

IDROCRETE KR 1000

Powdered crystallising admixture for producing watertight concrete



DESCRIPTION

Idrocrete KR 1000 is a powdered admixture based on special hydrophilic components which, when added into the concrete mix, contributes to the formation of a dense and compact microstructure.

The product significantly reduces the permeability of hardened concrete, contributing to the formation of a waterproof microstructure, making the concrete suitable even for applications exposed to chemically aggressive environments.

WHERE TO USE

Idrocrete KR 1000 is suitable for use in any type of concrete where a significant reduction in water permeability is required, both under hydrostatic pressure and by capillarity. Once into the mixture, the product remains active for the entire service life of the concrete, acting whenever moisture or water penetrates the material.

Idrocrete KR 1000 must only be used in concrete designed according to the criteria to produce waterproof concrete.

It is always necessary to ensure the following recommendations:

- Water/cement ratio (w/c) ≤ 0.45 : an essential condition for ensuring reduced capillary porosity and limiting the permeability of the cement conglomerate.
- Adequate wet curing: concrete must be kept in controlled humidity conditions for the time necessary for hydration reactions to develop, to ensure the formation of the impermeable microstructure.
- Application in accordance with good construction practices: the requirements relating to casting, compaction, and protection of concrete must be complied with.
- Compliance with specific requirements for the exposure environment: in the presence of chemically or physically aggressive environments, additional design and construction measures must be taken in accordance with current regulations.

In compliance with these guidelines, **Idrocrete KR 1000** can be used in the construction of

- underground works;
- irrigation channels;
- concrete water tanks;
- retaining walls;
- tunnels;
- marine structures;
- foundations;
- swimming pools;

- sewer pipes;
- precast concrete elements;
- integral waterproof concrete structure.

TECHNICAL CHARACTERISTICS

Idrocrete KR 1000 is a mixture of active compounds which, in the presence of water, reacts with the by-products of cement hydration, generating insoluble crystals within the cement matrix. This process causes a progressive occlusion of capillary pores and microcracks, helping to make the concrete denser and less permeable.

Idrocrete KR 1000 is therefore able to:

- Significantly reduce the permeability of hardened concrete, limiting water penetration in both wet and pressurized conditions.
- Decrease capillary absorption and increase resistance to hydrostatic pressure, improving the durability of the concrete.
- Promote the autonomous closure of shrinkage microcracks up to approximately 0.4 mm, contributing to the maintenance of waterproofing performance over time.

APPLICATION PROCEDURE

To ensure correct and complete homogenization of **Idrocrete KR 1000** within the concrete mix, it is recommended to follow one of the following methods of addition:

- Conveyor belt

Distribute the **Idrocrete KR 1000** powder evenly over the coarse aggregate during the aggregate loading phase, ensuring initial mechanical dispersion of the product.

- Premixer

Add **Idrocrete KR 1000** directly into the pre-mixer together with the other components of the mixture and proceed with mixing according to normal production procedures.

- Concrete mixer truck

Add **Idrocrete KR 1000** to the concrete mixer with a small amount of water, mix thoroughly to obtain a homogeneous slurry, and then load the other components of the concrete.

- Preparation in slurry

In mixtures with reduced water content, it is advisable to prepare a fluid slurry of water and **Idrocrete KR 1000** in advance, to be added to the mixture during the packaging phase to promote uniform distribution of the product.

Notes: the water used to form the slurry or for pre-mixing must be considered when calculating the water/cement ratio and defining the consistency class required by the mix design.

NOTES

Idrocrete KR 1000 is BBA certified within the “Mapei Idrocrete System” (Certificate no. 20/5754), confirming the quality, reliability, and performance of the product in improving the durability and waterproofing of concrete. This internationally recognized certification attests that the system has undergone rigorous independent testing and inspection, guaranteeing consistent performance over time.

Idrocrete KR 1000 does not replace the design and construction requirements specified by the exposure classes defined by current standards (e.g., EN 206). These requirements must always be complied with, particularly about the water/cement ratio, choice of cement, concrete cover, curing, and good mixing practices. The additive cannot compensate for any design lacks, mix-design errors, or inadequate execution on site.

COMPATIBILITY WITH OTHER PRODUCTS

Idrocrete KR 1000 is compatible with all types of cement compliant with EN 197-1, always guaranteeing excellent waterproofing performance.

However, it is recommended to carry out test mixes to optimize the dosage and check for any interaction with other products used in the mix design.

Thanks to its mechanism of action, based on reactivity with water and free lime, **Idrocrete KR 1000** is widely compatible with most cementitious materials and standard construction practices.

It is also compatible with all Mapei additives commonly used in concrete—such as superplasticizers, air-entraining agents, retarders, and accelerators—as it acts within the cementitious matrix without interfering with the action of liquid chemical additives.

However, it is recommended never to mix different additives together and always add them to the concrete mix separately in the loading sequence.

DOSAGE

The recommended dosage of **Idrocrete KR 1000** varies from 0.8 kg to 2.0 kg per 100 kg of cementitious material, depending on the waterproofing performance required and the specific application conditions. Dosages other than those indicated must be evaluated in advance through tests on concrete and used only after consulting MAPEI Technical Services.

It is advisable to always perform preliminary tests on the concrete mix before use and whenever ambient conditions or materials change, in order to ensure compatibility with other admixture, optimize dosages, evaluate addition times in the loading sequence, and assess concrete performance.

PACKAGING

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

STORAGE

Idrocrete KR 1000 retains its characteristics for at least 12 months, provided that the product is stored in its original packaging, which must be intact, tightly closed, and protected from moisture.

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.

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 ₂ O) according to EN 480-12 (%):	≤ 15%

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.

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