MAPEI

Resfoam S

Fluid, two-component polyurethane injection resin for waterproofing concrete and rocks structures subjected to water seepage

AREA OF USE

- waterproofing of concrete structures and cracked masonry subjected to minor water seepage, also under pressure
- waterproofing of rock subjected to water seepage

SOME APPLICATION EXAMPLES

- waterproofing tunnels subjected to water seepage through cracks or cold joints between ashlars
- injection and waterproofing with use of injectionhoses
- waterproofing wells or hydraulic structures that leak water through joints or cracks
- repairing cracks in dams, canals, and crest gates, even under water bed

TECHNICAL CHARACTERISTICS

Resfom S is a two-component polyurethane injection resin based on a unique mix of isocyanides, polyols and additives.

Resfoam S reacts in contact with water, and forms a waterproofing stable semi-rigid foam.

Resfoam S reacts also in case of no water present, and forms a flexible injectionmaterial.

Resfoam S does not contain any halogens or phthalates.

Resfoam S 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”.

RECOMONDATIONS

To consolidate cracked concrete structures that, at the moment of injection, are not subjected to water seepage or strong dampness, use **Mapepoxy BI**, **Mapepoxy BI-IMP**, **Mapepoxy BI 1.8** or **Mapepoxy BI-R** – fluid epoxy resins.

In the case of water seepage under strong pressure use **Resfoam 1KM** (with or without accelerator). For optimal results the work should be completed using either **Resfoam S** or **Purgel** which cures to give a flexible seal in the absence of water.

APPLICATION PROCEDURE

Waterproofing of concrete:

Place the injectors: Site off-set holes on the sides of the cracks. The size of the holes should fit the diameter of the injectors that will be used. Expansion injectors with a non-return valve, can easily be fixed, by their rotation, to block them completely to the walls of the hole.

Preparing the product:

Components A and B should have a temperature of +15 °C or more when mixed together. Comp. A is poured into comp. B and mix with a drill whisk at a slow speed

Resfoam S

Resfoam S : Polyurethane product for swelling fitted filling of cracks (S).
The product complies with specification in EN 1504-5 "Concrete injection"

TECHNICAL DATA (typical values)

PRODUCT DETAILS	Comp. A	Comp. B
Color:	dark brown	transparent
Appearance:	liquid	liquid
Density (g/cm³):	1.230	1.000
Viscosity (mPa*s) at 23 °C:	approx. 150	approx. 900

APPLICATION DATA OF PRODUCT	
Mixing ratio (by weight):	58:100
Mixing ratio (by volume):	1:2
Application temperature range:	+5 to +30 °C
Viscosity (mPa*s) at 23 °C:	540
Viscosity (mPa*s) at 15 °C:	832
Viscosity (mPa*s) at 10 °C:	1266
Viscosity (mPa*s) at 5 °C:	2097
Initial growth time at 23 °C (seconds):	114
Initial growth time at 15 °C (seconds):	160
Initial growth time at 10 °C (seconds):	208
Initial growth time at 5 °C (seconds):	255

FINAL PROPERTIES	
Product classification according to EN 1504-2:2005:	U(S1)W(8)(1/3)(5/30)

Performance characteristics for product	Test methods	Requirements according to EN 1504-5	Product performance
Watertightness:	EN 14068	Watertight at 2 x 10^5 Pa	Pass – S1
Workabillity:	EN 12618-2	>95 %	Crack width: 0.8 mm Moisture state: dry and wet (100 %)
Expansion ratio and evolution by water storage:	EN 14498	Declare value	ΔV14dd= 9.8 %; ΔW14dd=0.1%
Durabillity- sensitivity to water:	EN 14498 - A	Declare value in % (which shall reach a constant value)	ΔV14dd= 22 %; ΔW14dd= 0 %
Durabillity – sensistivity to wet-drying cycles:	EN 14498 - B	Comply with the threshold value in % (20%)	After wet - drying cycling- no change in expansion ratio after water immersion
Durability – compatibility to concrete:	EN 12637 -1 6,2 and 7.3.1		Less than 20 %

for approximately 3 minutes until the product is completely homogenous.

The product must not be thinned!

Injecting the product:
Inject **Resfoam S** continuously into the crack. **Resfoam S** increases its volume as soon as it is in contact with water, sealing cracks and blocking water seepage. In the absence of water **Resfoam S** does not expand and continues to penetrate into the cracks and form during curing to flexible material.

Consolidating the ground and rock:
The product must be prepared in the same way as for injection cracks in concrete structures. While injection and when **Resfoam S** is in contact with water it increases in volume. This causes a slight pressure on the single grains of the ground, tamping them. As a consequence of this, a polyurethane waterproof layer is formed, which varies in thickness, and permanently consolidating the injected material.

Avoid using the product when the air and/or substrate temperature is less than +5°C.

CLEANING
Tools and equipment must be washed immediately after use with mineral oil or acetone. Do not use industrial methylated spirit, ethanol or other water soluble solvents as these will trigger reactions. Hardened foam within the equipment must be removed mechanically.

CONSUMPTION
Approx. 1,13 kg/liter unreacted material.

PACKAGING
Resfoam S 1 kg set (0.36 kg comp. A and 0.64 kg comp. B)

Resfoam S 2.5 kg set (1 kg comp. A and 1.5 kg comp. B)

STORAGE
Resfoam S Comp. A can be stored for 9 months in a dry sheltered area at temperature between + 5 and + 30 °C in unopened original packaging.

Resfoam S Comp. B can be stored for 24 months in a dry sheltered area at temperature between + 5 and + 30 °C in unopened original packaging.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION
Resfoam S comp. B is not considered dangerous, while component A is harmful if inhaled and may cause sensitization by inhalation and skin contact in those subjects sensitive to isocyanates. Danger of serious damage to health by prolonged exposure through inhalation. Limited evidence of a carcinogenic effect.

While using the products, we recommend protecting the respiratory system and the use of protective gloves and goggles. Only apply the product in well-ventilated areas. Seek medical attention in the event of accidents or giddiness. For further and complete information about the safe use of our product please refer to our latest version of the Material Safety Data Sheet.

PRODUCT ONLY 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

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

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