

High range water reducing superplasticising of rheoplastic concrete Admixtre

DESCRIPTION

The basic components of **DUCONMIX ESP 100** are synthetic polymers which allow mixing water to be reduced considerably and concrete strength to be enhanced significantly, particularly at early ages. **DUCONMIX ESP 100** is a chloride free product.

RECOMMENDED USE

- Precast concrete.
- Low water/cement ratio concrete.
- In complicated formwork or with congested reinforcement

FEATURES AND BENIFITS

DUCONMIX ESP 100 allows the production of very flowable concrete, with a low water / cement ratio. Concrete with **DUCONMIX ESP 100** shows strengths higher than concrete without admixture having the same workability. The increase in strength, especially evident at early ages remains at later ages, both in air cured and steam cured processes. Initial and final sets do not change significantly with respect to concrete without admixture.

Due to the reduction in the water / cement ratio, all other properties of hardened concrete improve significantly, namely; lowered permeability, shrinkage and creep, increased workability and modulus of elasticity.

For more detailed information on the influence of superplasticisers on hardened concrete properties, consult your local representative.

PERFORMANCE TEST DATA

Color	Dark Brown Liquid
Specific Gravity	1.210 at 25°C
Chloride Content	"Chloride-Free" to EN 934
Freezing Point	0°C

COMPABILITY

DUCONMIX ESP 100 is compatible with all cements and admixtures meeting ASTM standards. The use of **DUCONMIX ESP 100** and MasterAir air entraining agent is recommended whenever concrete is required to withstand freeze / thaw cycling.

PROPERTIES

DUCONMIX ESP 100 has a different chemical structure from the traditional PCE polymer based superplasticisers. The base PCE molecule used to formulate **DUCONMIX ESP 100** was custom made using nanotechnology to enable effective dispersion with minimum hindrance to hydration process. It consists of a carboxylic ether polymer with long side chains and short main chains. At the beginning of the mixing process it initiates the same electrostatic dispersion mechanism as the traditional Hyper plasticisers, but the short main chains facilitate quick start of hydration process. Rapid adsorption of the molecule onto the cement particles, combined with an efficient dispersion effect maintains workability yet exposes increased surface of the cement grains to react with water. As a result of this effect, it is possible to obtain earlier development of the heat of hydration, rapid strength development of the hydration products and as a consequence, higher strengths at a very early age.

STANDARDS

- EN 934-2 Tables 3.1 and 3.2
- ASTM C-494 Types A and F
- BS 5075 Part 1 & 3 (superseded by EN 934-2)

DOSAGE

DUCONMIX ESP 100 is normally dispensed at a rate of 400g to 750g per 50kg of cementitious materials. Subject to successful trials, other dosages may be used up to a rate of 1.5Kg per 50kg of cementitious material.

Statement of Responsibility (Disclaimer)

The technical information and application advise are based on present state of our best scientific and practical knowledge. As the information herein of a general nature, no assumption can be made as to a products suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use.

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Direction for Use:

DUCONMIX ESP 100 should be added to the mix with the gauging water. No extension to the mixing time is necessary. Never add **DUCONMIX ESP 100** to dry cement. Alternatively, when using **DUCONMIX ESP 100** to produce flowing concrete at site using ready mix trucks, it can be added to the concrete via the feed hopper at the rear of the truck. Mix before discharge for 3 minutes at 10rpm to produce a fully homogenous mix. When using **DUCONMIX ESP 100** to obtain very high early strengths, advantage must be taken of its water reducing properties.

Effect of over dosage:

A severe over-dosage of **DUCONMIX ESP 100** will result in the following:

- Retardation of initial and final set.
- Slight increase in air entrainment.
- Increase in workability.

DISPENSING

DUCONMIX ESP 100 is introduced into the mixer together with mixing water. The plasticising effect or water reduction is higher if the admixture is added to the concrete after 50-70% of the mixing water has been added. The addition of **DUCONMIX ESP 100** to dry aggregate or cement is not recommended.

PACKAGING

DUCONMIX ESP 100 is available in 5Kg, 10Kg, 20Kg & 250Kg drums or bulk.

STORAGE/ SHELF LIFE

Store under cover, out of direct sunlight and protect from extremes of temperature. Shelf life is at least 2 years when stored as above. Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging

PRECAUTION

Care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs (which can also be tainted with vapor until product fully cured or dried). Treat splashes to eyes and skin immediately. If accidentally ingested, seek immediate medical attention. Keep away from children and animals.

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