



# MapeWrap 21

**Superfluid epoxy resin  
for impregnation  
of Mapewrap with  
“wet system”**



## WHERE TO USE

Impregnation immediately before placing **Mapewrap** fabrics that need to be applied on concrete and/or reinforced concrete elements needing repair or reinforcement.

## TECHNICAL CHARACTERISTICS

**Mapewrap 21** is a superfluid solvent free epoxy resin based product specially developed in the MAPEI research laboratories for the impregnation immediately before placing **Mapewrap** fabrics.

**Mapewrap 21** 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 21** remains workable for approximately 40 minutes at +23°C.

Once hardened, **Mapewrap 21** acquires excellent dielectric properties and high mechanical strength.

## RECOMMENDATIONS

- **Mapewrap 21** must not be used once the hardening reaction begins.
- Apply the impregnated **Mapewrap 21** fabric over the still fresh **Mapewrap 11** or **Mapewrap 12**.

## DIRECTIONS FOR USE

### Preparing the Mapewrap 21

Mix the two components of **Mapewrap 21** 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: 4 parts by weight of Part A and 1 part by weight of Part B. Do not use partial quantities to avoid the risk of accidental ratio errors, use the whole package.

## Impregnation of fabric with Mapewrap 21

The impregnation of the fabric can be carried out either manually or with the suitable equipment.

### Manually

Manually impregnate the already cut carbon fiber fabric to the necessary size and plunge into a plastic trough filled approximately 1/3 of the total volume with **Mapewrap 21** for several minutes.

Remove the fabric from the trough, let it drip for several seconds. Wear protective rubber waterproof gloves to squeeze the fabric without wringing in order not to damage the carbon fibre. This way the excess resin will be removed completely.

### With impregnating machine

As an alternative, the impregnation can be carried out with a simple machine fitted with a bucket and a series of rollers that automatically saturates and soaks the fabric easily and safely.

This equipment is particularly recommended for the repair of large surface areas.

This system ensures the even distribution of the resin over the whole fabric. Place immediately after impregnation.

# MapeWrap 21



Manual impregnation of Mapewrap C



Mechanical impregnation of Mapewrap C



Application phase

## Applying the Mapewrap fabric

Apply the fabric impregnated with **Mapewrap 21** over the still fresh **Mapewrap 11** or **Mapewrap 12**, making sure it is laid without wrinkles.

After having flattened the fabric wearing protective rubber waterproof gloves, apply another coat of **Mapewrap 21** by brush or roller. Press it several times using a stiff rubber roller so the adhesive can completely penetrate through the fibres of the fabric.

Pass over the impregnated fabric an aluminium roller with a worm screw in order to completely eliminate any air bubbles formed during the application.

## Precautions to be observed before application

No special precautions need to be taken at temperatures between +10°C and +30°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 lower than +10°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.

## SAFETY MEASURES TO BE OBSERVED FOR THE PREPARATION AND APPLICATION OF THE PRODUCT

**Mapewrap 21**, Part A is irritant in direct contact with the eyes and skin. Part B is a strongly caustic and corrosive substance. After repeated and prolonged contact, sensitivity of the skin could be caused.

Avoid contact with skin and eyes by always wearing protective gloves and goggles while mixing and applying the two components.

In case of contact with the skin, wash with plenty of water and soap and if there should be any sensitivity of the skin, consult a doctor. In case of contact with the eyes, wash with running water and consult a doctor. Use in ventilated areas.

## Cleaning

Due to the strong adhesion of **Mapewrap 21** also on metal, it is recommended to wash the working tools with solvents (ethyl alcohol, toluol) before the product dries.

## COVERAGE

Coverage depends on the type of fabric (unidirectional, bidirectional and quadri-directional) and the height:

Type of fabric	Coverage (g/m <sup>2</sup> )	Height (cm)	Coverage (g/m)
(UNI-AX) 300	1200-1300	10	120-130
		20	240-260
		40	480-520
(UNI-AX) 600	1800-1950	10	180-195
		20	360-390
		40	720-780
(BI-AX) 230	1200-1300	20	240-260
		40	480-520
(BI-AX) 360	1500-1650	20	300-330
		40	600-660
(QUADRI-AX) 380	1800-2000	30	540-600
		48.5	870-970
(QUADRI-AX) 760	3150-3500	30	950-1050
		48.5	1530-1700

## PACKAGING

5 kg units (Part A = 4 kg, Part B = 1 kg).  
2.5 kg units (Part A = 2 kg, Part B = 0.5 kg).

## STORAGE

The product must be stored in original sealed packaging in temperatures not lower than +10°C.

FOR PROFESSIONALS.

## WARNING

*N.B. - Although the technical details and recommendations contained in this product report 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 applications: 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.*

**TECHNICAL DATA (typical values)****PRODUCT IDENTIFICATION:**

<b>Customs class:</b>	3907 30 00	
	<b>Part A</b>	<b>Part B</b>
<b>Consistency:</b>	liquid	liquid
<b>Colour:</b>	transparent yellow	transparent yellow
<b>Specific gravity:</b>	1.12 g/cm <sup>3</sup>	1g/cm <sup>3</sup>
<b>Brookfield viscosity:</b>	380cPs (shaft 1 - rev. 5)	50 cPs (shaft 1 - rev. 50)
<b>Storage:</b>	24 months in original sealed packaging at temperatures between +10°C and +30°C	
<b>Hazard classification according to EEC 88/379:</b>	harmful                      corrosive Before using the product, consult the "Safety measures to be observed for the preparation and application of the roduct" paragraph and the information described on the packaging and safety data sheet.	

**APPLICATION DATA:**

<b>Mix ratio:</b>	Part A : Part B = 4 : 1
<b>Mix consistency:</b>	liquid
<b>Colour of mix:</b>	transparent yellow
<b>Specific gravity of the mix:</b>	1.1 g/cm <sup>3</sup>
<b>Brookfield viscosity:</b>	300 cPs (shaft 1 - rev. 10)
<b>Workability</b> - at +10°C: - at +23°C: - at +30°C:	60 minutes 40 minutes 20 minutes
<b>Setting time</b> - at +10°C: - at +23°C: - at +30°C:	90 minutes 50 minutes 30 minutes
<b>Application temperature:</b>	from +10°C to +30°C
<b>Complete curing:</b>	7 days
<b>Adhesion to concrete:</b>	> 3 N/mm <sup>2</sup> (after 7 days at +23°C - concrete breaking point)
<b>Tensile strength (ASTM D 638):</b>	30 N/mm <sup>2</sup>
<b>Tensile elongation (ASTM D 638):</b>	1.2%
<b>Compressive strength (ASTM C 579):</b>	65 N/mm <sup>2</sup>
<b>Flexural strength (ISO 178):</b>	55 N/mm <sup>2</sup>
<b>Modulus of elasticity under compression (ASTM C 579):</b>	2000 N/mm <sup>2</sup>
<b>Modulus of elasticity in flexion (ISO 178):</b>	2500 N/mm <sup>2</sup>

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

