

# GLENIUM<sup>®</sup> 110UN

## A high performance concrete superplasticiser based on modified polycarboxylic ether

### Description

GLENIUM 110 UN has been primarily developed for applications in the ready mixed concrete industry where the highest durability and performance is required.

GLENIUM 110 UN is free from chlorides and complies with ASTM C494 Types F and G.

GLENIUM 110 UN is compatible with all Portland cements that meet recognised international standards.

### Chemistry and mechanism of action of GLENIUM 110 UN

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 110 UN 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.

### Typical applications

The excellent dispersion properties of GLENIUM 110 UN make it the ideal admixture for precast and readymixed 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.

- high workability without segregation or bleeding
- less vibration required
- can be placed and compacted in congested reinforcement
- reduced labour requirement
- improved surface finish
- ideal for use in self-compacting concrete in conjunction with RheoMATRIX 110 viscosity enhancing admixture.

GLENIUM<sup>®</sup> 110 UN may be used in combination with RheoMATRIX for producing Smart Dynamic Concrete (SDC). The technology produces advanced self compacting concrete, without the aid of vibration. For economic, ecological and ergonomic ready-mix / precast concrete production.



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## Packaging

GLENIUM 110 UN is available in 210 litre drums and in bulk tanks upon request.

## 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

## Compatibility of GLENIUM 110 UN

GLENIUM 110 UN must not be used in conjunction with any other admixture unless prior approval is received from BASF Construction Chemicals Technical Services.

GLENIUM 110 UN is suitable for mixes containing:

- microsilica
- pulverised fuel ash
- ground granulated blast furnace slag cement

## Dosage

The normal dosage for GLENIUM 110 UN is between 0.4 and 1.3 litres per 100 kg of cement (cementitious material).

Dosages outside this range are permissible subject to trial mixes.

## Directions for use

GLENIUM 110 UN is a ready to use admixture that is added to the concrete at the time of batching.

The maximum effect is achieved when the GLENIUM 110 UN is added after the addition of 50 to 70 % of the water. GLENIUM 110 UN must not be added to the dry materials.

Thorough mixing is essential and a minimum mixing cycle, after the addition of the GLENIUM 110 UN, of 60 seconds for forced action mixers is recommended.

## Storage

GLENIUM 110 UN should be stored in original containers and at above 5 Centigrade. If frozen gradually thaw and agitate until completely reconstituted.

Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advices consult BASF Technical Services Department.

## Safety precautions

GLENIUM 110 UN contains no hazardous substances requiring labelling. For further information refer to the Material Safety Data Sheet.



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## Note

Field service, where provided, does not constitute supervisory responsibility. For additional information contact your local BASF representative.

BASF reserves the right to have the true cause of any difficulty determined by accepted test methods.

## Quality and care

All products originating from BASF's Dubai, UAE facility are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001, ISO 14001 and OHSAS 18001.

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**As all BASF technical datasheets are updated on a regular basis it is the user's responsibility to obtain the most recent issue.**

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