

### PCE BASED RETARDING TYPE SUPER-PLASTICIZER FOR CONCRETE & MORTAR

#### Description

ESTEEMA 2001 is a retarding type high range water reducing admixture based on modified polycarboxylic ether. The product has been specially developed for applications in ready mix and site-batched concrete, where long retention is needed. ESTEEMA 2001 allows considerable reduction of mixing water while maintaining control on extend of set retardation thus improve the compressive strength of concrete and mortar without increasing the cement content.

It makes concrete more impermeable and durable.

#### Uses

- Ready mixed concrete
- Long-distance transporting
- Pumped concrete
- High workability without segregation or bleeding
- High performance concrete for durability
- Congested/complex reinforced sections
- Mixes requiring >25% water reductions

#### Advantages

- Good dispersion even in mixes with high fines
- High workability for longer periods
- Lower pumping pressure
- Resistance to segregation even at high workability
- Suitable for high volume replacement of GGBFS or fly ash in concrete mix
- Reduced water content for a given workability
- Higher ultimate strengths
- Reduced shrinkage and creep
- Increased ease in finishing concrete
- Increased durability

#### Reaction Mechanism

ESTEEMA 2001 has a different chemical structure from the traditional superplasticisers. It is a unique combination of the latest generation superplasticisers, based on a polycarboxylic ether polymer with long lateral chains. This greatly improves cement dispersion. At the beginning of the mixing process it initiates the same electrostatic dispersion mechanism as the traditional superplasticisers, but the side chains linked to the polymer backbone generates a steric hindrance which greatly stabilizes the cement particles' ability to separate and disperse.

ESTEEMA 2001 considerably reduces the water demand in flowable concrete and improves the workability retention, as it having both the Electrostatic repulsion and Steric hindrance.

#### Characteristics

Form	: Liquid
Colour	: Light Brown to colourless
Relative Density	: $1.08 \pm 0.05$ at 25°C
pH	: Min. 6
Chloride ion content	: Nil (As per BS 5075 Part I)

#### Standard Compliance

ESTEEMA 2001 complies with IS: 9103, BS:5075 and ASTM-C-494 Type A, D & G, depending on dosage.

#### Dosage

Optimum dosage of ESTEEMA 2001 should be determined by site trials only using the materials and conditions that will be experienced in use.

However, as a guide, a dosage range of 0.2 to 2% on cementitious material is recommended.

Dosages outside of the recommended range may be required. In such cases, contact our local representative.

#### Effect of under and overdosing

Under dosages may cause lack of workability and over dosage may cause bleeding & segregation and extension of setting time.

#### Direction of use

ESTEEMA 2001 is a ready-to-use liquid admixture. For maximum dispersion throughout the mix, measured quantity of ESTEEMA 2001 should be added into the mixer at the same time as the mixing water. The plasticizing effect and water reduction will be higher when the admixture will be added to the damp concrete by adding 60 to 80% of the mixing water in it.

The addition of ESTEEMA 2001 to dry aggregate or cement is not recommended.

To impart higher workability to 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 the concrete for 5 minutes at 10 rpm to produce a fully homogenous mix, before discharge

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#### Technical Support

FCSC provides technical advisory services for on-site assistance and guidance on mix design, optimum dosage evaluation of trials.

#### Compatibility

ESTEEMA 2001 can be used with all types of cements except high alumina cement. It is compatible with ligno- sulphonates and carboxylic acid based plasticiser and retarders and also with most type of air entrainers, accelerators, viscosity modifying agent, extended set-control admixtures, corrosion inhibitors, and shrinkage reducers. Site trials should be carried out to optimize dosages.

It is not compatible with Melamine or Naphthalene based admixtures and should not be used in conjunction in the same mix.

#### Durability

Reduction in W/C ratio enables increase in density and impermeability thus enhancing durability of concrete.

#### Corrosion

It neither initiates nor promotes corrosion as it does not contain any harmful chemicals. Rather it reduces the risk of corrosion of reinforcement or other embedment, as it has high water reduction power to produce a dense impermeable concrete.

#### Packaging

ESTEEMA 2001 is supplied in 20 kg, 250 kg drums or in bulk on request.

#### Storage and Shelf life

ESTEEMA 2001 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 12 months when stored as above.

Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging.

For specific storage advice consult our local FIRSTCHOICE SPECIALITY CHEMICALS representative.

#### Safety precautions

ESTEEMA 2001 does not fall into the hazard classifications. However, it should not be swallowed or allowed to come into contact with the skin and eyes.

Suitable protective gloves and goggles should be worn. Splashes on the skin should be removed with water. In case of contact with the eyes it shall be rinsed immediately with plenty of water and medical advice sought immediately. If swallowed, medical attention shall be sought immediately - Vomiting should not be induced.

#### Fire

ESTEEMA 2001 is water based and non- flammable.

#### Cleaning of Tools

Clean all tools and application equipment with water immediately

#### Note

All Technical Data Sheets are updated on regular basis; it is the user's responsibility, to obtain the most recent issue.

Field services where provided, does not constitute supervisory responsibility, for additional information contact our local FIRSTCHOICE SPECIALITY CHEMICALS representative.

#### Disclaimer

Whilst any information contained herein is true, accurate and represents our best knowledge and experience, no warranty is given or implied with any recommendations made by us, our representatives or distributors, as the conditions of use and the competence of any labor involved in the application are beyond our control.

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