

NanoSet® 888

High Range Water Reducing / Superplasticizing Anti-freeze and Set Accelerating Admixture for Cold-Weather Concreting

Product Definition

NanoSet 888 is designed to keep on production of mortar or concrete in cold weather or frost. NanoSet 888 is a polycarboxylate based antifreeze concrete admixture, set accelerator, high range water reducing, plasticizer and increases early strength.

Use

NanoSet 888 is recommended for use in the applications and purposes below.

- Concreting in cold weather conditions and ambient temperatures close to freeze point of mixing water.
- In pourings in cold weather to protect concrete from freezing effect and when early high strength is desired.
- In cases of concrete production under the influence of cold weather and frost.
- Heavily reinforced concrete structural sections requiring concrete mixtures with high workability and consistency classes.
- Concreting operations requiring shorter setting time
- To increase the early strength of concrete.

Advantages and Properties

- Protects fresh concrete from frost action by reducing the freezing point of mixing water.
- Accelerates the hydration of cement even in temperature levels close to freeze point.
- Shortens the required time to obtain a minimum strength level of 5 MPa for avoiding frost damage at early ages.
- Improves the strength and durability by ensuring that the specified target consistency is achieved with lower water to binder ratio.
- Increases strength gain rate and early strength.
- Does not contain chloride or any other substances that may cause corrosion.

Application Details, Suggestions and Warnings

- NanoSet 888 should be added to mixing water or fresh concrete. In case of adding to fresh concrete, an additional mixing of at least 3 minutes should be applied. NanoSet 888 should not be added to dry mixture.
- General protective measures recommended for cold-weather concreting listed below should be applied:
 - Use high heat of hydration type of cement (high C₃S content and fineness)
 - Lower water / cement ratio
 - Reduce slump
 - Increase cement dosage

- Do not use mineral admixtures except for silica fume
 - Apply additional protective measures other than concrete design (prefer timber formwork, use warm water, heat aggregates, etc.)
 - Insulate fresh concrete and pay attention to curing (water curing is not advisable in near-freezing conditions as saturated concrete is more vulnerable to frost action. Prevent loss of moisture by insulation).
 - As the dosage of the chemical admixtures is greatly influenced from cement type, properties of the concrete ingredients and mix design, it is recommended that the optimum dosage of admixture should be determined on trial batches.
 - It is recommended to use air-entraining type of chemical admixture for enhancing the freeze-thaw resistance of hardened concrete. NanoSet 888 is compatible with air-entraining type of chemical admixtures.
- !** Early age strength level of concrete should be determined by trial samples prior to early demolding.

Recommended Dosage

The recommended NanoSet 888 dosage rate is %1 at -5 C⁰ , %1,5 at -10 C⁰ , %2 at <-15 C⁰ by weight of binding material. The amount of water used for consistency stability should be adjusted with increasing usage rate. The dosage to be used must be determined beforehand by laboratory experiments according to cement type, cement dosage, concrete temperature and ambient temperature.

Technical Properties

Colour and form	Brown – liquid
Chemical base	Calcium nitrate salt
Density (kg/lit)	1.18 – 1.22 (at +20 °C)
Chloride ion content	0.1% max - Chloride free acc. to TS EN 934-2.
pH	3,00 – 7,00
Freeze point	< -15 °C
Conformity	TS EN 934-2 Table 6

Cleaning of Tools

Concreting tools contact with the product can be easily cleaned with water.

Packaging

30 kg drum

1000 kg IBC

Bulk delivery

Storage and Shelf Life

Shelf life of the product is 24 months when stored in its original package and recommended stored conditions. The product should be stored in dry conditions between -10 °C and +35 °C. It should be protected from direct sunlight. If the product freezes, it can be used after thawing slowly in room temperature conditions and homogenizing by mixing. Do not melt the frozen product by exposing fire.

Security and Health

In case of contact with skin, wash with clean water. In case of contact with eye, wash with clean water. Eye contact should be medically consulted immediately. For further information please refer to Material Safety Data Sheet (MSDS) of the product.

Legal Liability

The technical recommendations in this product data sheet are based on the results obtained from experimental studies carried out in the R&D laboratories of Kalekim LYKSOR and may not be applicable to different concrete mixtures. All customers and users are required to determine the appropriate Kalekim LYKSOR products for their intended use and to test the suitability of Kalekim LYKSOR product for their application. Contact Kalekim LYKSOR for the appropriate product selection and usage details. Kalekim LYKSOR is not responsible for the improper usage of the products.