



The Chemical Company

GLENIUM® ACE 30

Polycarboxylic Ether Based High Range Water Reducing / New Generation Super Plasticizer Admixture Working With Zero Energy System



1305-CPD-0097

Description of Product

GLENIUM® ACE 30 is a polycarboxylic ether based, high range water reducing new generation super plasticizer concrete admixture working with zero energy system developed for precast industry that needs high early and final strengths and durability*.

Consistent With the TS EN 934-2 Table 3.1, 3.2 and Table 7: High Range Water Reducing / Super Plasticizer Concrete Admixture ASTM C 494 Type F: High Range Water Reducing / Super Plasticizer Concrete Admixture Standards.

Fields of Application

- In the production of precast and prefabricated concrete.
- In the production of 18 - 24 hours and 28 days high strength concrete.
- In the production of Rheodynamic** concrete with **Glenium® Stream** that can easily set to densely reinforced concrete elements.
- In the production of non-segrating, flowable Rheoplastic*** concrete.

Technical Data

Structure of the Material	Polycarboxylic ether based
Color	Brown
Density	1.06 - 1.07 kg/liter
Chlorine Content% (EN 480-10)	< 0.1
Alkaline Content % (EN 480-12)	< 3

Obtained in +20°C, 50% relative humidity conditions



Advantages

- Enables optimization of building element production in prefabricated concrete industry with synergy created by Rheodynamic concrete (spreading 65-70 cm).
- Improves concrete's early and final compressive and flexural strengths, adherence to steel, and impermeability compared to traditional super plasticizers (NSF or MSF****).
- Improves concrete's mechanic properties like carbonation, resistance to chlorine ion attack, resistance to aggressive chemicals, shrinkage, and creeping.
- Enable the production of low water/cement ratio Rheoplastic concrete.
- Minimizes the required energy and enables maximum economy in prefabricated concrete production by reducing pouring, compaction, and curing times, and temperature.
- Enables perfect finish in form concrete.
- **GLENIUM® ACE 30** does not contain chlorine.

The Chemical Mechanism of the New Generation Super plasticizers

The special molecular structure of **GLENIUM® ACE 30** increases cement's hydration. The rapid absorption of **GLENIUM® ACE 30** molecules on cement particles, along with an effective distribution effect, helps the reaction with water by enlarging the surface of cement particles. As

Adding Value to Concrete



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a result of this effect, early hydration occurs and cement hydration products are developed in the very early stages, and obtaining early high strength is made possible.

Zero Energy System

Zero Energy System is the combination of new generation **GLENIUM® ACE 30** admixture and newly developed Rheodynamic concrete technology. It is a system that improves product quality and working conditions of prefabricated products during the production. It reduces energy costs and enable economic production.

Application Procedure

Binder (cement-micro silica-fly ash) and aggregate must be mixed until a homogenous mixture is obtained. After adding 50%-70% of the water to be added to the mixture, **GLENIUM® ACE 30** must be added to the mixture along with the remaining water. **GLENIUM® ACE 30** must be mixed for 60 sec. or for the duration determined in laboratory experiments in the mixture for a homogenous diffusion.

Dosage

GLENIUM® ACE 30 is suggested to be used as 0.5 - 1.0 kg for 100 kg 0.1 mm binder (cement-micro silica-flyash), fine aggregate and crushed sand for Rheodynamic concrete production. In Rheoplastic concrete production, it is suggested to be used as 0.8 - 1.0 kg depending on desired workability and binder type. The dosage to be used must be determined beforehand by laboratory experiments. **BASF Yapı Kimyasalları San. A.S.** Technical Service must be consulted for detailed information.

Compatibility

GLENIUM® ACE 30 can be used with the following materials:

1. **GLENIUM® ACE 30** is not compatible with other **Rheobuild®** (NSF based) series super plasticizers other than **Rheobuild® PRF 10**.

2. Can be used with all cement types.
3. Can be used with silica, flyash and slag where high binding material like Rheodynamic self-compacting concrete is needed to be used.
4. In the production of Rheodynamic concrete with **Glenium® Stream** that can easily set to densely reinforced concrete elements.
5. Can be used with air entraining **Micro Air® 200** (environment condition XF1-XF4 according to TS EN 206-1) to increase Freezing - Thawing resistance.
6. Used with **Meyco® MS 610** micro silica (environment condition XA1-XA3 according to TS EN 206-1) to improve the performance of concrete and its strength in aggressive environments.
7. Used with **Meyco® TCC 735** and **Binder® 5** to prevent shrinkage by preventing rapid losing of the water in concrete mixture.
8. Used against fissures from plastic shrinkage with synthetic fibers **Meyco® FIB. SP 530/540/550** and steel fibers.
9. In environments with high temperature and high air flow, must be used with a suitable cure material like **Masterkure® 101**, **Masterkure® 107**, **Masterkure®176** or **Masterkure® 181** to prevent the water of the mixture inside the concrete from evaporating.

Watchpoints

- Not suitable to use with **Rheobuild®** series (NSF based) admixtures.
- Concrete design and admixture dosage must be determined by prior laboratory trials according to concrete class and properties.
- The determined binder (cement-micro silica-fly ash), at the end of laboratory trials, thin and rough aggregate must be mixed until a homogenous and dry mixture is obtained. If admixture is added to the dry mixture before adding mixture water, then it will be absorbed by the mixture and uniform distribution will not be obtained. Even if all the mixture water is added on top of this, aimed concrete class and properties cannot be obtained. Since the

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mixture will need extra water, the water amount in design values will be exceeded and the concrete's mechanical properties will be below the aimed value. For this reason, concrete admixtures must not be added directly to the dry mixture.

- If **GLENIUM® ACE 30** is to be used under +15°C, then necessary precautions have to be taken in cure conditions (temperature and time) and cement doses.
- The performance of **GLENIUM® ACE 30** is reduced if it is mixed with other admixtures in other classes. So, the storing and mixing equipments have to be used after cleaning. Contact **BASF Yapı Kimyasalları San. A.S.** technical service for detailed information.

Packaging

30 kg drum.
220 kg barrel.
1000 kg tank.
Bulk

Storage

Must be stored in original packing, in +5°C environment. If the material freezes because of storing in undesirable environments, it must be thawed by keeping it in room temperature without direct heating, and mixed by mechanical methods until it becomes homogenous. Pressured air must not be used when mixing.

Shelf Life

12 months after the production date under appropriate storing conditions. Opened packages can be used throughout the shelf life if the package cover is well closed.

Health and Safety Precautions

Work cloth, protective gloves, goggles and masks concordant with Work and Worker Health rules must be used during the application. Avoid contact to skin and eyes during storing and application.

If such a contact occurs, it must be washed by soap and plenty of water. Consult a physician urgently if swallowed. Food and drink must be kept outside the application areas. Must be stored away from children. Please look at the Material Safety Data Sheet for detailed information.

()According to TS EN 206-1 environmental standard about concrete strength*

*(**)Rheodynamic Concrete: Self-leveling concrete without a need for vibration, with a low distribution (65 - 70 cm), and with low water/cement ratio.*

*(***)Rheoplastic Concrete: Although has the same water/cement ratio with the reference concrete of approximately 7 cm slump, easily flowable (20 - 22 cm slump), non-segregating concrete.*

*(****)NSF (Naphthalene Sulphonate Based Products); MSF (Melamine Sulphonate Based Products)*

Disclaimer

This information given here is true, represents our best knowledge and is based not only on laboratory work, but also on field experience. However, BASF Yapı Kimyasalları San. A.S. is only responsible from the quality of the product. BASF Yapı Kimyasalları San. A.S. cannot be hold responsible from the results caused by applications of the product not in accordance with the written suggestions of how and where to use the product and/or faulty applications. This technical document is valid until a new one is printed and abates the previous editions. 01/2008.