

PRODUCT DATA SHEET

Sika® ViscoCrete® ACE 450

High Range Water Reducing Admixture For Concrete

DESCRIPTION

Sika® ViscoCrete® ACE 450 is optimized for use where the time between concrete mixing & placing is rapid, such as when using bucket skips or direct discharge from mixer to unit. In this instance, the workability life of the concrete is optimized to give a balance between the retention of the workability but still enabling the strength development process to start as soon as possible. If utilized in conjunction with our patented Sika® Rapid® concept this enables rapid mold turn round and can reduce or even eliminate the need for enhanced temperature curing regimes. The particular molecular configuration of Sika® ViscoCrete® ACE 450 accelerates the cement hydration by allowing an increased surface area of the cement particle to react with water. Robustness and controlled retention is a distinctive feature of the precast concrete produced with Sika® ViscoCrete® ACE 450

USES

Sika® ViscoCrete® ACE 450 is suitable for making precast concrete elements with highly workable, non-segregating concrete utilizing low water cement ratios and, consequently, high early and final strengths. This can be achieved without the aid of vibration, for economic, ecological and ergonomic precast production. Sika® ViscoCrete® ACE 450 has been developed to have a particular synergy for use with the Sika® Rapid® hardening concept.

CHARACTERISTICS / ADVANTAGES

Sika® ViscoCrete® ACE 450 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 and optimized workability retention times.
- Enhanced robustness and consistency in concrete quality with low stickiness.
- Environmentally friendly, CO2 reduced mix-design optimization.
- Potential elimination or reduction of heat curing. Reduction in curing time or curing temperature. Increased productivity particularly in combination with Sika® Rapid® series hardening.
- 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.

SUSTAINABILITY

The Zero Energy System is based on a combination of the latest Sika® ViscoCrete® 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.

APPROVALS / CERTIFICATES

TS EN 934-2 : T3.1 & T3.2 & T7

PRODUCT INFORMATION

Composition	Modified Polycarboxylic Ether Based
Packaging	1000 Litre IBC's and 200 Litre drums.
Appearance / Colour	Transparent
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.
Density	1.069- 1.109 kg/lit at 20°C
pH-Value	5,0 - 7,0
Total chloride ion content	≤ 0.10 (by mass)

TECHNICAL INFORMATION

Specific advice	Sika® ViscoCrete® ACE 450 is a liquid admixture that is added to the concrete during the mixing process. Optimal water reduction is obtained if the Sika® ViscoCrete® ACE 450 product is dispensed into the concrete mix after the addition of 70-90% of mixing water. Avoid adding the admixture to dry materials. After adding Sika® ViscoCrete® ACE 450 allow enough mixing time to secure a homogenous concrete. If necessary, continue mixing and add additional Sika® ViscoCrete® ACE 450 to obtain the required workability. Workability levels will start to decrease rapidly after 15 to 30 minutes from mixing (temperature & cement type depending).
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APPLICATION INFORMATION

Recommended dosage	<p>The normally recommended dosage rate of Sika® ViscoCrete® ACE 450 is approximately;</p> <ul style="list-style-type: none">• By Weight – 0.2 to 2.5 kg per 100 kg of cement (binder) content. <p>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 Sika Yapı Kimyasalları A.Ş. 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 Sika Yapı Kimyasalları A.Ş. Technical Services Department for dosage rate guidance.</p>
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SYSTEMS

Compatibility	<p>Sika® ViscoCrete® ACE 450 can be used with all types of EN 197 Cements. For use with other special cements, contact our Sika Yapı Kimyasalları A.Ş. Technical Services Department. Sika® ViscoCrete® ACE 450 should not be pre-mixed with other admixtures. If other admixtures are to be used in concrete containing Sika® ViscoCrete® ACE 450 they must be dispensed separately.</p> <p>Sika® ViscoCrete® ACE 450 is compatible and recommended for use with;</p> <ul style="list-style-type: none">▪ Sika® Rapid® series - Hardening Concept for accelerated early strengths▪ Sika® Stabilizer® to modify the viscosity of SCC.
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- Sika® Separol® series demoulding agents for easy formwork removal and improved finish.
- Sika® Antisol®, curing compounds for highly efficient water retention and friendly use.

Sika® ViscoCrete® ACE 450 is not compatible with all admixtures of Sika-ment® 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 Sika Yapı Kimyasalları A.Ş. Technical Services Department for further advice.



BASIS OF PRODUCT DATA

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

ECOLOGY, HEALTH AND SAFETY

For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.

LOCAL RESTRICTIONS

See Legal notes

LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

Sika Tanzania Construction Chemicals Limited

Plot No. 135
Mbezi Industrial Area, Kinondoni
P.O Box 7079 Dar es Salaam
Tanzania
Phone: +255 699 784 926



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