

MasterGlenium SKY[®] 8316

New generation high range water reducing admixture primarily developed for concrete industry where slump retention, high strength and durability are required in hot climate

MATERIAL DESCRIPTION

Master Glenium SKY 8316 is a new generation high range water reducing admixture, based on chains of modified polycarboxylic ether, primarily developed for concrete industry where slump retention, high strength and durability are required in hot climate.

The ability to work with very low water/cement ratio and still obtain extended slump retention allows for the manufacture of high quality concrete as the risk of addition of mixing.

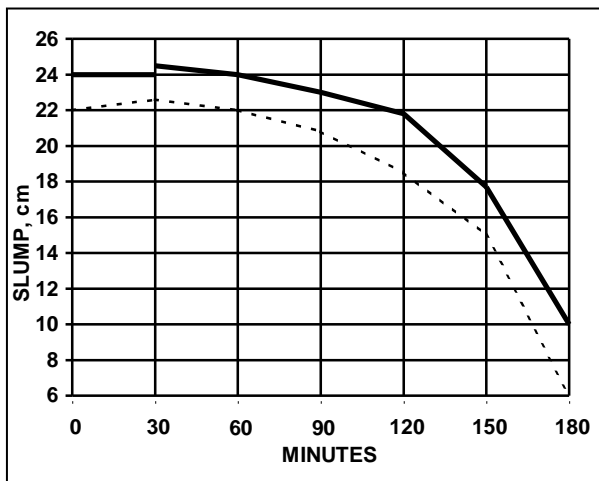


Figure 1: Typical slump retention. Concrete manufactured with **Master Glenium SKY 8316** according to:

- A. A. water/cement ratio = 0.38; 500 kg/m³ CEM
Dosage : 1.0 lt/100 kg
- B. B. water/cement ratio = 0.30; 500 kg/m³ CEM
Dosage : 1.0 lt/100 kg

Master Glenium SKY 8316 is free of chloride, meets ASTM C 494 requirements for Type A and Type F and it is also compatible with all cements meeting the ASTM standards.

THE NEW CHEMISTRY OF MASTER GLENIUM SKY 8316

What differentiates from the traditional high range water reducing 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 sulfonates are based on polymers which are absorbed

by the cement granules. They wrap around the granules

surface areas 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. Hydration however starts as soon as the cement particles get in contact with mixing water. The rapid growth of hydration crystals will change the surface mechanical of the particles and thus of set the free dispersion of them.

MasterGlenium SKY 8316 has a different chemical structure from the traditional high range water reducing. 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 high range water reducing, but the side chains linked to the polymer backbone generate a steric hindrance which greatly stabilises the cement particles ability to separate and disperse. With this process, flowable concrete with greatly reduced water content is obtained. The alkalinity created by the cement paste allows the polymers of **MasterGlenium SKY 8316** to “open up and progressively release” many additional polymers chains that will prevent the early flocculation or stiffening of the mix.

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

RECOMMENDED FOR

Master Glenium SKY 8316 is especially suitable for concrete used in the construction of precast elements which requires good workability and high early and final strengths, such as:

- Production of load bearing precast elements (e.g. bridge girders, piles, concrete housing)
- Self compacting concrete for precast concrete
- Low slump concrete
- Structures constructed using travelling forms and slip forms
- Hot weather concreting
- Insitu casting of structural elements

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BENEFITS

- Rheoplastic concrete with the lowest water/cement ratio;
- no segregation or bleeding;
- low vibration time required even in case of high reinforced concrete;
- excellent surface appearance;
- compared to traditional superplasticizers, the addition of **Master Glenium SKY 8316** reduces risks of retempering concrete on job site with additional water and improves the engineering properties of concrete like early and ultimate strengths, modulus of elasticity; bond strength to steel, depths of carbonation, impermeability, resistance to chemical aggressive agents, shrinkage and creep.

QUANTITY TO USE

The normally recommended dosage rate is approximately 0.5 – 1.5 litre per 100 kg of cementitious material. Other dosages may be recommended in special cases according to specific job site conditions (consult our Technical Service Department for advice).

DIRECTION FOR USE

MasterGlenium SKY 8316 is a ready-to-use admixture to be added to the concrete mix as a separate component. Optimal mixing water reduction is obtained if **MasterGlenium SKY 8316** is poured into the concrete mix right after the addition of the mixing water. Avoid adding the admixture to the dry aggregates.

PACKAGING & STORAGE

MasterGlenium SKY 8316 is available in 205 litre drums, IBC 1,000 L, and in bulk. **MasterGlenium SKY 8316** is not compatible with naphthalene sulphonate based superplasticizers.

SHELF LIFE

Master Glenium SKY 8316 can be stored for 6 month if stored at temperature above 0°C.

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STATEMENT OF RESPONSIBILITY

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PT Master Builders Solutions Indonesia

Jl. Jababeka V Blok I No 1, Kawasan Industrial Estate
Jababeka 1, Pasirgombong, West Cikarang,
Bekasi, West Java 17530
www.master-builders-solutions.com/en-id