

GLENIUM 27

New generation polycarboxylic ether hyperplasticiser for high performance concrete

DESCRIPTION

Glenium 27 has been primarily developed for applications in the premixed and precast concrete industries where the highest durability and performance is required, along with extended slump retention.

Glenium 27 is free from chlorides and complies with AS1478.1 – 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 27 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.

In addition, the alkalinity created by the cement paste allows the formulation of **Glenium 27** to “open up and progressively release” additional polymer chains that prevent the early stiffening of the concrete mix. This mechanism allows considerably longer workability (slump retention) to be obtained without the retardation experienced with conventional melamine or naphthalene superplasticisers.

FEATURES AND BENEFITS

- *Flowable concrete with the lowest water/cement ratio without segregation or bleeding*
- *Excellent slump retention without retardation*
- *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 27 will improve the physical properties and thus the durability of concrete*

Glenium 27 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*
- *Slump retention*

Glenium 27 decreases:

- *Risk of shrinkage*
- *Creep*

APPLICATION

The excellent dispersion properties of **Glenium 27** 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.

The extended slump life of **Glenium 27** concrete is ideally suited to premix concrete. It allows plant dosing to occur with little or no slump loss between dosing and placement (travel time). As no extended retardation accompanies this extended work life, normal finishing times are experienced on site.

Glenium 27 is a ready-to-use admixture to be added to the concrete mix as a separate component.

Optimal concrete plasticising effect (and thus maximum water reduction) and slump retention is obtained if **Glenium 27** is poured into the concrete mix right after the addition of the first 50-70% of the mixing water. Thorough mixing is required for complete dispersion throughout the mix.

Avoid adding the admixture to the dry aggregate or sand.

Glenium 27 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 0.4-1.6 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).



The Chemical Company

GLENIUM 27

PACKAGING

Glenium 27 is available in 200 litre drums and bulk.

STORAGE

It is recommended to store **Glenium 27** in tightly closed packaging at moderate temperatures not below +5°C.

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

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 **AGlen27/6/0806**

STATEMENT OF RESPONSIBILITY

The technical information and application advice given in this **BASF Construction Chemicals** publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use.

NOTE

Field service where provided does not constitute supervisory responsibility. Suggestions made by **BASF Construction Chemicals** either orally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they, and not **BASF Construction Chemicals**, are responsible for carrying out procedures appropriate to a specific application.

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