MAPEI

CE
EN 1504-5

Resfoam 1K-M

Ultra-fluid, one-component polyurethane injection resin with adjustable reaction times, for waterproofing structures, grounds and rocks subject to intense water seepage

WHERE TO USE

- Waterproofing concrete structures and cracked masonry subject to water seepage, also under pressure.
- Waterproofing rocks subject to water seepage.
- Waterproofing permeable grounds saturated with water.

Some application examples

- Waterproofing tunnels subject to water seepage through cracks around construction joints between lining blocks.
- Waterproofing wells or hydraulic structures that leak water through working joints or cracks.
- Repairing cracks in dams, canals and crest gates, even under the water bed.
- Sealing cracks in floorings or damp foundations saturated with water.

TECHNICAL CHARACTERISTICS

Resfoam 1K-M is a one-component polyurethane resin, free of halogens, made up of a mix of isocyanates, special admixtures and an accelerator prepared according to a formula developed in MAPEI research laboratories.
In order to achieve different reaction times, before using, **Resfoam 1K-M** must be mixed with **Resfoam 1K-M AKS** (accelerator) in a dosage from 1 to 10% by weight of resin, according to the needs on the jobsite.
After mixing with the accelerator and in the absence of damp conditions, **Resfoam 1K-M** has a pot life of approximately one hour.
During its pot life, **Resfoam 1K-M** must be injected through special packers into the structure that needs to be waterproofed by a piston pump or a membrane for one-component products. When the resin comes in contact with water, it forms a semi-rigid waterproof polyurethane foam.
Thanks to its high fluidity, **Resfoam 1K-M** penetrates into about a hundred microns wide cracks and can seal them even if they are subject to water seepage.
Once set, after 40-80 seconds depending on the temperature and the amount of added accelerator, **Resfoam 1K-M** ensures complete waterproofing of the treated area.

Resfoam 1K-M 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 systems*") and the minimum requirement claimed by EN 1504-5: U(S1)W(3)(1/2/3/4)(5/35) ("*Concrete injection*").

RECOMMENDATIONS

To consolidate cracked concrete structures that, at the moment of injection, are not subject to water seepage or strong dampness, use **Epojet**, fluid epoxy resin.
In case of water seepage under strong pressure,

Resfoam 1K-M

TECHNICAL DATA (typical values)

PRODUCT IDENTITY		
	Resfoam 1K-M (resin)	**Resfoam 1K-M AKS**
Density EN ISO 2811-1 (g/ml):	1.22 ± 0.04 at +23°C	1.09 ± 0.033 at +23°C
Colour:	dark brown	amber
Brookfield viscosity RV (at +23°C) (mPa·s) (# 1 - rpm 100):	21.9 ± 11	70 ± 14
Expansion ratio in free air:	40-60	

it is necessary to increase the amount of **Resfoam 1K-M AKS** accelerator up to 10% of the resin and in any case try to reduce the water pressure, even momentarily, when injecting the product.
If the injection treatment must carry out a structural consolidation function, it is preferable to use **Foamjet F** or **Foamjet T**, two-component polyurethane resins for the consolidation of cracked concrete and rocks subject to water seepage that, through reaction, become a very strong foam.

APPLICATION PROCEDURE

Sealing cracks by injection. Placement of injectors
Make staggered 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 be easily fixed, by their rotation, to block them completely to the walls of the hole.
If there is no water seepage, normal metal or plastic pipes with a diameter of approximately 10 mm can be used and can be fixed with **Adesilex PG1**. However, it is necessary to inject water before injecting **Resfoam 1K-M** in order to obtain an expanding reaction.
In the presence of water seepages, standard plastic or rubber pipes with a diameter of approximately 10 mm can be used and must be fixed with **Lamposilex**.

Preparing and injecting the product
Resfoam 1K-M is mixed directly in its drum with approximately 5% of **Resfoam 1K-M AKS** accelerator (10% if a very quick reaction is needed). After mixing, in the absence of damp or water, it can be injected for approximately 1 hour (it is necessary to protect the product from contact with damp air by covering the drum with its lid).

Note: *if, after mixing with the accelerator,* **Resfoam 1K-M** *is not protected from damp, a thin film can form over the surface (within 30 minutes from its preparation). However, this does not interfere with the use of the material.*

Inject **Resfoam 1K-M** continuously into the crack.
Resfoam 1K-M increases its volume as soon as it is in contact with water (after approximately 5-20 seconds depending on the temperature and humidity), creating a polyurethane foam and thus sealing cracks and blocking water seepages.
In the absence of water **Resfoam 1K-M** does not expand and continues to penetrate into the cracks.

Consolidating the ground and rock
The product must be prepared in the same way as for injecting cracks in concrete structures. While injecting and when **Resfoam 1K-M** 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 consolidates the injected material.

Cleaning
The tools used for injection (pump and pipes) must be washed with mineral oil or special solvents free from water and impurities.

CONSUMPTION

In open air, 1 kg of **Resfoam 1K-M** + 0.1 kg of **Resfoam 1K-M** AKS produce 50 litres of expanded foam on contact with 0.1 litres of water.

PACKAGING

Resfoam 1K-M (resin): 20 kg plastic drums.
Resfoam 1K-M AKS (accelerator): 1 kg plastic drums.

STORAGE

Resfoam 1K-M can be stored for 12 months in a dry sheltered place in its original sealed packaging at a temperature between +5°C and +30°C.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Instructions for the safe use of our products can be found on the latest version of the Safety Data Sheet, available from our website www.mapei.com.

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

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

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