

# CAC-Hyperfluid HES 40

## Superplasticiser for High Early Strength Concrete based on Poly-carboxylic Ether

**CAC-Hyperfluid HES 40** is a superplasticising admixture to produce high performance, high early strength concrete where the highest durability and performance is required.

### AREA OF APPLICATION:

- Precast / Pre-stressed Concrete
- High Early Strength Concrete
- High Performance Concrete
- Self Compacting Concrete
- Pumped concrete

Primary uses to obtain-

- Excellent dispersion resulting in High workability
- Increases early & ultimate strengths
- Increases Flexural strength & E-modulus
- Can be placed and compacted in congested reinforcements
- Reduced labour requirement
- Increases durability & impermeability
- Improved surface finish
- Ideal for use in Self-compacting Concrete along with **CAC-VMA**, Viscosity Modifying Admixture

### STANDARDS:

ASTM C494 – Type F  
IS 9103:1999

### METHOD OF APPLICATION:

Add 70-80% water to the concrete based on Mix Design by weight. The correct quantity of **CAC-Hyperfluid HES 40** should be measured with recommended dispenser and should be added to the concrete with remaining mixing water. Allow to

mix it for recommended mixing time. The addition of **CAC-Hyperfluid HES 40** to dry mixes or cement is not recommended.

Thorough mixing is essential and after addition of **CAC-Hyperfluid HES 40**, minimum mixing cycle of 60 seconds for forced action mixers is recommended.

### DOSAGE:

As a starting point, a dosage range of 0.5kg to 2.0kg per 100kg of cement is recommended. Optimum dosage of **CAC-Hyperfluid HES 40** should be determined in trial mixes. Please consult CAC Pvt. Ltd. Technical staff for further information.

### COMPATIBILITY:

**CAC-Hyperfluid HES 40** is compatible with all types of cements and **CAC-Retardplast** series of products. If more than one admixture is to be used in concrete, they must be dispensed separately with prior approval received from CAC Pvt. Ltd. Technical Services.

**CAC-Hyperfluid HES 40** is suitable for mixes containing:

- Micro-silica
- Pulverised Fly Ash
- Ground Granulated Blast Furnace Slag

### WORKABILITY:

**CAC-Hyperfluid HES 40** ensures that concrete remains workable in excess of 120minutes at 20°C. Workability loss is dependent on temperature, type of cement, nature of aggregates, the method of transport and initial workability.

# CAC-Hyperfluid HES 40

It is strongly recommended that concrete should be properly cured particularly in hot and dry climates.

## TECHNICAL PROPERTIES:

Appearance	Light to Dark Brown liquid
Base material	modified Poly-carboxylic Ether
Specific Gravity @25°C	1.130 ± 0.020
Chloride content	Maximum 0.2%
pH	Minimum 6

## Mechanism of action:

Conventional Superplasticiser, based on Sulphonated Naphthalene or Melamine Formaldehyde condensates, at the time of mixing getting absorbed onto the surface of cement particles. This absorption takes place at very early stage in the hydration process. The sulphonic groups of the polymer chains increases the negative charges on the surface of the cement particle and the dispersion of the cement occurs by Electrostatic Repulsion.

**CAC-Hyperfluid HES 40** is differentiated from conventional superplasticisers in that it is based on unique carboxylic ether polymer with long lateral chains. This greatly improves the cement dispersion. At the start of the mixing process the same electrostatic dispersion takes place as described above; but the presence of the lateral chains, linked to the polymer backbone, generate a Steric Hindrance which stabilizes the cement particles capacity to separate & disperse. This mechanism provides fluid concrete with greatly reduced water demand with longer retention.

The shelf life of the product is 1 year when stored as recommended.

Ver.: CAC-H-HES-40/2023

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## PACKAGING:

**CAC-Hyperfluid HES 40** is available in 250 kg drum and in tanker (9 MT) on demand.

## STORAGE:

**CAC-Hyperfluid HES 40** must be stored at above 5°C temperature. Failure to comply with recommended storage condition may result in premature deterioration of the product or packaging.

## EFFECTS OF OVER-DOSAGE:

A severe over-dosage of **CAC-Hyperfluid HES 40** will result in the following:

- Retardation of Setting Time
- Increase in workability / segregation
- Slight increase in air entrainment

## SAFETY PRECAUTIONS:

**CAC-Hyperfluid HES 40** is a non-toxic and non-flammable. When in contact with the skin, it should be washed with cold water.

## Disclaimer:

The product information & application details given by the company & its agents has been provided in good faith & meant to serve only as a general guideline during usage. Users are advised to carry out tests and take trials to ensure on suitability of products meeting their requirement prior to full scale usage of our products. Since the correct identification of the problems, quality of the other materials used and on-site workmanship are factors beyond our control, there are no expressed or implied guarantee / warranty as to the results obtained. The Company does not assume any liability or any consequential damage for unsatisfactory results, arising from the use of our products.



AN ISO 9001 CERTIFIED COMPANY