

**PCE BASED HIGH PERFORMANCE SUPER-PLASTICIZER FOR PRECAST CONCRETE**

**Description**

NIROCAST 50E Is the high performance superplasticisers based on new generation polycarboxylic ether polymers, developed using special polymer-technology. which is the ultimate solution to achieve high early strength, superior hydration, reduce drying shrinkage and cure time and maintain colour consistency of Precast Concrete Elements, especially designed for **Bigger Elements / Higher Grade of Concrete.**

It makes concrete more impermeable and durable, as it has high water reduction power.

**Uses**

- ✓ NIROCAST 50E is suitable for making any sized precast concrete elements at all workability's,
- ✓ Concrete requiring high early strength
- ✓ High ultimate strength
- ✓ Concreting in cold weather
- ✓ Mixes requiring >30% water reductions

**Advantages**

- ✓ Achieve high early strengths
- ✓ Early de-shuttering will result in increased productivity/ reduction in cycle time - save on energy costs
- ✓ Optimize curing cycles by reducing curing time or curing temperatures
- ✓ Improve surface appearance
- ✓ Minimizes damage due to early handling
- ✓ Good dispersion even in mixes with high fines
- ✓ Reduces the risk of segregation, thus making the Concrete more cohesive, pumpable and flowable.
- ✓ Produces high flow concrete having a low water cement ratio
- ✓ Better resistance to carbonation / efflorescence
- ✓ Lower permeability
- ✓ Reduced shrinkage and creep
- ✓ Increased durability

**Reaction Mechanisms**

NIROCAST 50E 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.

NIROCAST 50E considerably reduces the water demand in flowable concrete, as it having both the Electrostatic repulsion and Steric hindrance.

**Characteristics**

Form	: Liquid
Colour	: Brownish
Relative Density	: 1.08 ± 0.02 at 25°C
pH	: Min. 6
Chloride ion content	: Nil (As per BS 5075 Part I)

**Standard Compliance**

NIROCAST 50E complies with BS:5075 and ASTM-C-494 Type 'F'.

**Dosage**

Optimum dosage of NIROCAST 50E 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.

**Effects of under and overdosing**

Under dosages may cause lack of workability and over dosage may cause bleeding & segregation and increase in air entrainment.

**Direction for use**

NIROCAST 50E is a ready-to-use liquid admixture. For maximum dispersion throughout the mix, measured quantity of NIROCAST 50E 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 NIROCAST 50E 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 before discharge for 5 minutes at 10 rpm to produce a fully homogenous mix.

## Technical support

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

## Compatibility

NIROCAST 50E 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

NIROCAST 50E is supplied in 20 kg, 225 kg drums or in bulk on request.

## Storage and Shelf life

NIROCAST 50E 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 NIRMAN CHEMICALS representative.

## Safety precautions

NIROCAST 50E 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

NIROCAST 50E 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 NIRMAN 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.



**NIRMAN CHEMICALS**

### CORPORATE ADDRESS:

Flat: B4, House: 28/B, Road: 3, Banani DOHS, Dhaka - 1213.

### FACTORY ADDRESS:

Norsinghar Chor (Amtola Bazar), Noakanda, Polash, Narsingdi.

**HOTLINE:** +88 02 983 2929

**E:** [contact@nirmanchemicals.com](mailto:contact@nirmanchemicals.com)

**W:** [www.nirmanchemicals.com](http://www.nirmanchemicals.com)

**FB:** [fb.com/nirmanchemicals](https://www.facebook.com/nirmanchemicals)

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