

GLENIUM™ ACE 30

High early strength, high range water reducing/superplasticising, admixture for precast concrete

Description

GLENIUM ACE 30 is an admixture of a new generation based on second-generation polycarboxylic ether polymer with high early strength gains. GLENIUM ACE 30 is free of chloride & low alkali. It is compatible with all types of cements.

Uses

- GLENIUM ACE 30 is suitable for making precast concrete elements at all workability's including Rheoplastic or Super workable concrete having fluid consistence, no segregation, a low water binder ratio and, consequently high early and long term strengths
- GLENIUM ACE 30 may be used in combination with GLENIUM STREAM 2 for producing Rheodynamic concrete, capable of self-compaction, even in the presence of dense reinforcement with out the aid of vibration, for making precast elements.
- As an component of Zero Energy System™
- Concreting in cold weather

Advantages

- Achieve high early strengths
- Produces Rheoplastic and Rheodynamic concretes having a low water cement ratio
- Optimise curing cycles by reducing curing time or curing temperatures
- Eliminate heat curing
- Eliminate the energy required for placing, compacting & curing (Zero Energy System™)
- Increase productivity/ reduction in cycle time
- Improve surface appearance
- Produce durable precast concrete elements
- Improved engineering properties, compared to traditional superplasticiser such as early and ultimate compressive and flexural strengths, reduced shrinkage and low permeability.

Chemistry and mechanism of action

GLENIUM ACE 30 has a different chemical structure from the traditional PCE polymer based superplasticisers. The base PCE molecule used to formulate GLENIUM ACE 30 was custom made using nano-technology to enable effective dispersion with minimum hindrance to hydration process. It consists of a carboxylic ether polymer with long side chains and short main chains. At the beginning of the mixing process it initiates the same electrostatic dispersion mechanism as the traditional hyperplasticisers, but the short main chains facilitate quick start of hydration process. Rapid absorption of the molecule onto the cement particles, combined with an efficient dispersion effect maintains workability yet exposes increased surface of the cement grains to react with water. As a

result of this effect, it is possible to obtain earlier development of the heat of hydration, rapid strength development of the hydration products and as a consequence, higher strengths at a very early age.

ZERO ENERGY SYSTEM:

Zero Energy System is based on a combination of the avant-garde admixture GLENIUM ACE 30 and the innovative technology of Rheodynamic concrete. The Zero Energy System has been developed to help the precast concrete producer to rationalize his production process and save on energy costs combined with improved quality of the product and the working conditions.

Typical Properties

Aspect	: Light brown liquid
Relative Density	: 1.06 ± 0.01 at 25°C
pH	: ≥6
Chloride ion content	: < 0.2%

Standards

- ASTM C494 Types F
- EN 934-2 T3.1/3.2
- IS 9103: 1999

Specification Clause

The hyperplasticiser shall be GLENIUM ACE 30, high range water reducing, high early strength gain type, Superplasticiser based on polycarboxylic ether formulation. The product shall have specific gravity of 1.06 & solid contents not less than 30% by weight. The product shall comply with ASTM C494 Type F and shall be free of lignosulphonates, naphthalene salts and melamine formaldehyde when subjected to IR Spectra.

Direction for use

GLENIUM ACE 30 is a ready-to-use liquid which is dispensed into the concrete together with the mixing water. The plasticising effect and water reduction are higher if the admixture is added to the damp concrete after 50 to 70% of the mixing water has been added. The addition of GLENIUM ACE 30 to dry aggregate or cement is not recommended. Automatic dispensers are available.

Thorough mixing is essential and a minimum mixing cycle, after the addition of the GLENIUM ACE 30, of 60 seconds for forced action mixers is recommended.

Dosage

Optimum dosage of GLENIUM ACE 30 should be determined in trial mixes. As a guide, a dosage range of 500 ml to 1000ml per 100kg of cementitious material is normally recommended. Because of variations in concrete materials, job site conditions,

and/or applications, dosages outside of the recommended range may be required. In such cases, contact your local BASF representative.

Effects of over dosage

A severe over-dosage of GLENIUM ACE 30 can result in the following:

- Air entrainment
- Bleed/segregation of mix, quick loss of workability
- Increased plastic shrinkage

A slight overdosing may not adversely affect the ultimate strength of the concrete and can achieve higher strengths than normal concrete, provided it is properly compacted and cured. Due allowance should be made for the effect of fluid concrete pressure on form work, and stripping times should be monitored.

In the event of over dosage consult your local BASF representative immediately.

Compatibility

GLENIUM ACE 30 is compatible with most of the POZZOLITH series products including POZZOLITH 55R. Use GLENIUM STREAM 2 as viscosity modifying agent in self compacting concrete. It must not be used in conjunction with any other admixture unless prior approval is received from BASF Technical Services Department.

Corrosivity – Non Corrosive

GLENIUM ACE 30 admixture will neither initiate nor promote corrosion of reinforcing steel embedded in concrete, prestressed concrete or concrete placed on galvanized steel floor and roof systems. Neither calcium chloride nor any calcium chloride-based ingredients are used in the manufacture of GLENIUM ACE 30 admixture. In all concrete application, GLENIUM ACE 30 admixture will conform to the most stringent or minimum chloride ion limits currently suggested by construction industry standards and practices.

Workability

GLENIUM ACE 30 ensures that rheoplastic concrete remains workable in excess of 30 minutes at +25°C. Workability loss is dependent on temperature, and on the type of cement, the nature of aggregates, the method of transport and initial workability.

To achieve longer workability period please use POZZOLITH 55R as retarder or use GLENIUM SKY instead. It is strongly recommended that concrete should be properly cured particularly in hot, windy and dry climates.

The use of MASTERKURE 111CF, evaporation reducer to prevent quick moisture loss from the surface of the

flat works such as pavements in the dry, windy and hot climates is highly recommended.

Packaging

GLENIUM ACE 30 is supplied in 225 kg drums or in bulk on request.

Storage and Shelf life

GLENIUM ACE 30 must be stored where temperatures do not drop below +5°C. If product has frozen, thaw at +5°C or above and completely reconstitute using mild mechanical agitation. Do not use pressurized air for agitation. Store under cover, out of direct sunlight and protect from extremes of temperature.

Shelf life is 12 months when stored as above.

Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice consult your local BASF representative.

Safety precautions

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs (which can also be tainted with vapour until product fully cured or dried). Treat splashes to eyes and skin immediately. If accidentally ingested, seek immediate medical attention. Keep away from children and animals. Reseal containers after use. Do not reuse containers for storage of consumable item. For further information refer to the material safety data sheet. MSDS available on demand or on BASF construction chemicals web site.

Note

All BASF Technical Data Sheets are updated on regular basis; it is the user's responsibility, to obtain the most recent issue.

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

Disclaimer

Whilst any information contained herein is true, accurate and represents our best knowledge and experience, no warranty is given or implied with any recommendations made by us, our representatives or distributors, as the conditions of use and the competence of any labour involved in the application are beyond our control.

TDS Ref. No. : GlnxxA30/05/1108