent pinholes. Follow the Technical Data Sheet (TDS) of *Triblock P* [NA] for mixing and application instructions.
2. In the case of a smooth substrate, use *Primer SN* [NA] as a primer with a proper surface preparation. For proper bond between *Primer SN* [NA] and *Mapecoat EPN*, broadcast sand into *Primer SN* [NA]. Follow the TDS of *Primer SN* [NA] for mixing and application instructions.
3. Apply the first coat of *Mapecoat EPN* with a 10-mm paint roller or by spray at a thickness of 15 mils.
4. Do not exceed 24 hours between coats at 68°F (20°C). If this limit is exceeded, the surface should be grinded and cleaned before applying the next coat.
5. Apply the second coat of *Mapecoat EPN* at a thickness of 15 mils.

CLEANUP

Before *Mapecoat EPN* cures to a hardened state, clean equipment using a solvent such as xylene. Cured material can only be removed mechanically.

CURING

- Ensure that *Mapecoat EPN* is protected from water and condensation for at least 24 hours after application.
- After application, maintain surrounding conditions within the recommended ambient and substrate temperatures, for at least 72 hours at 8°C (46°F) and 24 hours at 35°C (95°F).
- For usage with water tanks, *Mapecoat EPN* can be exposed to water after 7 days. Maximum resistance to chemicals and mechanical properties will be achieved after 7 days of curing at 73°F (23°C).

LIMITATIONS

- Do not apply while ambient and substrate temperatures are rising, as pinholes may occur.
- *Mapecoat EPN* is not recommended for areas subject to high frequent thermal cycles.
- The coating may change color if exposed to aggressive chemicals. A change of color, however, does not mean that the chemicals have damaged the coating.
- Do not use on exterior, on-grade surfaces.
- *Mapecoat EPN* will discolor if it is exposed to UV rays. However, UV discoloration will not affect the product performance.
- Do not apply in areas where the ambient relative humidity is greater than 85%.
- Do not use over unrepaired cracks or joints. *Mapecoat EPN* is not a flexible coating.

Product Performance Properties

Laboratory Tests		Results
Compressive strength – ASTM D695		
7 days		8,032 psi (55.4 MPa)
Tensile strength – ASTM D638		5,392 psi (37.2 MPa)
Elongation – ASTM D638		2.5%

Tensile adhesion pull-off test – ASTM C1583	
7 days	> 725 psi (5 MPa)
Taber abrasion – ASTM D1044	
1000 cycles/H-22/1000 g weight	0.20 mg loss
Hardness – Shore A	
24 hours	95
7 days	95
Hardness – Shore D	
24 hours	69
7 days	73
Flash point	> 201°F (94°C)
VOC content (SCAQMD Rule 1113)	<100 g per L
Typical VOC content per SCAQMD Rule 1113 testing methods	60 g per L

Shelf Life and Product Characteristics

Shelf life	2 years when stored in original, unopened packaging at 73°F (23°C)
Storage conditions	Store in a dry place at 50°F to 90°F (10°C to 32°C).
Viscosity	
Part A	6 994 cps
Part B	424 cps
Mixed	1 879 cps
Density	
Part A	1,219 g per cm ³
Part B	1,050 g per cm ³
Mixed	1,167 g per cm ³
Physical state	Liquid
Colors	RAL 7001 Silver Gray and RAL 3009 Oxide Red

Protect containers from freezing in transit and storage. Provide for heated storage on site and deliver all materials at least 24 hours before work begins.

Application Properties

at 73°F (23°C) and 50% RH

Mixing ratio	1 : 1
Pot life	25 minutes
Time before tack-free	2 to 3 hours
Time before light foot traffic	4 to 6 hours
Complete chemical resistance	7 days
Ready for recoating	12 hours
Application temperature range	50°F to 86°F (10°C to 30°C)

CSI Division Classification

Epoxy Coatings	09 96 56

Packaging

Size
Kit: 2 U.S. gals. (7.57 L) – Part A and Part B (each 1 U.S. gal. or 3.79 L)
Pail: Part A, U.S. 5 gals. (18.9 L)
Pail: Part B, U.S. 5 gals. (18.9 L)

Approximate Coverage**

Thickness	Coverage
9 mils	170 to 180 sq. ft. per U.S. gal. (15.7 to 16.7 m ² per 3.79 L)
12 mils	130 to 140 sq. ft. per U.S. gal. (12.1 to 13.2 m ² per 3.79 L)
15 mils	100 to 110 sq. ft. per U.S. gal. (9.2.1 to 10.2 m ² per 3.79 L)

** Coverage varies depending on the porosity of the substrate.

ADDITIONAL INFORMATION

Refer to the Safety Data Sheet (SDS) for specific data related to health and safety as well as product handling.

For information on MAPEI's commitment to sustainability and transparency, as well as how MAPEI products may contribute to green building standards and certification systems, contact sustainability_USA@mapei.com (USA).

WARNING

The test results shown in the TECHNICAL DATA table were obtained in compliance with test methods and curing cycles, if applicable, defined in the industry standards referenced on the Technical Data Sheet. Please note that the use of test procedures or methods other than those indicated in the table could lead to different values and that, in such cases, any liability of our company is excluded.

LEGAL NOTICE

The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement nor replace requirements per the TDS in effect at the time of the MAPEI product installation. For the most up-to-date TDS and warranty information, please visit our website at www.mapei.com. **ANY ALTERATIONS TO THE WORDING OR REQUIREMENTS CONTAINED IN OR DERIVED FROM THIS TDS SHALL VOID ALL RELATED MAPEI WARRANTIES.**

Before using, the user must determine the suitability of our products for the intended use, and the user alone assumes all risks and liability. **ANY CLAIM SHALL BE DEEMED WAIVED UNLESS MADE IN WRITING TO US WITHIN FIFTEEN (15) DAYS FROM DATE IT WAS, OR REASONABLY SHOULD HAVE BEEN, DISCOVERED.**

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