

A new generation of high-performance polycarboxylate ether (PCE) superplasticizers for the Precast industry



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EN934 part 2 tables 3.1 & 3.2

Description of Product

GLENIUM[®] ACE 499 is based on newly developed polycarboxylate ether polymers. The particular molecular configuration of GLENIUM[®] ACE 499 accelerates the cement hydration by allowing an increased surface area of the cement particle to react with water. As a result, it is possible to obtain earlier development of the heat of hydration, rapid development of the hydration products and, as a consequence, higher strengths at a very early age. The polymer structure of GLENIUM[®] ACE 499 is specially designed to improve the rheology of precast concrete, making it very flowable and with low viscosity, even at very low water/cement ratios. Robustness is a distinctive feature of the precast concrete produced with GLENIUM[®] ACE 499.

ZERO ENERGY SYSTEM

The Zero Energy System is based on a combination of the latest GLENIUM[®] ACE superplasticizers and advanced self-compacting concrete technology. The Zero Energy System has been developed to help the precast concrete producer rationalize his production process and save on energy costs, whilst combining this with improved quality of the product and overall site working conditions.

Fields of Application

GLENIUM[®] ACE 499 is suitable for making precast concrete elements with highly workable, non-segregating concrete utilising low water cement ratios and, consequently, high early and final strengths. GLENIUM[®] ACE 499 may also be used in combination with products from the RheoMATRIX[®] range for producing advanced

self-compacting concrete like Smart Dynamic Concrete (SDC). This is achieved without the aid of vibration, for economic, ecological and ergonomic precast production.

GLENIUM[®] ACE 499 has been developed to have a particular synergy for use with the X-Seed[®] Crystal Speed Hardening concept.

Features and Benefits

GLENIUM[®] ACE 499 offers the following benefits for the precast concrete industry:

- Production of highly flowable, robust self-compacting concrete having a low water cement ratio along with an optimal rheology.
- Enhanced robustness and consistency in concrete quality with low stickiness.
- Environmentally friendly, CO₂ reduced mix-design optimization.
- Potential elimination or reduction of heat curing.
- Improved surface appearance.
- Durable precast concrete elements as per EN 206-1.
- Elimination of the energy required for placing, compaction and curing (ZERO ENERGY)
- Optimization of the curing cycles by reducing curing time or curing temperature. Increased productivity, particularly in combination with X-Seed[®] Crystal Speed Hardening

Technical Data/Typical Properties

Appearance	Yellow to Light Brown liquid
Specific gravity @ 20°C	1.07 ± 0.02 g/cm ³
pH-value	7.0 ± 1
Alkali content (%)	Less than or equal to 3.00

Chloride content (%)	Less than or equal to 0.10
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Directions for use

GLENIUM[®] ACE 499 is a liquid admixture that is added to the concrete during the mixing process. Optimal water reduction is obtained if the GLENIUM[®] ACE 499 is dispensed into the concrete mix after the addition of 80-90% of mixing water. Avoid adding the admixture to dry materials. After adding GLENIUM[®] ACE 499 allow enough mixing time to secure a homogenous concrete. If necessary, continue mixing and add additional GLENIUM[®] ACE 499 to obtain the required workability.

Application Procedure

Dosage

The normally recommended dosage rate of GLENIUM[®] ACE 499 is approximately:

By Volume - 0.20 to 2.50 litres per 100 kg of cement (binder) content.

For initial trial mixes we recommend dispensing at between 0.5 & 1.0 litres per 100 kg of the binder. Other dosages may be used in special cases according to specific production conditions. In this case please consult our Technical Services Department

Compatibility

GLENIUM[®] ACE 499 is compatible and recommended for use with:

- X-Seed[®] 100 – Crystal Speed Hardening Concept for accelerated early strengths
- RheoMATRIX[®] to modify the viscosity of SCC.
- RHEOFINISH[®], demoulding agents for easy formwork removal and improved finish.
- MASTERKURE[®], curing compounds for highly efficient water retention and friendly use.

GLENIUM[®] ACE 499 is **not compatible** with all admixtures of RHEOBUILD[®] series.

Packaging

GLENIUM[®] ACE 499 is available in bulk, 1000-litre IBC's or 25-litre containers.

Shelf Life

12 months if stored according to manufacturer's instructions in unopened container

Storage

GLENIUM[®] ACE 499 must be stored where the temperature does not drop below 5°C. In case of freezing, warm up and homogenise the admixture solution before using. For specific storage advice, consult BASF Construction Chemicals Technical Services Department.

Handling and Transport

No special requirements must be observed while the product is used. Protection gloves and glasses are recommended. Do not eat, drink or smoke during the application. GLENIUM[®] ACE 499 is not-flammable, non-toxic or irritant and is not subject to special transport requirements.

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Health and Safety

*For full information on Health and Safety matters regarding this product the relevant Health and Safety Data Sheet should be consulted.

The following general comments apply to all products.

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs, (which may also be tainted with vapour until the product is fully cured and dried). Treat splashes to eyes and skin immediately. If accidentally ingested, seek medical attention. Keep away from children and animals. Reseal containers after use.

Spillage

Chemical products can cause damage; clean spillage immediately.

DISCLAIMER

"BASF plc, Construction Chemicals" (the Company) endeavours to ensure that advice and information given in Product Data Sheets, Method Statements and Material Safety Data Sheets (all known as Product Literature) is accurate and correct. However, the Company has no control over the selection of its products for particular applications. It is important that any prospective customer, user or specifier, satisfies him/her-self that the product is suitable for the specific application. In this process, due regard should be taken of the nature and composition of the background/base and the ambient conditions both at the time of laying/applying/installing the material and when the completed work is to be brought into use.

Accordingly, no liability will be accepted by the Company for the selection, by others, of a product, which is inappropriate to a particular application.

Products are sold subject to the Company's standard conditions of sale and all customers, users and specifiers, should ensure that they examine the Company's latest Product Literature.