**EN 934-2 TABLE: 8**

**RETARDER-WİNSET**

**Set retarding 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 retarding admixture;** Admixture which extends the time to commencement of transition of the mix from the plastic to the rigid state

**Description**

Concrete admixture that delays the setting as much as needed. When preferred under hot climatic conditions, it prolongs the workability duration of concrete and facilitates placements and surface finishes. It allows for continuous concrete pouring without cold joint formation. Since it slows the setting rate, it prolongs the hydration of cement with water and ensures prolonged workability by slowing the hydration temperature increases.

**Chemical Properties**

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

|  |  |  |
| --- | --- | --- |
| **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 > 1,10  D ± 0.02 if D ≤ 1,10  Where 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 Table 8 Specific requirements for set retarding admixtures (At equal consistence)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Essential Characteristics** | **Performance** | | **Harmonised**  **Technical Specification** |
| Setting time | Initial | test mix ≥ control mix + 90 min | EN 480-2 |
| Final | test mix ≤ control mix + 360 min |
| Compressive strength | At 7 days | Test mix ≥ 80 % control mix | EN 12390-3 |
| At 28 days | Test mix ≥ 90 % control mix |
| 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**

For pouring voluminous concrete (mass concrete) and preventing cold joint formation where it is necessary to transport the concrete to long distances,

Used in pouring concrete at high temperatures,

In pouring concrete with a long period of delay,

In production of concrete with thin and compact reinforcements for difficult compacting,

In production of concrete that are intended to be impervious,

Areas which will be subjected to vibration again.

In eliminating loss of viscosity due to hot, windy and humid weather.

**Properties / Advantages**

Ensures controlled prolongation of setting of concrete.

Does not have adverse effects on final strengths.

Reduces creeping and contraction.

Increases workability.

Minimizes the effects of temperature.

Reduces segregation and bleeding of concrete.

Ensures easy pumping.

Prevents the concrete from losing its viscosity fast, provides for extended viscosity protection depending on the type of cement used.

Prevents shrinkage cracks that may result from high hydration temperatures.

**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 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.

Concrete components may differ by their structures. The admixture to be added into the mixture to prevent segregation of the concrete should be applied in the suitable doses. Prior tests should be performed to check whether the admixture is suitable for the design of a certain concrete.

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.

Does not contain chloride or any other components that result in corrosion in the reinforcements. Therefore, it is suitable for use in reinforced concrete structures.

**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

At high temperatures and in case of drafts, make sure to prevent the mixture water within the concrete from evaporating. At the curing stage, curing may be used to prevent fast evaporation of the humidity within the concrete and formation of cracks.

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.

Admixtures should not be stored by mixing together.

Mixing and storage equipment should be properly cleaned.

**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.