MAPEI

Idrocrete KR 1000



CE
EN 934-2
T.9

Crystallizing admixture for waterproof concrete

DESCRIPTION

Idrocrete KR 1000 is a powder admixture made from special hydrophilic components which, when added to a concrete mix, reduces the permeability of hardened concrete.

How it works

When water is added, **Idrocrete KR 1000** reacts with the calcium hydroxide and other products that form during the hydration process of the cement to form compounds of calcium silicate and other non-soluble salts. The crystalline compounds and calcium silicate hydrate are deposited in the voids of the cement matrix and reduce its total porosity, thereby increasing the resistance of the concrete to the penetration of water under pressure.

WHERE TO USE

Idrocrete KR 1000 may be used with any type of concrete when a reduction of permeability is required. Once **Idrocrete KR 1000** has been added to the mix, it reacts with water during the entire service life of the concrete. **Idrocrete KR 1000** may be used to make concrete that is resistant to aggressive environments. The specified exposure class of the concrete must always be respected and the product cannot be used to make up for poorly designed concrete.
To have guaranteed results, **Idrocrete KR 1000** must only be used in concrete that has been correctly designed respecting two basic rules for the production of impermeable concrete, which are, a water/cement ratio of less than 0.5 and an adequate wet curing time.

Idrocrete KR 1000 may be successfully used to produce concrete for the following applications:

- dams;
- bridges;
- car parks;
- storage tanks;
- pipes and piles;
- retaining walls;
- tunnels;
- marine structures;
- basements and foundations;
- swimming pools;
- precast elements;
- “white tanks” (weiße Wanne).

TECHNICAL CHARACTERISTICS

Idrocrete KR 1000 is a mixture of active compounds

Idrocrete KR 1000

TECHNICAL DATA (typical values)	
PRODUCT IDENTITY	
Consistency:	powder
Colour:	grey
Density (g/cm^3):	2.2 ± 0.1
Classification according to EN 934-2:	water resisting admixture, table 9
Chlorides soluble in water according to EN 480-10 (%):	< 0.1 (absent according to EN 934-2)
Alkali content (equivalent Na_2O) according to EN 480-12 (%):	≤ 23

which, in the presence of water, transform the by-products of the cement hydration into crystals reducing concrete porosity and mico-cracks.

Idrocrete KR 1000 reduces the permeability characteristics of concrete. Laboratory tests have shown that adding **Idrocrete KR 1000** to concrete reduces its level of capillary absorption and makes it more resistant to the hydrostatic pressure.
The crack bridging ability of **Idrocrete KR 1000** allows to close microcracks up to 0.4 mm.

APPLICATION METHOD

Idrocrete KR 1000 is added to the concrete mix just like any other type of powder admixture. The product must be added in the concrete mixer or in the truck mixer together with all the other components (cement, admixtures and aggregates). Once **Idrocrete KR 1000** has been added, we recommend extending the adequate mixing time so that the admixture is evenly blended throughout the mix.

COMPATIBILITY WITH OTHER PRODUCTS

Idrocrete KR 1000 is compatible with all MAPEI admixtures used in the production of high quality concrete, particularly:

- WR and HRWR admixtures from the **Mapeplast**, **Mapefluid** and **Dynamon** ranges;
- set-retarding admixtures from the **Mapetard** range to extend and maintain the workability of concrete;
- chloride-free, hardening-accelerator admixtures from the **Mapefast** range to achieve very high mechanical strength after short curing cycles, even in cold climates;
- viscosity-modifying admixtures from the **Viscostar** and **Viscofluid** ranges used to make self-compacting concrete;
- **Expancrete** expanding agent used in the production of shrinkage-compensated concrete;
- air-entraining admixtures from the **Mapeair AE** range used in the production of concrete resistant to freeze/thaw cycles;
- alkali-free accelerator for shotcrete from the **Mapequick AF** range;
- form-releasing agents from the **Mapeform**, **Mapeform Eco** and **DMA** ranges for stripping formwork from concrete;
- curing agents from the **Mapecure** range used to reduce the risk of plastic shrinkage cracks in concrete.

DOSAGE

Dosage by weight
The recommended dosage rate for **Idrocrete KR 1000** is 1-3 kg/100 kg of cementitious materials.
Different dosage rates to those recommended above must be tested beforehand on concrete and, in all cases, only after consulting MAPEI Technical Services.

In any case, we recommend to run preliminary laboratory tests prior to the industrial use of the product.

PACKAGING

Idrocrete KR 1000 is available in 20 kg and 4 kg water soluble bags.

STORAGE

Idrocrete KR 1000 maintains its properties for at least 12 months if kept sealed in its original packaging, protected from moisture.
This product complies with the prescriptions of Reg. (EC) N. 1907/2006 (REACH) - Annex XVII, article 47.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Idrocrete KR 1000 contains cement that, when in contact with sweat or other body fluids, may cause an irritant alkaline reaction and allergic reactions to those predisposed. It may cause damage to eyes.
During use wear protective gloves and goggles and take the usual precautions for handling chemicals. If the product comes in contact with the eyes or skin, wash immediately with plenty of clean water and seek medical attention.
For further and complete information about the safe use of our product please refer to the latest version of our 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

LEGAL NOTICE

The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement or replace requirements per the TDS in force at the time of the MAPEI product installation.
The most up-to-date TDS can be downloaded from our website www.mapei.com.
ANY ALTERATION TO THE WORDING OR REQUIREMENTS CONTAINED OR DERIVED FROM THIS TDS EXCLUDES THE RESPONSIBILITY OF MAPEI.

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

METHOD STATEMENT

Making concrete impermeable by crystallising the pores and capillary micro-cracks through adding a crystallising-effect admixture in powder form to the concrete mix (such as **Idrocrete KR 1000** produced by MAPEI S.p.A.). The mix must be designed to include the use of quality, non-reactive, assorted aggregates, cement (preferably type I and type II Portland cement), a water/cement ratio of less than 0.5 and an acrylic-based super-plasticiser (such as **Dynamon** produced by Mapei S.p.A.). When the powdered crystallising admixture is added to the concrete mix, it reacts with the moisture and water contained in the conglomerate to form crystals of calcium silicate which, as they grow, block the capillary pores and improve the impermeability of the concrete.
The crystallising admixture is added at a rate of 1-3% on the weight of the binder into the mixer unit along with the aggregates, cement, water and plasticising admixture and then mixed until it is completely blended.

The concrete obtained with this method will have the following physical and mechanical characteristics:

Density (kg/m^3):	density of concrete > 2300
Strength class:	> C30/37
Maximum water penetration according to EN 12390-8:	< 30 mm
Maximum water penetration according to DIN 1048:	< 30 mm
Darcy coefficient of permeability:	< 1x10^{-13} m/s

The casting, compacting and finishing methods adopted for concrete admixed with **Idrocrete KR 1000** must be the same as those adopted for traditional concrete. The consistency and cohesion of the mix must be such that the concrete may be applied without bleeding or segregation taking place.



Idrocrete KR 1000

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7804-12-2019 (GB)

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