

Purgel

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



AREA OF USE

- waterproofing of concrete structures and cracked masonry subjected to water seepage, with or without pressure
- waterproofing of rock subjected to water seepage

Some application examples

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

TECHNICAL CHARACTERISTICS

Purgel is a one-component polyurethane injection resin based on a unique mix of isocyanides, crosslinkers and additives.

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

Purgel reacts also in case of no water present, and forms a flexible injection material.

Purgel can be accelerated on site by adding until 4% **Resfoam 1KM AKS**

Purgel is tested by NIVA for use in contact with drinking water.

Purgel 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.

Preparation of the product

Purgel can be used as it is.

Purgel: 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

Color:	Dark brown
Appearance:	Liquid
Density (g/cm³)	1.130
Viscosity (mPa*s) at 23 °C:	Approx. 410
Viscosity (mPa*s) at 15 °C:	Approx. 600
Viscosity (mPa*s) at 10 °C:	Approx. 740
Viscosity (mPa*s) at 5 °C:	Approx. 1060

PRODUCT APPLICATION DATA

Mixing ratio:	If needed until 4% Resfoam 1 KM AKS				
Application temperature range:	+5 to +30 °C				
Reaction time in relation to the temperature:	Temperature	5 °C	10 °C	15 °C	23 °C
	Initial growth time in seconds	200	70	60	55

FINAL PROPERTIES

Product classification according to EN 1504-2:2013 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 105 Pa	Pass – S1
Workability:	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	$\Delta V_{14dd} = 40,7 \%$; $\Delta W_{14dd} = 44,4 \%$
Durability- sensitivity to water:	EN 14498 - A	Declare value in % (which shall reach a constant value)	$\Delta V_{14dd} = 46,9 \%$; $\Delta W_{14dd} = 45,8 \%$
Durability – sensitivity 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 14498 - A	After 28 days in solution the swelling has reached constant level , and is > + 10% of initial weigth.	After 28 days in solution the swelling has reached constant level at 33 %, and is + 33% of initial weigth.

If needed 0 – 4 % **Resfoam 1KM AKS** can be added directly in its drum and mixed properly.

The product must not be thinned!

Injecting the product:

Inject **Purgel** continuously into the crack. **Purgel** reacts as soon as it is in contact with water, sealing cracks and blocking water seepage. In the absence of water **Purgel** 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 **Purgel** 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

Purgel - 5 kg plastic can

STORAGE

Purgel can be stored for 6 months in a dry sheltered area at temperature between + 5 and + 30 °C in unopened original packaging protected from sunlight.

SAFETY INSTRUCTIONS FOR PREPARATION AND USE

Purgel contains diphenyl-methane di-isocyanides which is harmful and causes sensitivity when inhaled. It is irritant to eyes, respiratory system and skin. It is recommended to protect the eyes with goggles, and the skin with gloves while preparing and using and preparing the product. Use the product only in well ventilated areas and with respiratory protective apparatus. In case of contact with eyes or skin, wash with plenty of clean water and consult a doctor. For further and complete information about safe use of our products please refer to our latest 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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