

775/7.99

ANTIFREEZE S

CHLORIDE-FREE ANTIFREEZE FOR CONCRETE AND CEMENTITIOUS MORTAR



WHERE TO USE

- for preparing and placing normal concrete or reinforced concrete in temperatures as low as -10°C ;
- for preparing and placing cementitious mortars in cold weather.

TECHNICAL CHARACTERISTICS

ANTIFREEZE S is a powder admixture based on hardening accelerators made from a formula developed in the Mapei research laboratories. When added to the mix, ANTIFREEZE S enhances the hydration reactions of cement without substantially affecting normal setting times if used in the correct dosages.

ANTIFREEZE S features the following advantages:

- an outstanding increase, even at low temperatures, of early strength (after 24 hours) compared to concrete without admixture;
- no reduction in ultimate strength;
- early and safe form release;
- reduction of possible freezing damage to concrete.

RECOMMENDATIONS

- Do not add ANTIFREEZE S to mix water.

- Do not add ANTIFREEZE S at dosages higher than indicated; this might accelerate setting.
- Do not use ANTIFREEZE S if the bag has been damaged.

DIRECTIONS FOR USE

Mixing:

Add 1-2 kg of ANTIFREEZE S to every 100 kg of cement in the dry cement-aggregate mix and spread carefully throughout.

Then pour the water into the mixer and mix for a few minutes until a homogeneous mix is obtained.

Procedure to be followed in preparation of cement mixes

Using ANTIFREEZE S does not mean that the usual procedures for placing concrete in cold weather should not be followed.

- Mix ingredients (cement, sand, gravel) must be brought to a temperature a few degrees above 0°C .
- Store the cement in a sheltered area at a temperature not lower than $+5^{\circ}\text{C}$.
- Cast in the morning, if possible, to take advantage of the rising temperature during daytime.
- Do not cast if forecast temperature is likely to fall below -10°C following casting.
- Do not use slow-setting cements; if possible, use Portland 425 in a proportion not lower than 300 kg/m^3 .
- Use the lowest water/cement ratio possible.
- Protect castings, especially small-sections, with burlap or paper sacks to retain the heat of hydration inside the mass.

Cleaning

Tools used for mixing and placing concrete and mortar admixed with

TECHNICAL DATA:		
In compliance with standard:	UNI 7109/72	
PRODUCT IDENTIFICATION		
Consistency:	powder	
Colour:	white	
Specific gravity:	0.85 kg/l	
Dry solids content:	100%	
Storage time:	6 months in original unopened packaging.	
Health hazard EEC sec. L.88/379:	ANTIFREEZE S contains caustic substances. During application, avoid contact with skin and eyes, and avoid breathing in powder. In the event of contact with skin, wash with soap and plenty of water. In the event of contact with eyes, wash with running water and consult a doctor.	
Inflammability:	no	
Customs class:	3824 40 00	
APPLICATION DATA		
Mix ratio:	1-2 kg of ANTIFREEZE S per every 100 kg of cement	
FINAL PERFORMANCES:	compressive strength and flexural strength tests were carried out at +5°C on plastic mortar made and cured according to specifications of Italian Ministerial Degree of June 3, 1968. Cements, aggregates and water were conditioned at +5°C. before tests began. Tests were conducted at the same consistency levels as the mix with ANTIFREEZE S	
PLASTIC MORTAR WITH PORTLAND 425 CEMENT:		
Compressive strength:		
Reference mix (without ANTIFREEZE S):		
- after 3 days:	12.1 N/mm ²	
- after 7 days:	22.0 N/mm ²	
- after 28 days:	32.5 N/mm ²	
- after 60 days:	43.0 N/mm ²	
Mix with ANTIFREEZE S Mix ratio 1% in weight of cement:		
- after 3 days:	19.7 N/mm ²	(%) increase over reference mix
- after 7 days:	29.0 N/mm ²	+62.8%
- after 28 days:	41.0 N/mm ²	+31.8%
- after 60 days:	47.0 N/mm ²	+26.1%
Flexural strength:		
Reference mix (without ANTIFREEZE S)		
- after 3 days:	2.55 N/mm ²	
- after 7 days:	4.0 N/mm ²	
- after 28 days:	7.2 N/mm ²	
- after 60 days:	8.5 N/mm ²	
Mix with ANTIFREEZE S		
Mix ratio 1% in weight of cement:		
- after 3 days:	4.45 N/mm ²	(%) increase over reference mix
- after 7 days:	6.5 N/mm ²	+74.5%
- after 28 days:	7.9 N/mm ²	+62.5%
- after 60 days:	8.9 N/mm ²	+9.7%
PLASTIC MORTAR WITH PORTLAND 325 CEMENT:		
Compressive strength		
Reference mix (without ANTIFREEZE S)		
- after 3 days:	7.0 N/mm ²	
- after 7 days:	16.0 N/mm ²	
- after 28 days:	23.5 N/mm ²	
- after 60 days:	34.0 N/mm ²	
Mix with ANTIFREEZE S % increase		
Mix ratio 1% in weight of cement:		
- after 3 days:	11.7 N/mm ²	(%) increase over reference mix
- after 7 days:	19.0 N/mm ²	+67.1%
- after 28 days:	27.0 N/mm ²	+18.7%
- after 60 days:	34.5 N/mm ²	+14.9%
Flexural strength:		
Reference mix (without ANTIFREEZE S)		
- after 3 days:	1.7 N/mm ²	
- after 7 days:	3.2 N/mm ²	
- after 28 days:	5.8 N/mm ²	
- after 60 days:	6.5 N/mm ²	
Mix with ANTIFREEZE S % increase		
Mix ratio 1% by weight of cement:		
- after 3 days:	2.2 N/mm ²	(%) increase over reference mix
- after 7 days:	3.5 N/mm ²	+29.4%
- after 28 days:	5.8 N/mm ²	+9.37%
- after 60 days:	6.5 N/mm ²	+0%

ANTIFREEZE S can be cleaned with water before setting begins.

DOSAGE

1-2 kg per every 100 kg of cement.

PACKAGING

ANTIFREEZE S is available in boxes containing 24 1-kg bags.

WARNING

N.B. Although the technical details and recommendations contained in this report



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 intending 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 use of the product.

N.B. FOR PROFESSIONAL USE ONLY

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