

# NanoSet® HP 1907

## High Range Water Reducer and Antifreeze Chemical Admixture for High Strength Concrete

### Product Definition

NanoSet HP 1907 is a polycarboxylate based chemical admixture containing antifreeze designed for high strength concretes in cold weather conditions and ambient temperature levels close to freezing point of mixing water.

### Use

NanoSet HP 1907 is recommended for use in the applications and purposes below.

- High strength concrete pouring in cold weather conditions close to freezing point of mixing water.
- In case of sudden frost risk immediately after placing of fresh concrete.
- High strength concrete operations requiring shorter setting time.
- To increase the early strength of high strength 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.
- 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 HP 1907 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 HP 1907 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 C<sub>3</sub>S 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.

**!** Early age strength level of concrete should be determined by trial samples stored in construction site conditions prior to early demolding.

### Recommended Dosage

The recommended NanoSet HP 1907 dosage rate is 0.8% at -5 °C, %1 at -10 °C, %1.2 at -15°C by weight of cement in the concrete mixture. The optimum dosage should be determined on trial batches.

### Technical Properties

Colour and form	Brown – Liquid
Chemical base	Polycarboxylate
Density (kg/l)	1.14 – 1.18 (at +20 °C)
Chloride ion content	0.1% max - Chloride free acc. to EN 934-2.
pH	3 – 7
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 LYKSOR and may not be applicable to different concrete mixtures. All customers and users are required to determine the appropriate LYKSOR products for their intended use and to test the suitability of LYKSOR product for their application. Contact LYKSOR for the appropriate product selection and usage details. LYKSOR is not responsible for the improper usage of the products.



