

High early strength, high range water reducing/superplasticising, admixture for precast concrete

## DESCRIPTION

**DUCONMIX WR SP 300** is an admixture of a new generation based on second-generation polycarboxylic ether polymer with high early strength gains. **DUCONMIX WR SP 300** is free of chloride & low alkali. It's compatible with all kinds of cements.

## RECOMMENDED USE

- **DUCONMIX WR SP 300** is suitable for making precast concrete elements at all workabilities including Rheoplastic or Super Workable Concrete having fluid consistency, no segregation, a low water binder ratio and consequently high early and ultimate strengths.
- As a component of Zero Energy System.
- Concreting in cold weather.

## FEATURES AND BENEFITS

- Achieve high early strengths.
- Eliminate heat curing.
- Improve surface appearance.
- Produces Rheoplastic and Rheodynamic concretes having a low water binder ratio.
- Optimize curing cycles by reducing curing time or curing temperatures.
- Eliminate the energy required for placing, compacting & curing
- Increase productivity/ reduction in cycle time.
- Produce durable precast concrete elements.
- Improved engineering properties, compared to traditional superplasticiser such as early and ultimate compressive and flexural strengths, reduced shrinkage and low permeability.

## PERFORMANCE TEST DATA

Aspect	Light Brown Liquid
Specific Gravity	1.09 ± 0.02 at 25°C
pH	≥6
Chloride ion Content	<0.2%

## PROPERTIES

**DUCONMIX WR SP 300** has a different chemical structure from the traditional PCE polymer based superplasticisers. The base PCE molecule used to formulate **DUCONMIX WR SP 300** 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 Hyperplasticisers, 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.

## TEST CERTIFICATION/APPROVALS

- ASTM C494 Type F
- EN 934-2 T3.1/3.2
- IS 9103: 1999

## DOSAGE

Optimum dosage of **DUCONMIX WR SP 300** should be determined in trial mixes. As a guide, a dosage range of 250g to 600g per 50kg of cementitious material is normally recommended. Due to variations in concrete materials, job site conditions, and/or applications, dosages outside of the recommended range may be required.

## Over dose effects:

- Air entrainment
- Bleed/segregation of mix, quick loss of workability
- Increased plastic shrinkage

## 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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A slight overdose may not adversely affect the ultimate strength of the concrete and can achieve higher strengths than normal concrete, provided it is properly compacted and cured. Due allowance should be made for the effect of fluid concrete pressure on form work, and stripping times should be monitored.

## APPLICATION

The hyperplasticiser shall be **DUCONMIX WR SP 300** high range water reducing, high early strength gain type, Superplasticiser based on polycarboxylic ether formulation. The product shall have specific gravity of 1.09 & solids content not less than 34% by weight. The product shall comply with ASTM C494 Type F and shall be free of lignosulphonates, naphthalene salts and melamine formaldehyde when subjected to IR Spectra. **DUCONMIX WR SP 300** is a ready to use liquid which is dispensed into the concrete together with the mixing water. The plasticising effect and water reduction are higher if the admixture is added to the damp concrete after 50% to 70% of the mixing water has been added. The addition of this admixture to dry aggregate or cement is not recommended. Automatic dispensers are available. Thorough mixing is essential and a minimum mixing cycle, after the addition of the **DUCONMIX WR SP 300** of 60 seconds for forced action mixers is recommended.

## CORROSIVITY (NON CHLORIDE, NON-CORROSIVE)

**DUCONMIX WR SP 300** admixture will neither initiate nor promote corrosion of reinforcing steel embedded in concrete, prestressed concrete or concrete placed on galvanized steel floor and roof systems. Neither calcium chloride nor any calcium chloride-based ingredients are used in the manufacture of **DUCONMIX WR SP 300** admixture. In all concrete application, this admixture will conform to the most stringent or minimum

chloride ion limits currently suggested by construction industry standards and practices.

## PACKAGING

**DUCONMIX WR SP 300** is available in 5kg, 10kg, 20kg & 250kg drums or bulk.

## WORKABILITY

**DUCONMIX WR SP 300** ensures that Rheoplastic concrete remains workable in excess of 30 minutes at +25°C. Workability loss is dependent on temperature, and on the type of cement, the nature of aggregates, the method of transport and initial workability. It is strongly recommended that concrete should be properly cured particularly in hot, windy and dry climates.

## STORAGE/ SHELF LIFE

**DUCONMIX WR SP 300** must be stored where temperatures do not drop below +5°C. If product has frozen, thaw at +5°C or above and completely reconstitute using mild mechanical agitation. Do not use pressurized air for agitation. Store under cover, out of direct sunlight and protect from extremes of temperature. Shelf life is 24 months 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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