

Air-entraining admixture with superplasticizing effect



## AREA OF USE

Cementol Frost Resistant Concrete is both an air-entraining agent and a superplasticizer - it has a dual action in concrete.

Concretes prepared with Cementol Frost Resistant Concrete are resistant to frost and thawing in the hardened state, to the action of precipitation, and corrosive solutions, especially salt solutions used for winter gritting. It is therefore used for the construction of all concrete structures that will be exposed to frost and/or salt, such as: courtyards, retaining walls, canals, pavements, kerbs, roof tiles, as well as for the production of decorative cast-in-place concrete products.

Cementol Frost Resistant Concrete allows the preparation of concretes with:

- increased workability of fresh concrete,
- increased resistance of hardened concrete to freezing and thawing cycles,
- increased corrosion resistance of hardened concrete,
- improved durability of concrete.

## ACTION

Cementol Frost Resistant Concrete introduces stable air microbubbles into the fresh concrete, which allow the release of internal stresses in the hardened concrete caused by the increase in volume when water freezes in the capillaries, while also interrupting the capillary system of pores, acting as a barrier that reduces the penetration of water and corrosive solutions from the concrete's surface into its interior.

Simultaneously, it plasticizes a fresh concrete mixture, allowing for a reduction in the water-cement ratio and thus compensating for the drop in concrete strength caused by the introduced air.

## TECHNICAL CHARACTERISTICS

Characteristic	Declared value
Appearance	Dark brown liquid
Density, 20 °C	[1.08 ± 0.02] kg/L
pH	8 ± 1
Water-soluble chloride content [Cl <sup>-</sup> ]	Chloride free
Alkali content [Na <sub>2</sub> O equivalent]	< 4.0 %

## COMPLIANCE

**Cementol Frost Resistant Concrete** – air-entraining admixture complies with the requirements of the standards EN 934-1 and EN 934-2 / T5.

## DOSAGE AND INSTRUCTIONS FOR USE

The recommended dosage is 1 – 2 % by weight of cement (0.25 – 0.50 kg per 1 bag of cement), depending on the desired effects and working conditions.

The percentage of air bubbles that corresponds to almost all requirements ranges between 4 and 6 % by volume, depending on the purpose of use of the concrete. The amount of air bubbles introduced is influenced by a number of factors, so preliminary investigations are needed to determine the optimum amount of air-entraining admixture for each concrete mix.

For the preparation of good quality concrete, in addition to sufficient cement, natural/crushed sand and coarse aggregate of the appropriate grain size and composition, and drinking water are used.

Cementol Frost Resistant Concrete is added to the concrete mix diluted with the mixing water, allowing it to be evenly distributed throughout the concrete mix.

### Instructions for mixing concrete of normal consistency:

- cement : aggregate = 1 : 3 to 1 : 5 [parts by volume]
- cement : water = 1 : approx. 0.5 [weight parts]

Switch on the concrete mixer and add the sand and then the cement while mixing. Mix the dry mixture first, then add one part of the mixing water and the concrete admixture previously diluted with water in a ratio of 1 : 5 (1 part of Cementol Frost Resistant Concrete + 5 parts of water) while mixing. Mix the mixture for a while to allow the additive to take effect, then add the remaining water while mixing.

Add the water carefully and slowly – the water should not be secreted on the surface!

Add all the ingredients while mixing.

Mix the concrete mix for about 5 minutes to obtain a homogeneous fresh mix.

Cementol Frost Resistant Concrete is compatible with other admixtures such as Cementol Wintermix Concrete and Cementol Concrete Contact.

If several admixtures are used in one concrete mix, they must be added separately [one after the other].

Mix before use.

## PACKAGING

cans 5 kg and 10 kg

## STORAGE

- The product should be stored at temperatures between +5 °C and +35 °C. Protect it from damage, freezing and direct sunlight.
- A properly stored product has a shelf life of at least 2 years after the date of manufacture.

- The product may still be used after the date of expiry, but the characteristics important for the intended use have to be examined.

## **HEALTH, SAFETY AND ECOLOGY**

No special precautions are required when working with Cementol Frost Resistant Concrete. Follow the general instructions for working with chemicals: take care of cleanliness, do not eat, drink or smoke while working. After finishing work, wash hands thoroughly with water.

More information on safe handling and disposal of the product is available in the safety data sheet, which is provided on request, and is also available from the dealer or distributor where you purchased the product.

## **WARNING**

Instructions and recommendations are given based on tests in our laboratories and experience to date. Due to specific conditions and work methods, preliminary tests are advised for every type of use, for each individual case of use of the product alone, or in combination with other admixtures.

Since we cannot influence the course of work, we cannot be held responsible for its quality!



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