

# MapeWrap 31

Medium-Viscosity, 100%-Solids, Epoxy Resin for  
Impregnation of *MapeWrap*® Fabrics



## DESCRIPTION

*MapeWrap 31* is a 100%-solids, moisture-tolerant, medium-viscosity, epoxy resin for impregnating *MapeWrap* composite system fabrics by a dry layup method. *MapeWrap 31* was specially developed to saturate and encapsulate carbon and glass fiber fabrics and to cure to a high-performance laminate. Once cured, *MapeWrap 31* provides high mechanical strength properties.

## FEATURES AND BENEFITS

- Solvent-free and VOC-compliant
- Medium-viscosity; can be applied in horizontal, vertical and overhead applications
- Remains workable for 40 minutes at 73°F (23°C)
- High mechanical strength
- Developed specifically for the *MapeWrap* composite system
- Moisture-tolerant

## WHERE TO USE

- Use to saturate medium-weight *MapeWrap* fabrics.
- Use on interior/exterior horizontal, vertical and overhead surfaces.
- Use when additional structural strengthening is required on concrete, masonry, steel and wood elements.

## LIMITATIONS

- Do not thin *MapeWrap 31* with solvents.
- Apply *MapeWrap 31* when the substrate and ambient temperature are between 41°F and 86°F (5°C and 35°C). Contact MAPEI's Technical Services Department for applications below and above this range.
- Do not use *MapeWrap 31* with an automatic saturation device. Fabrics must be impregnated manually.
- Do not use *MapeWrap 31* if its mixed components have begun to harden before application.

## SUITABLE SUBSTRATES

- Use on properly prepared and primed, structurally sound, fully cured concrete substrates (at least 28 days old), as well as masonry, steel and wood.

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

## SURFACE PREPARATION

Apply *MapeWrap 21* to a properly prepared substrate following application of *MapeWrap Primer 1* and *MapeWrap 11* or *MapeWrap 12*. For additional surface-preparation requirements, refer to the Technical Data Sheet for *MapeWrap Primer 1*.

## MIXING

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

1. Combine the two components together that make up *MapeWrap 31* by pouring Part B into Part A.
2. Mix with a low-speed mixer (at 400 to 600 rpm) and a standard Jiffy paint-mixing paddle for about 3 minutes, until the mixture has a smooth, homogenous consistency.
3. Part A and Part B components are pre-proportioned (mix ratio: 4 parts by weight of Part A and 1 part by weight of Part B) and should be mixed as full units. Partial mixing of Part A and Part B is prohibited.

## PRODUCT APPLICATION

Read all installation instructions thoroughly before installation.

1. Spread an even first coat of *MapeWrap 31* with a brush or 3/8" (10-mm) nap roller at a rate of 27 to 48 sq. ft. per U.S. gal. (see coverage rates by fabric type in the "Approximate Coverage" chart below) (0.66 to 1.18 m<sup>2</sup> per L), while *MapeWrap 11* or *MapeWrap 12* is still wet or tacky.
2. Immediately place the *MapeWrap* fabric over the still tacky *MapeWrap 31*, using a gloved hand (refer to the SDS for proper personal protection equipment) to thoroughly flatten out the fabric, and then use a hard plastic roller to smooth out any wrinkles or air pockets. The roller should be run only in the direction of the primary fibers in the fabric. Use a rubber roller to make sure that the first coat penetrates through the fibers on both sides of the fabric.
3. Apply a second coat with a brush or 3/8" (10-mm) nap roller of *MapeWrap 31* over the exposed surface to completely encapsulate the fabric. Use an aluminum worm screw roller to completely eliminate any remaining air bubbles that formed in the resin during the application.

4. When applying the products in a closed environment, provide good ventilation. For further information, carefully read the SDS of each product.

## CLEANUP

- Due to the high bond strength of *MapeWrap 31* on metal, clean tools with approved solvents (ethyl alcohol, toluene, etc.) before the product dries. Cured material can only be removed mechanically. Dispose of cured material in accordance with local disposal regulations.

### Product Performance Properties

Laboratory Tests	Results
Consistency (mixed)	Gelatine paste
Color (mixed)	Yellow
Specific gravity	1.06 g per cm <sup>3</sup>
VOC content (SCAQMD Rule 1168)	< 70 g per L
Typical VOC content per SCAQMD Rule 1168 testing methods	9 g per L
Mix ratio (by weight)	Part A : Part B = 4 : 1
Set time	
At 50°F (10°C)	90 minutes
At 73°F (23°C)	50 minutes
At 86°F (30°C)	30 minutes
Complete curing	7 days
Adhesion to concrete at 7 days and 73°F (23°C)	> 435 psi (> 3 MPa)
Tensile strength* – ASTM D638, Type 1	≥ 5,802 psi (≥ 40.0 MPa)
Tensile modulus of elasticity* – ASTM D638, Type 1	≥ 377,104 psi (≥ 2 601 MPa)
Tensile strain* – ASTM D638, Type 1	≥ 1.60%
Compressive strength – ASTM D695	≥ 10,153 psi (≥ 70.0 MPa)
Flexural strength – ISO 178	≥ 10,153 psi (≥ 70.0 MPa)
Modulus of elasticity under compression – ASTM D695	≥ 435,120 psi (≥ 3 001 MPa)
Modulus of elasticity in flexion – ISO 178	≥ 362,600 psi (≥ 2 501 MPa)
Glass transition temperature (Tg) – ASTM 1640-09	≥ 158°F (≥ 70°C); after 3 days 73°F (23°C); after 4 days 140°F (60°C)

\* Based on 5 sample coupons per test series at 73°F (23°C) and 50% relative humidity

## Shelf Life and Application Properties

Shelf life	2 years in original, unopened container in a covered area
Storage conditions	Store at between 50°F and 86°F (10°C and 30°C). Protect from freezing in shipment.
Working times	
At 50°F (10°C)	60 minutes
At 73°F (23°C)	40 minutes
At 86°F (30°C)	20 minutes

## Packaging

Size
Kit (Parts A and B): 1 U.S. gal. (3.79 L)
Kit (Parts A and B): 0.5 U.S. gal. (1.89 L)

## Approximate Coverage

When used with	Amount of fabric that can be applied
<i>MapeWrap C Uni-Ax 300</i>	70 sq. ft. per U.S. gal. (1.72 m <sup>2</sup> per L)
<i>MapeWrap C Uni-Ax 600</i>	60 sq. ft. per U.S. gal. (1.47 m <sup>2</sup> per L)
<i>MapeWrap C Bi-Ax</i>	39 to 43 sq. ft. per U.S. gal. (0.96 to 1.05 m <sup>2</sup> per L)
<i>MapeWrap G Uni-Ax</i>	55 sq. ft. per U.S. gal. (1.35 m <sup>2</sup> per L)
<i>MapeWrap G Bi-Ax 300</i>	40 to 45 sq. ft. per U.S. gal. (0.98 to 1.10 m <sup>2</sup> per L)

## 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.

## ADDITIONAL INFORMATION

Refer to the 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](mailto:sustainability_USA@mapei.com) (USA) or [sustainability-durabilite@mapei.com](mailto:sustainability-durabilite@mapei.com) (Canada).

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## CONTACT INFORMATION

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**Edition Date: September 23, 2024 MK 3001008 (24-2725)**

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