**EN 934-2 TABLE: 6**

**FROST OC**

**Set accelerating admixture**

**Admixtures for concrete;** Material added during the mixing process of concrete in a quantity not more than 5 % by mass of the cement content of the concrete, to modify the properties of the mix in the fresh and /or hardened state. **Set accelerating admixture;** Admixture which decreases the time to commencement of transition of the mix from the plastic to the rigid state.

**Description**

Setting accelerant concrete admixture that speeds up setting of concrete at low temperatures/under cold weather conditions and improves early strength. Antifreeze concrete admixture that protects the concrete from freezing and ensures high-quality pouring of concrete where it is necessary to postpone pouring the concrete due to cold weather and risk of frost.

**Chemical Properties**

**EN 934-2 Çizelge 1 - General requirements**

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| **Characteristics** | **Specification** | **Test Method** |
| Homogeneity | Homogeneous when used. Segregation shall not exceed the limit stated by the manufacturer. | AY-TA.001 Visual |
| Color  | Uniform and similar to the description declared by the manufacturer. | AY-TA.001 Visual |
| Relative Density | D ± 0.03 if D > 1,10D ± 0.02 if D ≤ 1,10Where D is the manufacturer's stated value of density. | TS 781 ISO 758 |
| pH Value (20 0 C) | Manufacturer's stated value ± 1 or within manufacturer's stated range. | TS 6365 EN 1262 |
| Dry Content (%) | 0.95 T ≤ X < 1.05 T, if T ≥ 20 %0.90 T ≤ X < 1.10 T, if T < 20 %T is manufacturer's stated value % m/m.; X is test result % by mass on dry material content.  | TS EN 480-8 |
| Chloride Content (%) | Either ≤ 0.10 % by mass or not above the manufacturer's stated range. | TS EN 480-10 |
| Alkali Content (%) | Not above the manufacturer's stated maximum. | TS EN 480-12 |
| Effective Component (%) | Infrared spectra to show no significant change with respect to the effective component when compared to reference spectrum provided by the manufacturer. | TS EN 480-6 |
| Freezing Point (%) | Not above the manufacturer's stated maximum. | AY-TA.011 |
| Corrosion Behavior | Contains only components according to EN 934-1:2008, Annex A.1 |
| Dangerous Substances | Comply with annex ZA |
| Dosage | Dosage of contribution is based on the aggregate properties, water quality, concrete class, water-cement ratio and temperature of place. |
| Shelf Life | 12 Months  |

**Performance requirements**

**EN 934-2 Çizelge 6 Specific requirements for set accelerating admixtures (At equal consistence)**

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| **Essential Characteristics** | **Performance** | **Harmonised** **Technical Specification** |
| Initial setting time | At 20 °C | Test mix ≥ 30 min | EN 480-2 |
| At 5 °C | Test mix ≤ 60 % of control mix |
| Compressive strength | At 28 days | Test mix ≥ 80 % control mix | EN 12390-3 |
| At 90 days | Test mix ≥ test mix at 28 days |
| Air content in fresh concrete | Test mix ≤ 2 % by volume above control mix unless otherwise stated by the manufacturer | EN 12350-7 |

**Areas Of Application**

When pouring concrete where it is intended to protect the concrete from the frost action and ensure high early strength,

When pouring concrete is difficult under the risk of frost or when it is cold.

In ready-mix concrete, in pouring precast and prefabricated concrete.

Where it is required to speed up the setting of the concrete,

Where it is necessary to mold early or load the molds quickly,

**Properties / Advantages**

Improves the resistance of concrete to freezing under cold climatic conditions.

Used alone or together with additives during winter months.

Protects concrete from freezing.

Speeds up the setting of concrete and shortens the start and end times of the setting.

Ensures reaching the concrete strength limit (minimum 5 N/mm²) required for resistance to freezing as soon as possible and shortens this period.

Does not contain chloride or any other components that will result in corrosion of the reinforcement. Suitable for use in any reinforced concrete structures.

**Application/Warning**

Is used by adding into the mixture water of concrete or directly mixing into the fresh low-slump concrete. Should not be directly added onto the dry mixture.

After adding 60-70% of the water to be added into the mixture, Should be mixed with the remaining water and then added into the mixture.

In case of directly adding into the fresh concrete, the mixing time should be prolonged for minimum 1-2 minutes at high speed and such mixing time should be determined during laboratory tests.

In case of using the admixture in the amount exceeding the specified use range, the setting time of the concrete may be prolonged. In such cases, the concrete should be kept humid to allow for curing until it hardens.

**Points to consider when pouring concrete in cold weather:**

Aggregate, water and cement should be stored under suitable conditions to prevent the effects of cold.

Molds and reinforcements should be protected against snow, water and icing and the temperature should be adjusted to 0 ºC by wetting, if necessary.

Loss of temperature should be prevented in molds.

Concrete should not be poured at the hottest time of the day.

Suitable cement types should be selected and the dosage of the admixture should be determined.

Fresh concrete temperature must be at least between 5°C and 15°C temperatures depending on ambient temperature and concrete thickness.

**Suitability**

Suitable for use with all types of concretes with or without admixtures.

In case it is desired to use high amounts of cements, it is used along with mineral additives such as fly ash, micro silica and cinder.

In order to increase the freezing-thawing resistance, it is used together with air entraining "Aydos® Conair 100".

Steel, polypropylene and organic fibers may be used against shrinkage cracks.

It is recommended to perform tests prior to using the products.

In case of mixing with other admixtures, the performance of the product decreases. Mixing and storage equipment should be properly cleaned. Admixtures should not be stored by mixing together.

**Storage/Shelf Life**

Original, unpacked and undamaged products (drums, barrels, containers IBC) should be stored away from direct sunlight and frost at temperatures from +5ºC to +35ºC. In case the product is stored in an unsuitable environment and it freezes, the product should be thawed at ambient temperature without using direct heat and should be stirred using mechanical methods until it is homogenous. When stored under suitable conditions, the shelf life of the product is 12 months from the date of production.

**Health and Safety**

Please use protective clothing, protective gloves, full goggles and a face mask according to Occupational Health and Safety Regulation. Avoid contact with skin and eyes. In case of contact, rinse with plenty of water. In case of digestion, please seek medical attention. For transportation, storage, disposal of the product, its physical, ecological, toxicological information and other details and recommendations please refer to the Safety Data Sheet of the product.