



# MapeWrap 31 SP

**Medium viscosity epoxy resin for impregnation of MapeWrap**



## WHERE TO USE

**MapeWrap 31 SP** is used for the impregnation of **MapeWrap** fabrics for use in structural repair, strengthening and upgrading applications.

## TECHNICAL CHARACTERISTICS

**MapeWrap 31 SP** is a gelatinous solvent-free epoxy resin based adhesive specially developed in the MAPEI research laboratories for the impregnation of **MapeWrap** fabric.

**MapeWrap 31 SP** is made up of two pre-dosed components (Part A = resin and Part B = hardener) that must be mixed together before use. After having mixed the two parts together, **MapeWrap 31 SP** remains workable for approximately 60 minutes at +30°C.

Once hardened, **MapeWrap 31 SP** acquires excellent dielectric properties and high mechanical strength.

## RECOMMENDATIONS

- **MapeWrap 31 SP** must not be used once the hardening reaction begins.

## DIRECTIONS FOR USE

### Preparing MapeWrap 31 SP

Mix the two components of **MapeWrap 31 SP** together. Pour Part B into Part A and mix with a slow speed drill fitted with a stirrer until the resin is completely homogeneous.

Mix ratio: 3 parts by weight of Part A and 1 part by weight of Part B. When using partial mix, the individual components must be weighed using a digital weighing scale. To avoid the risk of accidental ratio errors, use the whole package.

### Applying MapeWrap 31 SP and placing the MapeWrap fabrics

Apply a uniform first coat of **MapeWrap 31 SP** over the still fresh **MapeWrap Primer 1 SP**, with a brush or with a short bristle roller. Immediately apply the **MapeWrap** fabric making sure it is laid without wrinkles.

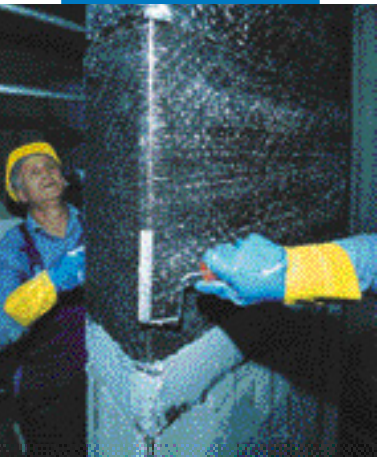
After having flattened the fabric wearing protective rubber waterproof gloves, apply over the **MapeWrap C** or **G** fabrics a second coat of **MapeWrap 31 SP** by roller. Press it several times using a ribbed roller so the adhesive can completely penetrate through the fibres of the fabric and to completely eliminate any air bubbles formed during the application.



# MapeWrap 31 SP



Application phase



Application phase

## Precautions to be observed before application

No special precautions need to be taken at temperatures between +5°C and +35°C. In hot weather do not expose the material to direct sunlight and bonding should be carried out during the cooler hours.

During the winter, if applications need to be carried out outdoors at temperatures below +5°C, it is recommended that before repairing or reinforcing with **MapeWrap** fabrics, warm the substrate 24 hours before bonding and arrange for having adequate insulation systems in order to avoid any danger of frost. The thermal insulation should be maintained for at least the next 24 hours. Before use, store the product in a heated area.

## Cleaning

Due to the strong adhesion of **MapeWrap 31 SP** also on metal, it is recommended to wash the working tools with solvents (ethyl alcohol, toluene) before the product dries.

## PACKAGING

20 kg units  
(Part A = 15 kg, Part B = 5 kg).

## STORAGE

The product must be stored in original sealed packaging in temperatures not lower than +5°C for a maximum of 24 months.

## SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

**MapeWrap 31 SP** component A may irritate the skin and eyes, both component A and B may cause sensitisation in those subjects sensitive to such substances.

**MapeWrap 31 SP** component B is corrosive and may cause burns. It is also harmful if swallowed and if inhaled. When applying the product, we recommend the use of protective gloves and goggles and to take the usual precautions for handling chemical products. In case of contact with eyes or skin wash immediately with plenty of water and seek medical attention. When applying the product, we recommend working in well ventilated areas. In case of poor ventilation, we recommend wearing the mask with filters.

**MapeWrap 31 SP** component A and B are also hazardous for aquatic life. Do not dispose of these products in the environment.

For further and complete information about the safe use of our product please refer to the latest version of our Material Safety Data Sheet.

## CONSUMPTION

Consumption depends on the type on fabric (uni-directional, bi-directional and quadri-directional) and the height:

### MapeWrap C (CARBON fabrics)

| Type of fabric              | Consumption (g/m <sup>2</sup> ) | Width (cm) | Consumption (g/m) |
|-----------------------------|---------------------------------|------------|-------------------|
| UNI-AX 300 or UNI-AX HM 300 | 600-800                         | 10         | 60-80             |
|                             |                                 | 20         | 120-160           |
|                             |                                 | 40         | 240-320           |
| UNI-AX 600 or UNI-AX HM 600 | 800-1000                        | 10         | 80-100            |
|                             |                                 | 20         | 160-200           |
|                             |                                 | 40         | 320-400           |
| BI-AX 230                   | 1000-1100                       | 20         | 200-220           |
|                             |                                 | 40         | 400-440           |
| BI-AX 360                   | 1250-1400                       | 20         | 250-280           |
|                             |                                 | 40         | 500-560           |
| QUADRI-AX 380               | 2000-2100                       | 30         | 600-700           |
|                             |                                 | 48.5       | 970-1020          |
| QUADRI-AX 760               | 3500-3700                       | 30         | 1050-1100         |
|                             |                                 | 48.5       | 1700-1800         |

### MapeWrap G (GLASS fabrics)

| Type of fabric | Consumption (g/m <sup>2</sup> ) | Height (cm) | Consumption (g/m) |
|----------------|---------------------------------|-------------|-------------------|
| UNI-AX 900     | 900-1000                        | 30          | 270-300           |
|                |                                 | 60          | 540-600           |
| QUADRI-AX 1140 | 1300-1400                       | 30          | 390-420           |
|                |                                 | 48.5        | 630-680           |

PRODUCT FOR PROFESSIONAL USE.

## WARNING

*Although the technical details and recommendations contained in this product data sheet correspond to the best of our knowledge and experience, all the above information must, in every case, be taken as merely indicative and subject to confirmation after long-term practical application: for this reason, anyone who intends to use the product must ensure beforehand that it is suitable for the envisaged application: in every case, the user alone is fully responsible for any consequences deriving from the use of the product.*

**Please refer to the current version of the Technical Data Sheet, available from our website [www.mapei.com.sg](http://www.mapei.com.sg).**

**All relevant references of the product are available upon request**

## TECHNICAL DATA (typical values)

### PRODUCT IDENTIFICATION

|   | Part A                       | Part B                    |
|---|------------------------------|---------------------------|
| <b>Consistency:</b>                         | gel                          | liquid                    |
| <b>Colour:</b>                              | yellow                       | dark amber to dark brown  |
| <b>Specific gravity (g/cm<sup>3</sup>):</b> | 1.05                         | 1.02                      |
| <b>Brookfield viscosity (mPa.s):</b>        | 6,500<br>(shaft 6 - rev. 10) | 390<br>(shaft 1 - rev. 5) |

### APPLICATION DATA

|  |   |
|--|---|
| <b>Mix ratio:</b>  | Part A : Part B = 3 : 1 by weight       |
| <b>Mix consistency:</b>  | gelatinous paste                        |
| <b>Colour of mix:</b>  | yellow to amber                         |
| <b>Specific gravity of the mix (g/cm<sup>3</sup>):</b>   | 1.04                                    |
| <b>Brookfield viscosity (mPa.s):</b>   | 2,800 (shaft 3 - rev. 5)                |
| <b>Workability:</b><br>- at +10°C:<br>- at +20°C:<br>- at +30°C:   | 120 minutes<br>90 minutes<br>60 minutes |
| <b>Application temperature:</b>  | from +10°C to +35°C                     |
| <b>Complete curing:</b>  | 7 days                                  |
| <b>Adhesion to concrete (MPa):</b><br>After 7 days at +23°C  | > 3 (concrete breaking point)           |
| <b>Glass Transition Temperature (ASTM E 1640-09) T<sub>g</sub> (°C)</b><br>After 3 days at 23°C + 4 days at 60°C | ≥ 70 °C                                 |

### PERFORMANCE DATA

|  |         |
|--|---------|
| <b>Tensile strength* (ASTM D 638) (MPa):</b>                       | ≥ 40    |
| <b>Tensile modulus of elasticity* (ASTM D 638) (MPa):</b>          | ≥ 2,500 |
| <b>Tensile strain* (ASTM D 638) (%):</b>                           | ≥ 1.6   |
| <b>Compressive strength (ASTM D 695) (MPa):</b>                    | ≥ 60    |
| <b>Flexural strength* (ISO 178) (MPa):</b>                         | ≥ 50    |
| <b>Modulus of elasticity under compression (ASTM D 695) (MPa):</b> | ≥ 2,500 |
| <b>Modulus of elasticity in flexion (ISO 178) (MPa):</b>           | ≥ 2,000 |

\*5 sample coupons per test series (Testing temperature 23°C (73°F) - 50% RH)

**MapeWrap  
31 SP**

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