



VARAPLAST PC 400

A HIGH PERFORMANCE CONCRETE SUPERPLASTICISER BASED ON MODIFIED POLYCARBOXYLIC ETHER

DESCRIPTION

VARAPLAST PC 400 has been primarily developed for applications in the ready mixed and precast concrete industries where the highest durability and performance is required. **VARAPLAST PC 400** is recommended for use in self compacting and high flow concrete mix designs.

Super plasticizing action of **VARAPLAST PC 400** is different than conventional super plasticizers based on sulfonated melamine and naphthalene formaldehyde condensate, which create electrostatic repulsion of particles. **VARAPLAST PC 400** initially create the same electrostatic repulsion and further stabilizes the mixes due to static repulsion of long lateral chains linked to the polymer backbone.

USES

The excellent dispersion properties of **VARAPLAST PC 400** make it the ideal admixture for precast and ready mixed concrete where low water cement ratios are required. This property allows the production of very high early and high ultimate strength concrete with minimal voids and therefore optimum density. Due to the strength development characteristics the elimination or reduction of steam curing in precast works be considered as an economical option.

ADVANTAGES

During mixing and placement

- ◆ High workability without segregation or bleeding
- ◆ Highly suitable for high flow or Self compacting concrete
- ◆ Less vibration required

- ◆ Can be placed and compacted in congested reinforcement
- ◆ Reduced labour requirement
- ◆ Improved surface finish
- ◆ Chloride free

Effect on hardened concrete properties

- ◆ Increased early and ultimate compressive strengths
- ◆ Increased flexural strength
- ◆ Higher E modulus
- ◆ Improved adhesion to reinforcing and stressing steel
- ◆ Better resistance to carbonation
- ◆ Lower permeability
- ◆ Better resistance to aggressive atmospheric conditions
- ◆ Reduced shrinkage and creep
- ◆ Increased durability

STANDARDS

VARAPLAST PC 400 is free from chlorides and complies with **ASTM C494 Types B, D and G. IS 9103 -1999 (Reaffirmed)**

TYPICAL PROPERTIES

Calcium chloride Content: Nil

Specific gravity: 1.07 to 20 °C

Air entrainment: Less than 1% additional air is Entrained.

Chloride content: Nil to BS 5075

COMPATIBILITY

VARAPLAST PC 400 is compatible with all Portland cements that meet recognized international standards.

VARAPLAST PC 400 must not be used in conjunction with any other admixture unless prior approval is received from the **AKARSH** Technical Department.

VARAPLAST PC 400 is suitable for mixes containing:

- Microsilica
- Pulverised fuel ash
- Ground granulated blast furnace slag cement

INSTRUCTIONS FOR USE

VARAPLAST PC 400 is a ready to use admixture that is added to the concrete at the time of batching.

The maximum effect is achieved when the **VARAPLAST PC 400** is added after the addition of 50 % to 70 % of the water.

VARAPLAST PC 400 must not be added to the dry materials.

Thorough mixing is essential and a minimum mixing cycle, after the addition of the **VARAPLAST PC 400**, of 60 seconds for forced action mixers is recommended.

Dosage: The normal dosage for **VARAPLAST PC 400** is between 0.5 and 1.5 kg per 100 kg of cement (cementitious material).

Dosages outside this range are permissible subject to trial mixes.

TECHNICAL SUPPORT

'**AKARSH**' provides technical support service on mix design, admixture selection, evaluation of trials, dispensing equipment etc. Please contact the Technical Department in these cases.

Curing: As with all structural concrete, normal curing methods apply.

Cleaning: Spillages of **VARAPLAST PC 400** Can be removed with water.

PACKAGING

VARAPLAST PC 400 is available in 220 kg drums and in bulk tanks upon request

STORAGE

VARAPLAST PC 400 should be protected from extremes of temperature. Should the material become frozen, it must be completely thawed and thoroughly mixed before use. **VARAPLAST PC 400** has a minimum shelf life of 12 months provided temperature is kept within the range 5° C to 30° C.

PRECAUTIONS

HEALTH & SAFETY

VARAPLAST PC 400 is non-toxic. Any splashes to the skin should be washed immediately with water. Splashes to the eyes should be washed immediately with water and medical advice should be sought.

Fire: **VARAPLAST PC 400** is non flammable.