

High range water reducing/superplasticizing admixture



CE Approved – Certificate No. 0988-CPD-005
EN934 part 2 tables 3.1 & 3.2

Description of Product

GLENIUM[®] 27 is a high range water reducing admixture, based on modified polycarboxylic ether polymers. Primarily developed for the ready-mix concrete industry where slump retention, high strength and durability are required. It has a primary role in producing 'self compacting concrete'

The excellent dispersion effect makes GLENIUM[®] 27 the ideal admixture for the ready-mix concrete industry. The ability to work with a very low water/cement ratio and still obtain extended slump retention, allows for the manufacture of high quality concrete.

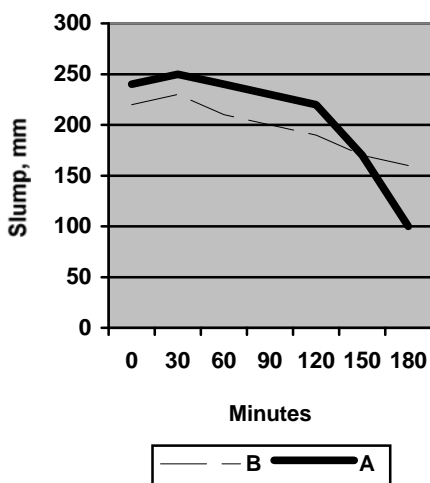


Figure 1: Typical slump retention. Concrete manufactured with GLENIUM[®] 27 according to:

- A. Water/cement ratio = 0.55; 270 kg CEM II AL 42.5 r; D_{max} = 25.4 mm; T = 30°C
- B. Water/cement ratio = 0.45; 350 kg CEM II AL 42.5 R; D_{max} = 25.4 mm; T = 25°C

GLENIUM[®] 27 complies with EN 934 part 2 and is compatible with all cements.

The chemistry of GLENIUM[®] 27

What differentiates GLENIUM[®] 27 from the traditional high range water reducing action with good workability is a new, unique mechanism of action that greatly improves the effectiveness of cement dispersion. Traditional high range water reducing like melamine and naphthalene sulphonates are based on polymers, which are absorbed by the cement particles. They wrap around the cement particles at the very early stage of the concrete mixing process. The sulphonic groups of the polymer chains increase the negative charge of the cement particle surface and disperse these particles by electrical repulsion.

This electrostatic mechanism causes the cement paste to disperse and has the positive consequence of requiring less mixing water to obtain a given concrete workability. GLENIUM[®] 27 has a different chemical structure than that of traditional high range water reducing products. It consists of a carboxylic ether polymer with long side chains.

At the beginning of the mixing process it imitates the same electrostatic dispersion mechanism as the traditional high range water reducing action, but the side chains linked to the polymer backbone generate a steric hindrance, which stabilises the particles ability to separate and disperse. With this process, flowable concrete with greatly reduced water content is obtained. The alkalinity created by the paste allows the polymers of GLENIUM[®] 27 to 'open up and progressively release' many additional polymer chains that will prevent the early flocculation or stiffening of the mix.

This mechanism allows considerably longer workability, reduction of mixing water content and higher early strengths, compared to traditional or retarding, high water reducing admixtures

Features and Benefits

- Self compacting concrete
- Rheoplastic concrete with the lowest water/cement ratio
- No segregation or bleeding
- Low vibration time required even in case of highly reinforced concrete

- Compared to traditional superplasticizers, the addition of GLENIUM[®] 27 reduces risks of retempering concrete on the job site with additional water and improves the engineering properties of concrete i.e. early and ultimate strengths modulus of elasticity; bond strength to steel, depths of carbonation, impermeability, resistance to chemical aggressive agents, shrinkage and creep

Technical Data/Typical Properties

Appearance	Brown liquid
Specific gravity @ 20°C	1.045 ± 0.02 g/cm ³
pH-value	7.0 ± 1
Alkali content (%)	Less than or equal to 2.50
Chloride content (%)	Less than or equal to 0.10

Application Procedure

Dosage

The normally recommended dosage rate is approximately:

By Volume – 0.765 to 1.913 litres per 100 kg of cement (binder).

By Mass – 0.8 to 2.0 kg per 100 kg of cement (binder).

Other dosages may be used in special cases according to specific job site conditions. In this case please consult our Technical Services Department

Mixing

GLENIUM[®] 27 is a ready-to-use admixture to be added to the concrete mix as a separate component. Optimal mixing water reduction is obtained if GLENIUM[®] 27 is poured into the concrete mix right after the addition of the first 50 – 70% of the mixing water, i.e. when all the solids are wetted.

Avoid adding the admixture to the dry aggregates.

Compatibility of GLENIUM[®] 27

GLENIUM[®] 27 is **not** compatible with all admixtures of the Rheobuild series.

In order to optimise special requirements the use of the following complementary additives is suggested:

- Air entraining agent MICRO-AIR[®] 103 to improve frost/thaw resistance
- Silica fume RHEOBUILD[®] TDS for high performance concrete (HPC) and improve durability in chemical aggressive environments
- For 'self-compacting concrete' GLENIUM[®] 27 should be used in conjunction with MEYCO[®] MS products.

Shelf Life

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

Packaging

GLENIUM[®] 27 is available in Bulk, 1000-litre IBC's and 25-litre containers.

Storage

GLENIUM[®] 27 must be stored in a place where temperature does not drop below +5°C. If product has frozen, thaw at +3°C and agitate until completely reconstituted. Store under cover, out of direct sunlight and protect from extremes of temperature. Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice, consult BASF Construction Chemicals Technical Services Department.

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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.