MasterGlenium® 51

High Range Water Reducing Admixture for Concrete
EN 934-2 T3.1& T3.2 & T7

Material Description

MasterGlenium® 51 is a polycarboxylic ether based, high range water reducing new second generation super plasticizer concrete admixture developed for readymix concrete and precast industry that needs high early and final strengths and durability.

Areas of Application

- In the production of self consolidating and self compacting concrete.
- In the production of Rheodynamic concrete that can easily set to densely reinforced concrete elements.
- In the production of 18-24 hours and 28 days high strength concrete.
- In the production of precast and prefabricated concrete.
- In the production of readymix concrete.

Characteristics and Benefits

- Improves concrete's early and final compressive and flexural strengths, adherence to steel, and impermeability compared to traditional super plasticizers
- Enables production of high early strength concrete even in low temperatures.
- Improves concrete's mechanic properties like carbonation, resistance to chlorine ion attack, resistance to aggressive chemicals, shrinkage, and creeping.
- Enables the production of low water/cement ratio, low segregation and leaching risk Rheoplastic concrete.
- Enables production of high early strength concrete even in low temperatures.
- Minimizes stripping time.
- Improves wear resistance of concrete by reducing segregation and bleeding.
- Reduces application periods of resin based pavement systems on new concrete with its
- low water/cement ratio, high early strength and bleeding reduction properties.
- Increases Freezing-Thawing resistance of concrete.
- Reduces curing time and curing temperature in the production of precast elements.
- Can be used with all cement types. Shows less sensitivity to material differentiation.
- MasterGlenium® 51 does not contain chlorine.

The Chemistry

What differentiates MasterGlenium® 51 from the traditional high range water reducing action with good workability is a unique mechanism of action that

Technical Properties	
Structure of the Material	Modified Polycarboxylic Ether Based
Appearance	Brown Liquid
Specific gravity (20°C)	1,082 – 1,142 kg/lt
pH Value	4,0 – 7,0
Alkali Content (%)	≤ 3.00 (by mass)
Chloride Content (%)	≤ 0.10 (by mass)
Corrosion Behaviour	Contains only components according to BS EN 934-1:2008, Annex A.1
Dangerous Substances	Comply with annex AZ.

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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 particles. They wrap around the cement particles at the very early stage of the concrete mixing process. The sulfonic 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. MasterGlenium® 51 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 stabilizes 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 MasterGlenium® 51 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.

Dosage

The normally recommended dosage rate of MasterGlenium® 51 is approximately:

By Weight – 0.7 to 0.9 kg per 100 kg of cement (binder) content.

The dosage rates given above are for typical usages, they are not meant as absolute limits, as other dosages may be utilized in special cases according to specific job conditions. If required consult MBT Teknik Yapı Kimyasalları San. ve Tic. A.Ş. Division Technical Services Department for advice. Trial mixes should be carried out to ensure optimum dosage and effect. Where the concrete is to be machine finished by utilizing power float or power troweling methods, we recommend that you contact the according to specific job conditions. If required consult MBT Teknik Yapı Kimyasalları San. ve Tic. A.Ş. Technical Services Department for dosage rate guidance.

Mixing

MasterGlenium® 51 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® 51 is dispensed 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 out. Avoid adding the admixture to the dry aggregates.

Compatibility

MasterGlenium® 51 can be used with all types of **EN 197** Cements. For use with other special cements, contact our MBT Teknik Yapı Kimyasalları San. ve Tic. A.Ş. Technical Services Department. MasterGlenium® 51 should not be pre-mixed with other admixtures. If other admixtures are to be used in concrete containing MasterGlenium® 51 they must be dispensed separately.

MasterGlenium® 51 is not compatible with all admixtures of the MasterRheobuild series.

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

• Air entraining agents MasterAir® to improve frost/thaw resistance

• Silica fume for high performance concrete (HPC) and improving durability in chemical aggressive environments

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When such complimentary admixtures are required it is important that laboratory trials are performed, prior to any supply, to determine the respective dosages of any complimentary admixture, and the suitability, in the fresh and hardened state, of the resultant concrete. In these circumstances we recommend that you consult our MBT Teknik Yapı Kimyasalları San. ve Tic. A.Ş. Technical Services Department for further advice.

Packaging

MasterGlenium® 51 is supplied in Bulk, 1000-kg IBC's and 220-kg barrels and 30-kg cans.

Shelf Life

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

Storage

Store in original sealed containers and at temperatures between 5°C and 30°C. 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.

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 vapor 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

The technical information given in this publication is based on the present state of our best scientific and practical knowledge. **MBT Teknik Yapı Kimyasalları Sanayi ve Ticaret A.Ş.** is only responsible for the quality of the product **MBT Teknik Yapı Kimyasalları Sanayi ve Ticaret A.Ş.** is not responsible for results that may occur because the product is used other than advised and/or out of instructions regarding the place and the method of use. This technical form is valid only till a new version is implemented and nullifies the old ones.

Contact

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