

# MasterGlenium ACE 442

Second generation of polycarboxylate ether superplasticizer to optimize the production of Precast concrete structural elements.

## Material description

MasterGlenium ACE 442 is an innovative second generation of polycarboxylic ether polymers superplasticizer. The particular molecular configuration of MasterGlenium ACE 442 accelerates the cement hydration. Rapid adsorption of the molecule onto the cement particles, combined with an efficient dispersion effect, exposes increased surface of the cement grains to react with water.

As a result of this effect, it is possible to obtain earlier development of the heat of hydration, rapid development of the hydration products and, as a consequence, higher strengths at very early age.

MasterGlenium ACE 442 is suitable for making precast concrete elements with Rheoplastic concrete having fluid consistence, no segregation and low water cement ratio and, consequently, high early and long term strengths.

**The use of MasterGlenium ACE 442 is recommended, in combination with MasterMatrix DSC 150 for the Smart Dynamic Concrete technology.**

MasterGlenium ACE 442 is free of chloride, EN 934-2 and it is compatible with all cements meeting the UNI EN 197-1 standards.

## Zero Energy System

Zero Energy System is based on a combination of the avant-garde admixture MasterGlenium ACE 442 and the innovative technology of Rheodynamic concrete. The Zero Energy System has been developed to help the precast concrete producer to rationalize his production process and save on energy costs combined with improved quality of the product and the working conditions.

## Benefits for Precast producer

MasterGlenium ACE 442 offers the following benefit for the precast concrete industry to:

- Produce Rheoplastic or Smart Dynamic Concrete having a low water cement ratio.

- Optimize the curing cycles by reducing curing time or curing temperature.
- Eliminate the heat curing.
- Eliminate the energy required for placing and compaction and curing (ZERO ENERGY).
- Increase productivity.
- Improve surface appearance.
- Produce durable precast concrete elements as per EN 206.

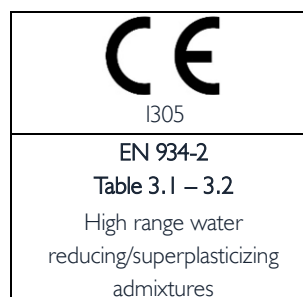
As compared to the traditional superplasticizers, the engineering properties such as early and ultimate compressive and flexural strengths, bond to steel, and modulus of elasticity, shrinkage, creep, and impermeability are improved.

## Compatibility

MasterGlenium ACE 442 is compatible and recommended for use with:

- MasterMatrix SDC 150 to produce a Smart Dynamic Concrete;
- silica fume, MasterLife MS 610, for high performance concrete and increased durability in chemical aggressive environments (exposure class XA1 to XA3, EN 206);
- demoulding agent MasterFinish for to help remove formwork and to improve the architectural finish.

In compliance with the European Regulation (EU No 305/2011 and EU No. 574/2014) the product is provided with the CE marking according to UNI EN 934-2 and the relative DoP (Declaration of Performance).



## Dosage

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The normal recommended dosage rate is 0.8 to 1.2 liters per 100 kg of binder.

For Smart Dynamic Concrete with MasterMatrix SDC 150, the advised dosage for MasterGlenium ACE 442 is 1.0 - 1.4 liters per 100 kg of the binder.

Other dosages may be used in special cases according to specific job site conditions. In such cases please consult our Technical Service Department for advice.

## Packaging and storage

MasterGlenium ACE 442 is available in 10 liter cans, 1.000 liter containers or in bulk.

MasterGlenium ACE 442 must be stored in a place where the temperature does not drop below 5°C. In case of freezing, warm up and homogenise the admixture solution before using.

| Technical Information                              |                                                                                |
|----------------------------------------------------|--------------------------------------------------------------------------------|
| Form                                               | Liquid                                                                         |
| Relative density (g/ml at 20°C)                    | 1.020 – 1.060                                                                  |
| Essential characteristic in accordance to EN 934-2 | Performance                                                                    |
| Chloride ion content                               | ≤ 0.1% by mass                                                                 |
| Alkali content (Na <sub>2</sub> O equivalent)      | ≤ 2.5%                                                                         |
| Corrosion behaviour                                | Contains component only from EN 934-1 : 2008 Annex A.1                         |
| Compressive strength                               | Equal consistence: 24h ≥ 140% 28 days ≥ 115%<br>Equal w/c ratio: 28 days ≥ 90% |
| Air content                                        | Equal consistence: ≤ 2.0 %<br>Equal w/c ratio: ≤ 2.0 %                         |
| Water reduction                                    | ≥ 12%                                                                          |
| Consistency                                        | Increase: ≥ 120 mm<br>Retention: comply 3.2 (2)                                |

## Directions for use

MasterGlenium ACE 442 is a liquid admixture to be added to the concrete during the mixing process:

- mix cement and secondary binders, sand, coarse aggregates and the mix water until a stiff, yet homogeneous, mixture is obtained,
- optimal water reduction is obtained if MasterGlenium ACE 442 is poured into the concrete mix right after the addition of the initial 80-90% of the mixing water. Avoid adding the admixture to the dry aggregates,
- add MasterGlenium ACE 442 admixture and mix again for to 60 seconds in order to disperse it homogeneously,

- continue mixing and adjust the water content to obtain the required workability.

## Compatibility

MasterGlenium ACE 442 is not compatible with all admixtures of MasterRheobuild series.

## Safety instruction

For information on the correct and safe use, transport, storage and disposal of the product, consult the most recent Safety Data Sheet.

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## Other services

For additional technical information, brochures, references, technical reports and technical support please visit [www.master-builders-solutions.com/it-it](http://www.master-builders-solutions.com/it-it) or alternatively contact [infomac@masterbuilders.com](mailto:infomac@masterbuilders.com).



Scan QR code to visit the product page and download the latest version of this technical data sheet and any additional documentation.

## Disclaimer

Since 16/12/1992, Master Builders Solutions Italia Spa has been operating under a Certified Quality System compliant with the UNI EN ISO 9001 Standard. Furthermore, the Environmental Management System is certified according to the UNI EN ISO 14001 Standard and the Safety Management System is certified according to the UNI ISO 45001 Standard.

For further information, please consult the local Technician of Master Builders Solutions. The technical advice on how to use our products, either written or verbally given, are based on the current state of our scientific and practical expertise, and does not imply the assumption of any guarantee and/or responsibility for the final results of works executed using our products.

Therefore, the customer is not exempted from the exclusive task and responsibility of verifying the suitability of our products for the intended use and purposes.

This version supersedes all the previous ones.

**Master Builders Solutions Italia Spa**  
Via Vicinale delle Corti, 21 – 31100 Treviso – Italia  
T +39 0422 429200 F +39 0422 421802  
[www.master-builders-solutions.com/it-it](http://www.master-builders-solutions.com/it-it)  
e-mail: [infomac@masterbuilders.com](mailto:infomac@masterbuilders.com)