



# Mapepoxy BI 1,8

**Two-component epoxy resin for injection of larger cracks**



## AREA OF USE

- monolithic repair of structures or fissures caused by heavy loads, accidental impacts etc.
- bonding and reinforcement of structures by injection.
- sealing cracks and filling up to 30 mm thickness.

## TECHNICAL CHARACTERISTICS

**Mapepoxy BI 1,8** is a two-component solvent free epoxy adhesive. The components A (Resin) and component B (hardener) must be mixed before using the product.

**Mapepoxy BI 1,8** does not contain any benzyl alcohol or other plasticizers that migrate from the product after curing when subjected to normal conditions. The product will therefore remain unchanged throughout the lifetime of the construction.

**Mapepoxy BI 1,8** has very high mechanical strength and has a very good ability to maintain adhesion to concrete also in damp condition.

**Mapepoxy BI 1,8** polymerizes without shrinkage and once hardened is waterproof.

**Mapepoxy BI 1,8** contains filler material to avoid overheating when filling into larger cracks.

**Mapepoxy BI-1,8** complies with the principles defined in EN 1504-9 standards ("Products and systems for protecting and repairing concrete structures.

*Definitions, requirements, quality control and conformity assessment. General principles for the use and application of systems"), and the requirements of EN 1504-5 "Concrete injection".*

## CLASSIFICATION OF INJECTION PRODUCTS

Injection products are classified according to the products corresponding to the performance requirements using the UW classification system (U:intended use, W:workability):

- F: Injection product for force transmitting filling of cracks
  - F1: Adhesion by tensile bond strength  $> 2.5 \text{ N/mm}^2$
  - F2: Adhesion by tensile bond strength  $> 1.5 \text{ N/mm}^2$
- D: Injection product for ductile filling of cracks
  - D1: Watertight at  $2 \times 10^5 \text{ Pa}$
- S: Injection product for swelling fitted filling of cracks.
  - S1: Watertight at  $2 \times 10^5 \text{ Pa}$

The letter W for workability is followed by 3 or 4 groups of numbers between brackets.

first group: allowed minimum thickness of crack measured in tenths of millimeter.

second group: moisture state of the crack

- 1 - dry
- 2 - damp
- 3 - wet
- 4 - water flowing

third group: minimum and maximum use temperature.

fourth group: applicable only to F.

# Mapepoxy BI 1,8

Mapepoxy BI 1,8: Two-component epoxy resin for injection. The product complies with specification in EN 1504-5 "Concrete injection". Mapepoxy BI-1,8 is classified as U(F1) W(2)(1/2/3/4) (5/30)(0)

## TECHNICAL DATA (typical values)

PRODUCT DETAILS		Component A	Component B	
Color:		grey	blue	
Appearance:		liquid	liquid	
Density (g/cm <sup>3</sup> ):		2.160	0.87	
APPLICATION DATA (AT 23°C - 50% R.H)				
Mixing ratio:		component A: component B = 11:1		
Color of mixture:		light blue		
Consistency of the mixture:		liquid /fluid		
Density of the mixture (kg/m <sup>3</sup> ):		approx. 1 800		
Brookfield viscosity of the mixture (mPa*s):		approx. 5 500		
Application temperature range:		+5°C - 30°C		
Final hardening time:		7 days		
Workability (EN ISO 9514-1000 ml):		270 min		
- at + 5 °C		52 min		
- at + 20 °C		28 min		
- at + 30 °C				
FINAL PROPERTIES (7 days at + 23 °C and 50 % R.H)				
Compressive Strength (EN 12190):		20 °C		5°C
		8 hours	7 days	72 hours
		approx. 88 N/mm <sup>2</sup>	approx. 100 N/mm <sup>2</sup>	approx. 80 N/mm <sup>2</sup>
			7 days	approx. 83 N/mm <sup>2</sup>
Modulus of elasticity (EN 13412):		approx. 6 400 N/mm <sup>2</sup>		
Performance characteristics for product	Test methods	Requirements according to EN 1504-5		Product performance
Classification according to EN 1505-5:2013		U(F1) W(2)(1/2/3/4) (5/30)(0)		
Adhesion by tensile bondstrength:	EN 12618-2	F1: ≥ 3.0 N/mm <sup>2</sup> (2.5 N/mm <sup>2</sup> ) F2: ≥ 2.0 N/mm <sup>2</sup> (1.5 N/mm <sup>2</sup> )		F1: > 3.0 N/mm <sup>2</sup> (cohesive failure in the substrate)
Non volatile matter:	EN ISO 3215	> 95%		99.64 %
Injectability into dry medium - crack widths 0.1 mm – 0.2 mm – 0.3 mm:	EN 1771	Class 1: < 4 min crack width 0.1 mm Class 2: < 8 min crack width 0.2 mm Class 3: < 12 min crack width 0.3 mm Splitting test: > 7 N/mm <sup>2</sup>		Crack width 0.2 mm  Class 2: < 8 min, Splitting test: 9.0 N/mm <sup>2</sup>
Injectability into non dry medium - crack widths 0.1 mm – 0.2 mm – 0.3 mm:	EN 1771	Class 1: < 4 min crack width 0.1 mm Class 2: < 8 min crack width 0.2 mm Class 3: < 12 min crack width 0.3 mm Splitting test: > 7 N/mm <sup>2</sup>		Crack width 0.2 mm  Class 2: < 6 min, Splitting test: 9.1 N/mm <sup>2</sup>
Tensile strength development for polymers:	EN 1543	Tensile strength > 3 N/mm <sup>2</sup> within 72 hours at the minimum use temperature, or within 10 h at the minimum use temperature by daily crack movements higher than 10% or 0.03 mm (the lowest value has to be taken account)		Tensile strength > 3 N/mm <sup>2</sup> at 72 hours at + 5 °C  Tensile strength > 3 N/mm <sup>2</sup> at 10 hours at + 20 °C

Performance characteristics for product	Test methods	Requirements according to EN 1504-5	Product performance
<b>Adhesion by tensile bond strength after thermal and wet-drying cycles:</b>	EN12618-2	F1: $\geq 3.0$ N/mm <sup>2</sup> (2.5 N/mm <sup>2</sup> ) F2: $\geq 2.0$ N/mm <sup>2</sup> (1.5 N/mm <sup>2</sup> )	Meets requirements F1: $> 3.0$ N/mm <sup>2</sup> (cohesive failure in the substrate)
<b>Compatibility with concrete:</b>	EN12618-2	F1: $\geq 3.0$ N/mm <sup>2</sup> (2.5 N/mm <sup>2</sup> ) F2: $\geq 2.0$ N/mm <sup>2</sup> (1.5 N/mm <sup>2</sup> )	Meets requirements F1: $> 3.0$ N/mm <sup>2</sup> (cohesive failure in concrete)

-1: usable for cracks subject to daily movement higher than 10% or 0.03 mm during curing.

-0: usable for cracks subject to daily movement lower than 10% or 0.03 mm during curing.

**Mapepoxy BI 1,8** is classified as U(F1) W(2) (1/2/3/4) (5/30)(0) Identifies that the product is:

- > For force transmitting filling of cracks
- > Injectable in cracks of 0.2 mm dry, damp, wet/ og waterflowing
- > Fit for use from +5 to 30°C
- > Usable for cracks subject to daily movement lower than 10% or 0.03 mm during curing.

## APPLICATION PROCEDURE

### Preparation and evaluation of the substrate

Before start injecting **Mapepoxy BI 1,8** the concrete must be sound and clean. A general picture should be formed of the crack depth and width, plus the concrete quality, if the cracks are contaminated or filled with water. The purpose of the repair should be clear; corrosion protection, sealing or recovery of strength.

### Sealing

Injection packers, copper piping or plastic hose parts are drilled into or glued along the crack and oriented to intercept the crack. Dust and cavities from drilling is easily removed by blowing with oil-free compressed air. Seal the crack with **Adesilex PG1** in order to prevent the low viscous **Mapepoxy BI 1,8** to leak out. Injection can start as soon as the sealing has hardened.

### Preparation of the product

Components A and B should have a temperature of +15 °C or more when mixed together. Comp. B is poured into comp. A and mix with a drill whisk at a slow speed for approximately 3 minutes until the product is completely homogenous.

The product must not be thinned!

### Application of the product : Injection

Start immediately with the lowest packer. **Mapepoxy BI 1,8** is pumped in under pressure until the resin overflow in the next packer, close the first and move on to the next etc. In this way the cracks are filled and air evacuated completely. Do not use higher pressure than necessary. Horizontal

fissures downwards can be filled from top by pouring. Even though **Mapepoxy BI 1,8** is designed for larger cracks it have a quite good penetration into finer cracks.

### Used for sub casting

**Mapepoxy BI 1,8** can be added more filler or dry sand if that is required to avoid boiling when filling larger volumes.

## CLEANING

Tools and equipment must be cleaned immediately after use with **Spesialtynner**, ethanol or other cleaning agent suited for epoxy. Once hardened the product can only be removed mechanically.

## CONSUMPTION

Approx. 1.8 kg/liter mixed material.

## PACKAGING

27.8 kg kit (component A: 25.5 kg, component B = 2.3 kg).

## STORAGE

Properties for use are not changed for a period of 24 months when stored between + 5 and + 30 °C in unopened original packaging.

## SAFETY INSTRUCTIONS FOR PREPARATION AND USE

**Mapepoxy BI 1,8** part A is irritating to eyes and skin. It may cause sensitisation in contact with the skin. When applying the product, it is recommended to wear protective clothing, gloves and safety goggles.

**Mapepoxy BI 1,8** part B is corrosive and may cause severe burns. It is also harmful if swallowed. It may cause sensitisation by skin contact. When applying the product we recommend wearing protective clothing, gloves, safety goggles, suitable respiratory protection and to work only in well ventilated areas. If the product comes in contact with the eyes or the skin wash immediately with plenty of water and seek medical attention.

**Mapepoxy BI 1,8** part A and B is hazardous to aquatic life. Avoid release to the environment. For further and complete information about safe use of the product please refer to the latest version of the safety data sheet.

PRODUCT FOR PROFESSIONAL USE!

**NOTE**

*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](http://www.mapei.com)

**All relevant references  
for the product are available  
upon request and from  
[www.mapei.com](http://www.mapei.com)**