

# MasterGlenium ACE 499

High range water reducing admixture for concrete - EN 934-2: T3.1 & T3.2

## Material Description

MasterGlenium ACE 499 is based on newly developed polycarboxylate ether polymers. The particular molecular configuration of MasterGlenium ACE 499 accelerates the cement hydration by allowing an increased surface area of the cement particle to react with water. As a result, 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 a very early age. The polymer structure of MasterGlenium ACE 499 is specially designed to improve the rheology of precast concrete, making it very flowable and with low viscosity, even at very low water/cement ratios. Robustness is a distinctive feature of the precast concrete produced with MasterGlenium ACE 499.

## Zero Energy System

The Zero Energy System is based on a combination of the latest MasterGlenium ACE superplasticizers and advanced self-compacting concrete technology. The Zero Energy System has been developed to help the precast concrete producer rationalize his production process and save on energy costs, whilst combining this with improved quality of the product and overall site working conditions.

## Fields of Application

MasterGlenium ACE 499 is suitable for making precast concrete elements with highly workable, non-segregating concrete utilising low water cement ratios and, consequently, high early and final strengths. MasterGlenium ACE 499 may also be used in combination with products from the MasterMatrix range for producing advanced self-compacting concrete like Smart Dynamic Concrete (SDC). This is achieved without the aid of vibration, for economic, ecological and ergonomic precast production.

MasterGlenium ACE 499 has been developed to have a particular synergy for use with the MasterX-Seed Crystal Speed Hardening concept.

## Characteristics and Benefits

MasterGlenium ACE 499 offers the following benefits for the precast concrete industry:

- Production of highly flowable, robust self-compacting concrete having a low water cement ratio along with an optimal rheology.
- Enhanced robustness and consistency in concrete quality with low stickiness.
- Environmentally friendly, CO<sub>2</sub> reduced mix-design optimization.
- Potential elimination or reduction of heat curing.
- Improved surface appearance.
- Durable precast concrete elements as per EN 206-1.
- Elimination of the energy required for placing, compaction and curing (ZERO ENERGY)
- Optimization of the curing cycles by reducing curing time or curing temperature. Increased productivity, particularly in combination with MasterX-Seed Crystal Speed Hardening

## Dosage

The normally recommended dosage rate of MasterGlenium ACE 499 is approximately:

- *By Volume* - 0.19 to 1.12 litres per 100 Kg of cement (binder)
- *By Mass* - 0.20 to 1.20 kg per 100 Kg of cement (binder)

For initial trial mixes we recommend dispensing at between 0.5 & 1.0 litres per 100 kg of the binder. The dosage rates given above are for typical usages, they are not meant as absolute limits, as other dosages may be utilised in special cases according to specific job conditions. If required consult our Technical Services Department for advice.

## Mixing

MasterGlenium ACE 499 is a liquid admixture that is added to the concrete during the mixing process. Optimal water reduction is obtained if the MasterGlenium ACE 499 is



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dispensed into the concrete mix after the addition of 80-90% of mixing water. Avoid adding the admixture to dry materials. After adding MasterGlenium ACE 499 allow enough mixing time to secure a homogenous concrete. If necessary, continue mixing and add additional MasterGlenium ACE 499 to obtain the required workability.

## Compatibility

MasterGlenium ACE 499 can be used with all types of EN 197 Cements. For use with other special cements, contact our Technical Services Department.

MasterGlenium ACE 499 should not be pre-mixed with other admixtures. If other admixtures are to be used in concrete containing MasterGlenium ACE 499 they must be dispensed separately.

MasterGlenium ACE 499 is compatible and recommended for use with:

- MasterX-Seed - Crystal Speed Hardening Concept for accelerated early strengths
- MasterMatrix to modify the viscosity of SCC.
- MasterFinish, demoulding agents for easy formwork removal and improved finish.
- MasterKure, curing compounds for highly efficient water retention and friendly use.

MasterGlenium ACE 474 is not compatible with all admixtures of MasterRheobuild series.

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 Technical Services Department for further advice.

## Packaging

MasterGlenium ACE 499 is available in Bulk, 1000-litre IBC's and 15-litre containers.

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| Product Data                 |                                                                                                                                                                                                                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Appearance:                  | Yellow liquid                                                                                                                                                                                                                                                                                  |
| Specific gravity @ 20°C:     | 1.07 ± 0.02 g/cm <sup>3</sup>                                                                                                                                                                                                                                                                  |
| pH-value:                    | 7.0 ± 1                                                                                                                                                                                                                                                                                        |
| Alkali content (%):          | ≤ 1.00 by mass                                                                                                                                                                                                                                                                                 |
| Chloride content (%):        | ≤ 0.10 by mass                                                                                                                                                                                                                                                                                 |
| Corrosion behaviour:         | Contains only components according to BS EN 934-1:2008, Annex A.1                                                                                                                                                                                                                              |
| Air Content:                 | Fulfilled                                                                                                                                                                                                                                                                                      |
| Water reduction:             | ≥ 112% of Reference mix                                                                                                                                                                                                                                                                        |
| Increase in consistence:     | Increase of ≥ 120mm from initial slump or ≥ 160mm from initial flow                                                                                                                                                                                                                            |
| Retention of consistence:    | At 30 mins ≥ Reference mix at initial                                                                                                                                                                                                                                                          |
| Compressive strength:        | Fulfilled                                                                                                                                                                                                                                                                                      |
| Durability:                  | NPD                                                                                                                                                                                                                                                                                            |
| Dangerous substances:        | NPD                                                                                                                                                                                                                                                                                            |
| Logistics                    |                                                                                                                                                                                                                                                                                                |
| Shelf life:                  | 12 months if stored according to manufacturer's instructions in unopened container.                                                                                                                                                                                                            |
| Storage conditions:          | 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. |
| Handling and transportation: | Refer to MasterGlenium ACE 499 Safety Data Sheet                                                                                                                                                                                                                                               |
| Disposal:                    | Refer to MasterGlenium ACE 499 Safety Data Sheet                                                                                                                                                                                                                                               |

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## DISCLAIMER

MasterGlenium ACE 499, Master Builders Solutions UK Ltd, Version 6

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.

**Health and Safety:** \*For full information on Health and Safety matters regarding this product the relevant Health and Safety Data Sheet should be consulted. **Spillage:** Chemical products can cause damage; clean spillage immediately.

**DISCLAIMER:** "Master Builders Solutions UK Ltd" (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.

**UK  
CA**

**0086-CPR-469071**

**CE**

**2792-CPR-2797**

**I0**

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Declaration of Performance can be found at:  
[www.master-builders-solutions.com/en-gb](http://www.master-builders-solutions.com/en-gb)

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