

Powdered high range water reducing/superplasticizing admixture



CE Approved – Certificate No. 0086-CPD-469071
EN934 part 2 tables 3.1 & 3.2

Description of Product

GLENIUM® 199 is a unique blend of powdered superplasticizers based on modified polycarboxylic ether in water soluble sachets. The product has been primarily developed for the use in the concrete industry to increase the consistency of a mix whilst maintaining the highest durability and performance.

The primary application is for subsequent addition following initial mixing. E.g. increasing/recovering the slump of a concrete following delivery WITHOUT the addition of water and so ensuring the water/cement ratio is maintained as per the design requirements.

GLENIUM® 199 complies with EN934 part 2 and is compatible with all types of cement.

3rd Generation Chemistry of GLENIUM® 199.

What differentiates GLENIUM® 199 from other generations of polycarboxylic ether is a unique mechanism of action that greatly improves the effectiveness of cement dispersion. 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® 199 has a different chemical structure from the traditional superplasticizers. It consists of a carboxylic ether polymer with long side chains.

At the beginning of the mixing process it initiates the same electrostatic dispersion mechanism as the traditional superplasticizers, but the side chains linked to the polymer backbone generate a steric hindrance, which greatly stabilises the cement particles' ability to separate and disperse.

Steric hindrance provides a physical barrier (alongside the electrostatic barrier) between the cement grains. With this process, flowable concrete with greatly reduced water content is obtained.

Fields of Application

- Subsequent recovery/increase of slump.
- Allows transportation of a lower slump mix whilst bringing the slump up to the required levels at the job site.
- Transport of a high slump mix can be avoided
- The excellent dispersion effect makes GLENIUM® 199 the ideal admixture for the high quality concrete industry.
- The ability to work with an extremely low water/cement ratio allows for the manufacture of high performance concrete with high early (18-24 hours) and final strengths. Concrete of high density, low permeability is also produced.

Features and Benefits

- GLENIUM® 199 does not require expensive dispensers or bulk storage tanks
- Flowable concrete with the lowest water/cement ratio without segregation or bleeding.
- Allows reduction of curing cycles - i.e. time or temperature.
- Allows concrete production at low temperature.
- Less vibration required even in case of congested steel reinforcement.
- Less workmanship required.
- Improves concrete surface finish and texture.
- Easily transported and stored.
- 1 year shelf life if stored in a dry, frost free conditions.

GLENIUM® 199 increases

- Initial and final compressive strength.
- Initial and final flexural and tensile strength.
- E-modulus.
- Adhesion to reinforcement and prestressed steel.
- Resistance to carbonation and chloride ion attack of concrete.
- Resistance to aggressive atmospheric conditions.

GLENIUM® 199 decreases

- Risk of shrinkage.
- Creep.

Technical Data/Typical Properties

Appearance	Light yellow powder
Uncompacted Bulk Density @ 20°C	600 kg/m ³
Alkali content (%)	Less than or equal to 10.0
Chloride content (%)	Less than or equal to 0.10

Compatibility of GLENIUM® 199

Other admixture combinations:

- Air entraining agents (such as MICRO-AIR range) to optimise frost/thaw resistance.
- Silica fume for higher density.
- Expanding agents (such as for controlled shrinkage).
- Synthetic and steel fibres.
- Curing agents against evaporation of mixing water.
- Fines contents may require increasing if the consistence level is increased to S4 or above

Application

GLENIUM® 199 is a ready to use powdered admixture in a soluble sachet that can be added to the concrete mix as a separate component.

Optimal concrete plasticizing effect (and thus maximum mixing water reduction) is obtained if GLENIUM® 199 is added into the concrete after the first 50-70% of the water has been mixed.

Avoid adding the admixture to the dry aggregate or sand. In all cases it is important to add GLENIUM® 199 first and the other admixtures subsequently.

Dosage

Glenium 199 is supplied in boxes containing 20 x 500 gram water soluble sachets. Depending on specific mix design and requirements, the normally recommended dosage rate is 0.10% - 0.50% by weight of cement.

Typically, one 500gram sachet could be used to dose from 0.5m³ to 3.0m³, depending on the increase in consistency required. The concrete should be thoroughly mixed following the addition of Glenium 199 until a uniform consistence has been achieved.

Typically – 1 sachet will increase the slump of 1.0m³, containing 260kgs to 350kgs of cementitious material from S2 to S4, depending upon aggregate type.

Other dosages may be recommended in special cases according to specific job conditions. Consult BASF Construction Chemicals Technical Services Department for advice. Trial mixes should be carried out to ensure optimum dosage and effect.

Packaging

GLENIUM® 199 is available in boxes containing 20 x 500 gram soluble sachets or in 500-kilo IBC sacks.

Shelf Life

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

Storage

GLENIUM[®] 199 must be stored in a dry place.. 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.