

# GLENIUM 51

New generation polycarboxylic ether hyperplasticiser for high performance concrete

## DESCRIPTION

**Glenium 51** has been primarily developed for applications in the premixed and precast concrete industries where the highest durability and performance is required.

**Glenium 51** is free from chlorides and complies with AS 1478.1 – 2000 Type HWR and ASTM C494 Types A and F.

Conventional superplasticisers, such as those based on sulphonated melamine and naphthalene formaldehyde condensates, at the time of mixing, become absorbed onto the surface of the cement particles. This absorption takes place at a very early stage in the hydration process. The sulphonic groups of the polymer chains increase the negative charge on the surface of the cement particle and dispersion of the cement occurs by electrostatic repulsion.

**Glenium 51** is differentiated from conventional superplasticisers in that it is based on a unique carboxylic ether polymer with long lateral chains. This greatly improves cement dispersion. At the start of the mixing process the same electrostatic dispersion occurs as described previously but the presence of the lateral chains, linked to the polymer backbone, generate a steric hindrance which stabilises the cement particles capacity to separate and disperse.

This mechanism provides flowable concrete with greatly reduced water demand.

## FEATURES AND BENEFITS

- *Flowable concrete with the lowest water/cement ratio without segregation or bleeding*
- *Allows reduction of curing cycles – i.e. time or temperature*
- *Possibility of elimination of steam curing*
- *Less vibration required even in case of congested steel reinforcement*
- *Less labour required*
- *Improves concrete surface finish and texture*
- *Compared to traditional superplasticisers, the addition of Glenium 51 will improve the physical properties and thus the durability of concrete*

**Glenium 51** increases:

- *Early and ultimate compressive strength*
- *Early and ultimate flexural and tensile strength*
- *E-modulus*
- *Adhesion to reinforcement and prestressed steel*
- *Resistance to carbonation and chloride ion attack of concrete*
- *Resistance to aggressive atmospheric conditions*

**Glenium 51** decreases:

- *Risk of shrinkage*
- *Creep*

## APPLICATION

The excellent dispersion properties of **Glenium 51** make it the ideal admixture for precast and premixed 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 may be considered as an economical option.

**Glenium 51** is a ready-to-use admixture to be added to the concrete mix as a separate component.

Optimal concrete plastising effect (and thus maximum water reduction) is obtained if **Glenium 51** is poured into the concrete mix right after the addition of the first 50-70% of the mixing water.

Avoid adding the admixture to the dry aggregate or sand.

**Glenium 51** is not compatible with admixtures containing melamine or naphthalene sulphonates. Contact your local BASF Construction Chemicals Technical Representative to obtain the recommended compatible admixtures.

## DOSAGE

The normally recommended dosage rate is between 0.2-0.8 litres per 100kg of cement (binder) depending on specific mix design and requirements. Other dosages may be recommended in special cases according to specific job conditions (consult your local BASF Construction Chemicals Technical Representative for advice).

## PACKAGING

**Glenium 51** is available in 200L drums and bulk.

## STORAGE

It is recommended to store **Glenium 51** in tightly closed packaging at moderate temperatures not below +5°C.

Recirculation of **Glenium 51** in bulk tanks is required prior to its actual use in concrete.

If frozen, thaw at approximately +30°C and agitate until completely reconstituted.

## SHELF LIFE

Up to 12 months if stored according to manufacturer's instructions in unopened containers.

## PRECAUTIONS

**Glenium 51** contains no hazardous substances requiring labelling. For further information refer to the Material Safety Data Sheet.



The Chemical Company

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All BASF Construction Chemicals Australia & New Zealand data sheets are updated on a regular basis, it is the user's responsibility to obtain the most recent issue AGlen51/6/0708

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