GLENIUM® 51 P

(Formerly Melcret IR 105)

A high performance concrete superplasticiser based on modified polycarboxylic ether

Description

GLENIUM 51 P has been primarily developed for applications in the ready mixed and precast concrete industries where the highest durability and performance is required.

GLENIUM 51 P is free from chlorides and complies with ASTM C494 Types A and F.

GLENIUM 51 P is compatible with all Portland cements that meet recognised international standards.

Chemistry and mechanism of action of GLENIUM 51 P

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 P 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 51 P 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.

GLENIUM 51 P can be used to produce very high early strength floor screeds. For screed mix designs consult degussa's Technical Services.

- high workability without segregation or bleeding
- less vibration required
- can be placed and compacted in congested reinforcement
- reduced labour requirement
- improved surface finish

Packaging

GLENIUM 51 P is available in 220kg. drums and in bulk tanks upon request.

Typical properties*

* Properties listed are only for guidance and are not a guarantee of performance.

Form	viscous liquid
Colour	light brown
Relative density	1.06 – 1.08 @ 20°C
pH	6.6
Viscosity	128 +/ - 30 cps @ 20°C
Transport	Not classified as dangerous
Labelling	No hazard label required

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 51 P

GLENIUM 51 P must not be used in conjunction with any other admixture unless prior approval is received form MBT Middle East Technical Services.
GLENIUM 51 P is suitable for mixes containing:

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

Dosage

The normal dosage for GLENIUM 51 P is between 0.5 and 1.6 litres per 100 kg of cement (cementitious material). Dosages outside this range are permissible subject to trial mixes.

Directions for use

GLENIUM 51 P 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 51 P is added after the addition of 50 to 70 % of the water. GLENIUM 51 P must not be added to the dry materials.
Thorough mixing is essential and a minimum mixing cycle, after the addition of the GLENIUM 51 P, of 60 seconds for forced action mixers is recommended.

Storage

GLENIUM 51 P 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 advice consult MBT's Technical Services Department.

Safety precautions

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

Note

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

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

Quality

All products produced by Degussa certified manufacturing facilities, are produced to conform to systems designed to meet internationally recognised quality standards.

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