

WHERE TO USE

- Monolithic construction joints between fresh and hardened concrete.
- Bonding precast concrete elements.
- Bonding steel to concrete.
- Filling cracks in concrete.

Some application examples

- Construction joints for the structural reinforcement of beams and pillars.
- Construction joints on decayed industrial flooring.
- Rigid, waterproof construction joints (e.g. concrete bed to tank walls).
- Reinforcement of beams by means of the *béton* plaqué technique.
- Sealing cracks in cement screeds.

TECHNICAL CHARACTERISTICS

Eporip is a solvent-free epoxy adhesive consisting of two pre-measured components (component A = resin, component B = hardener) that have to be mixed before use.

Eporip has the consistency of a slightly thixotropic paste that can be applied by brush on both horizontal and vertical surfaces.

Eporip polymerises without shrinkage and, after curing, is waterproof, possesses excellent dielectric properties and high mechanical characteristics in addition to its ability to bond concrete and steel.

Eporip meets the requirements defined by EN 1504-9 ("Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity – General principles for the use of products") and the minimum requirements claimed by EN 1504-4 ("Structural bonding").

RECOMMENDATIONS

- Do not apply **Eporip** at temperatures lower than +5°C.
- Do not use Eporip on wet surfaces (even though they can be slightly damp).
- Do not cast fresh concrete onto hardened **Eporip**.
- Do not use **Eporip** on dusty, crumbling or loose surfaces.

APPLICATION PROCEDURE Preparation of the substrate

Before the application of **Eporip**, the substrate must be perfectly clean, solid and strong.

All loose and crumbling parts, dust, cement laitance and traces of form-release oils and paint must be eliminated by careful sandblasting or brushing.

When applying the product to metal, remove any rust and grease residues beforehand, preferably by means of sand-blasting to white metal.

Eporip



Applying Eporip by brush on construction joint



Repairing a crack in cement screed with Eporip

TECHNICAL DATA (typical values)

PRODUCT IDENTITY				
		Component A Co	Component B	
Consistency:		fluid paste fluid	fluid paste	
Colour:		grey wł	white	
Density (kg/l):		1.55 1.0	1.02	
Brookfield viscosity (Pa·s):		20 1.5		
APPLICATION DATA OF PRODUCT (at +23°C - 50% R.H.)		(rotor 6 - 10 revs) (ro	otor 2 - 10 revs)	
Mixing ratio:		component A : component B = 3 : 1		
Consistency of mix:		fluid paste		
Colour of mix:				
Density of mix (kg/l):		grey		
Density of mix (kg/l): Brookfield viscosity (Pa·s):		1.35		
Brookfield viscosity (Pa-s):		4.5 (rotor 5 - 20 revs)		
Workability time (EN ISO 9514): - at +10°C: - at +23°C: - at +30°C:		90 minutes 60 minutes 40 minutes		
Open time: - at +10°C: - at +23°C: - at +30°C:		5-6 hours 3-4 hours 1 hour 30 minutes-2 hours 30 minutes		
Application temperature range:		from +5°C to +30°C		
Complete hardening time: 7 days				
FINAL PERFORMANCE				
Performance characteristic	Test method	Requirements according to EN 1504-4	Performance of product	
Performance characteristic Linear shrinkage (%):				
	method	according to EN 1504-4	of product 0.02 (at +23°C)	
Linear shrinkage (%):	method EN 12617-1	according to EN 1504-4 ≤ 0.1	of product 0.02 (at +23°C) 0.10 (at +70°C)	
Linear shrinkage (%): Compressive modulus of elasticity (N/mm²):	method EN 12617-1 EN 13412	according to EN 1504-4 ≤ 0.1 ≥ 2,000 ≤ 100 x 10-6 K-1	of product 0.02 (at +23°C) 0.10 (at +70°C) 3,000	
Linear shrinkage (%): Compressive modulus of elasticity (N/mm²): Coefficient of thermal expansion:	method EN 12617-1 EN 13412 EN 1770 EN 12614	according to EN 1504-4 ≤ 0.1 ≥ 2,000 ≤ 100 x 10-6 K-1 (measured between -25°C and +60°C) ≥ +40°C compressive shear load > tensile strength of concrete	of product 0.02 (at +23°C) 0.10 (at +70°C) 3,000 97 x 10-6 K-1	
Linear shrinkage (%): Compressive modulus of elasticity (N/mm²): Coefficient of thermal expansion: Glass transition temperature: Durability (freeze/thaw and hot, damp cycles):	method EN 12617-1 EN 13412 EN 1770 EN 12614 EN 13733	according to EN 1504-4 ≤ 0.1 ≥ 2,000 ≤ 100 × 10 ⁻⁶ K ⁻¹ (measured between -25°C and +60°C) ≥ +40°C compressive shear load > tensile strength of concrete no failure of steel test sample	of product 0.02 (at +23°C) 0.10 (at +70°C) 3,000 97 x 10-6 K-1 > +40°C meets specifications	
Linear shrinkage (%): Compressive modulus of elasticity (N/mm²): Coefficient of thermal expansion: Glass transition temperature: Durability (freeze/thaw and hot, damp cycles): Reaction to fire:	method EN 12617-1 EN 13412 EN 1770 EN 12614 EN 13733	according to EN 1504-4 ≤ 0.1 ≥ 2,000 ≤ 100 × 10-6 K-1 (measured between -25°C and +60°C) ≥ +40°C compressive shear load > tensile strength of concrete no failure of steel test sample Euroclass	of product 0.02 (at +23°C) 0.10 (at +70°C) 3,000 97 x 10 ⁻⁶ K ⁻¹ > +40°C meets specifications C-s1, d0	
Linear shrinkage (%): Compressive modulus of elasticity (N/mm²): Coefficient of thermal expansion: Glass transition temperature: Durability (freeze/thaw and hot, damp cycles):	method EN 12617-1 EN 13412 EN 1770 EN 12614 EN 13733	according to EN 1504-4 ≤ 0.1 ≥ 2,000 ≤ 100 × 10 ⁻⁶ K ⁻¹ (measured between -25°C and +60°C) ≥ +40°C compressive shear load > tensile strength of concrete no failure of steel test sample	of product 0.02 (at +23°C) 0.10 (at +70°C) 3,000 97 x 10-6 K-1 > +40°C meets specifications	
Linear shrinkage (%): Compressive modulus of elasticity (N/mm²): Coefficient of thermal expansion: Glass transition temperature: Durability (freeze/thaw and hot, damp cycles): Reaction to fire: Concrete-steel bond strength (N/mm²):	method EN 12617-1 EN 13412 EN 1770 EN 12614 EN 13733	according to EN 1504-4 ≤ 0.1 ≥ 2,000 ≤ 100 × 10-6 K-1 (measured between -25°C and +60°C) ≥ +40°C compressive shear load > tensile strength of concrete no failure of steel test sample Euroclass	of product 0.02 (at +23°C) 0.10 (at +70°C) 3,000 97 x 10 ⁻⁶ K ⁻¹ > +40°C meets specifications C-s1, d0	
Linear shrinkage (%): Compressive modulus of elasticity (N/mm²): Coefficient of thermal expansion: Glass transition temperature: Durability (freeze/thaw and hot, damp cycles): Reaction to fire: Concrete-steel bond strength (N/mm²): BONDED MORTAR OR CONCRETE	method EN 12617-1 EN 13412 EN 1770 EN 12614 EN 13733 EN 13501-1 EN 1542	according to EN 1504-4 ≤ 0.1 ≥ 2,000 ≤ 100 × 10 ⁻⁶ K ⁻¹ (measured between -25°C and +60°C) ≥ +40°C compressive shear load > tensile strength of concrete no failure of steel test sample Euroclass not required	of product 0.02 (at +23°C) 0.10 (at +70°C) 3,000 97 x 10 ⁻⁶ K ⁻¹ > +40°C meets specifications C-s1, d0 > 3 (failure of concrete)	
Linear shrinkage (%): Compressive modulus of elasticity (N/mm²): Coefficient of thermal expansion: Glass transition temperature: Durability (freeze/thaw and hot, damp cycles): Reaction to fire: Concrete-steel bond strength (N/mm²): BONDED MORTAR OR CONCRETE Bond strength to concrete:	method EN 12617-1 EN 13412 EN 1770 EN 12614 EN 13733 EN 13501-1 EN 1542 EN 12636	according to EN 1504-4 ≤ 0.1 ≥ 2,000 ≤ 100 x 10-6 K-1 (measured between -25°C and +60°C) ≥ +40°C compressive shear load > tensile strength of concrete no failure of steel test sample Euroclass not required failure of concrete	of product 0.02 (at +23°C) 0.10 (at +70°C) 3,000 97 x 10-6 K-1 > +40°C meets specifications C-s1, d0 > 3 (failure of concrete)	
Linear shrinkage (%): Compressive modulus of elasticity (N/mm²): Coefficient of thermal expansion: Glass transition temperature: Durability (freeze/thaw and hot, damp cycles): Reaction to fire: Concrete-steel bond strength (N/mm²): BONDED MORTAR OR CONCRETE Bond strength to concrete: Sensitivity to water:	method EN 12617-1 EN 13412 EN 1770 EN 12614 EN 13733 EN 13501-1 EN 1542 EN 12636 EN 12636	according to EN 1504-4 ≤ 0.1 ≥ 2,000 ≤ 100 × 10 ⁻⁶ K ⁻¹ (measured between -25°C and +60°C) ≥ +40°C compressive shear load > tensile strength of concrete no failure of steel test sample Euroclass not required failure of concrete failure of concrete	of product 0.02 (at +23°C) 0.10 (at +70°C) 3,000 97 x 10-6 K-1 > +40°C meets specifications C-s1, d0 > 3 (failure of concrete) meets specifications	
Linear shrinkage (%): Compressive modulus of elasticity (N/mm²): Coefficient of thermal expansion: Glass transition temperature: Durability (freeze/thaw and hot, damp cycles): Reaction to fire: Concrete-steel bond strength (N/mm²): BONDED MORTAR OR CONCRETE Bond strength to concrete: Sensitivity to water: Shear strength (N/mm²):	method EN 12617-1 EN 13412 EN 1770 EN 12614 EN 13733 EN 13501-1 EN 1542 EN 12636 EN 12636 EN 12615	according to EN 1504-4 ≤ 0.1 ≥ 2,000 ≤ 100 x 10-6 K-1 (measured between -25°C and +60°C) ≥ +40°C compressive shear load > tensile strength of concrete no failure of steel test sample Euroclass not required failure of concrete failure of concrete	of product 0.02 (at +23°C) 0.10 (at +70°C) 3,000 97 x 10°6 K-1 > +40°C meets specifications C-s1, d0 > 3 (failure of concrete) meets specifications meets specifications	
Linear shrinkage (%): Compressive modulus of elasticity (N/mm²): Coefficient of thermal expansion: Glass transition temperature: Durability (freeze/thaw and hot, damp cycles): Reaction to fire: Concrete-steel bond strength (N/mm²): BONDED MORTAR OR CONCRETE Bond strength to concrete: Sensitivity to water: Shear strength (N/mm²): Compressive strength (N/mm²):	method EN 12617-1 EN 13412 EN 1770 EN 12614 EN 13733 EN 13501-1 EN 1542 EN 12636 EN 12636 EN 12615	according to EN 1504-4 ≤ 0.1 ≥ 2,000 ≤ 100 x 10-6 K-1 (measured between -25°C and +60°C) ≥ +40°C compressive shear load > tensile strength of concrete no failure of steel test sample Euroclass not required failure of concrete failure of concrete	of product 0.02 (at +23°C) 0.10 (at +70°C) 3,000 97 x 10°6 K-1 > +40°C meets specifications C-s1, d0 > 3 (failure of concrete) meets specifications meets specifications	
Linear shrinkage (%): Compressive modulus of elasticity (N/mm²): Coefficient of thermal expansion: Glass transition temperature: Durability (freeze/thaw and hot, damp cycles): Reaction to fire: Concrete-steel bond strength (N/mm²): BONDED MORTAR OR CONCRETE Bond strength to concrete: Sensitivity to water: Shear strength (N/mm²): Compressive strength (N/mm²): STRENGTHENING USING BONDED PLATE	method EN 12617-1 EN 13412 EN 1770 EN 12614 EN 13733 EN 13501-1 EN 1542 EN 12636 EN 12636 EN 12615 EN 12190	according to EN 1504-4 ≤ 0.1 ≥ 2,000 ≤ 100 × 10 ⁻⁶ K ⁻¹ (measured between -25°C and +60°C) ≥ +40°C compressive shear load > tensile strength of concrete no failure of steel test sample Euroclass not required failure of concrete failure of concrete ≥ 6 ≥ 30	of product 0.02 (at +23°C) 0.10 (at +70°C) 3,000 97 x 10-6 K-1 > +40°C meets specifications C-s1, d0 > 3 (failure of concrete) meets specifications meets specifications > 9 > 70	

Preparing the mix

The two **Eporip** components have to be mixed.

Pour component B (white) into component A (grey) and mix with a trowel for small quantities or with a drill fitted with a low speed stirrer for large batches until the mix is perfectly smooth and even (the same grey all through).

Do not use partial amounts to avoid the risk of accidental ratio errors that could prevent **Eporip** from curing.

Applying the mix

Eporip can be applied with a flat trowel or a brush on dry or slightly damp concrete. It is advisable to let the product penetrate well into particularly uneven and porous areas so as to ensure perfect adhesion to the whole surface being treated.

The subsequent layer of fresh concrete must be placed within the open times according to the temperature indicated in the technical data table.

When **Eporip** is used to seal cracks wider than 0.5 mm, simply placing is sufficient. In this case it is recommended to spread sand over the **Eporip** surface in order to favor bonding of product that may be applied subsequently.

If the cracks are narrower than 0.5 mm, they have to be widened and then dusted well before repair work with **Eporip**. Do not use **Eporip** when the outside temperature of the substrate is lower than +5°C.

Cleaning

Tools used to prepare and apply **Eporip** must be cleaned with solvents (ethyl alcohol, xylol, toluene, etc.) immediately after use.

CONSUMPTION

Consumption varies, depending on irregularities in the substrate and the method used in application.

Generally speaking:

- construction joints with

a rough substrate: 0.5-0.7 kg/m²

- construction joints with

a very uneven substrate: 1.0-2.0 kg/m²

sealing cracks: 1.35 kg/l per litre of cavity

 bonding precast elements in concrete,

or steel-and-concrete: 1.35 kg/m² per

mm thickness.

PACKAGING

10 kg kits (7.5 kg of component A, 2.5 kg of component B).

2 kg kits (1.5 kg of component A, 0.5 kg of component B).

STORAGE

24 months in original packaging. **Eporip** should be stored indoors in a cool, dry place where the temperature is between +5°C and +30°C.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Eporip components A and B may irritate the skin and eyes and may cause sensitisation in those subjects sensitive to such substances. When applying the product, we recommend the use of protective gloves and goggles and to take the usual precautions for handling chemical products. If the product comes into contact with the eyes or skin, wash immediately with plenty of clean water and seek medical attention.

Eporip components A and B are also hazardous for aquatic life. Do not dispose of the product in the environment.

When the product reacts it generates considerable heat. After mixing components A and B, we recommend applying the product as soon as possible and to never leave the container unguarded until it is completely empty.

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

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

All relevant references for the product are available upon request and from www.mapei.com





