

PRODUCT DATA SHEET

SikaTard® HCA 50

Cement hydration control system for wet and dry sprayed concrete, grouting and cement injection

DESCRIPTION

SikaTard® HCA 50 is a high quality, liquid, non-chloride chemical admixture which controls the dynamics of cement hydration. It delays hydration by suspending the hydration process and enabling re-activation hours or even days later with no loss of quality in the hardened sprayed concrete. When dispensed into wet or dry mixes at the batching plant it fully stabilizes the hydration process by forming a protective barrier around the cement particles. **SikaTard® HCA 50** can be used with all types of cement minerals (C3S, S3A, C2S, C4AF and gypsum).

In order to re-activate the hydration process and accelerate the strength gain in mixes stabilized with **SikaTard® HCA 50**, [Sika Sigunit alkali-free accelerator](#) is added at the nozzle or injection point.

USES

- Tunneling and mining.
- Temporary and permanent support.
- Slope stabilization.
- Annulus grouting (TBM).
- Cementitious injection systems.

CHARACTERISTICS / ADVANTAGES

With the use of SikaTard® HCA 50, wet and dry concrete mixes can be kept workable for up to 3 days.

This provides considerable benefits in the batching and utilization of the concrete.

- Fully flexible delivery options for sprayed concrete mixes.
- No cleaning of pumps or pipes during work interruptions.
- Complete use of wet and dry mixes – no waste disposal.
- Time and cost saving.

In addition to these benefits related to its function as a hydration control system, it also provides considerable reduction of rebound and dust.

PRODUCT INFORMATION

Packaging	SikaTard® HCA 50 is available in 20L, 210 litre drums, 1000 litre IBCs or in bulk.
Appearance / Colour	Clear liquid
Shelf Life	If stored in tightly closed original containers and under the correct storage conditions, it has a shelf life of at least 12 months.
Storage Conditions	Minimum storage temperature for SikaTard® HCA 50 is +1°C. If it has frozen, thaw and completely reconstitute with a mild mechanical agitation. Do not use pressurized air for agitation. Please contact your local Sika representative prior to the use of any products that have frozen. The maximum storage temperature for SikaTard® HCA 50 is +60°C. Performance tests should always be carried out prior to use.

Density	1.080 -1.140
pH-Value	1.0 – 2.0
Total Chloride Ion Content	<0.1%

TECHNICAL INFORMATION

Concreting Guidance

Wet-mix sprayed concrete:

Premix aggregates with cement and one half of the mixing water. Under continuous mixing, add SikaTard® HCA 50 and a high-performance superplasticizer, premixed with the second half of the mixing water, or after all the water has been added. Normal mixing time is sufficient. To avoid slump loss, the recommended minimum water content is 200 l/m³. In the event of unexpected delays, a later addition of 0.2 – 1 % of SikaTard® HCA 50 is possible to prolong storage time for a few hours.

Dry-mix sprayed concrete:

Premix aggregates with cement. The water content should be between 3 and 6%. Slowly add manually or with a dosing device the necessary quantity of SikaTard® HCA 50 under constant mixing and continue to mix for 2 to 3 minutes. If evenly distributed over dry-mix material (e.g. by spraying), mixing time can be reduced. The addition of SikaTard® HCA 50 to the fresh mix is ideal. However, it can be added until up to 30 minutes after mixing of the dry-mix material without any problems.

Concrete Mix Design

TYPICAL WET MIX DESIGN FOR AN OPEN TIME OF 4 TO 6 HOURS

Ordinary Portland Cement = **400 kg/m³**

Microsilica = **30 kg/m³**

Aggregate 0 - 8mm = **1710 kg/m³**

SikaTard HCA 50 = **0.5 - 2.0 kg**

Sika ViscoCrete Superplasticiser = **2.4 - 6.0 kg**

Water / binder ratio = **0.45**

APPLICATION INFORMATION

Recommended Dosage

The dosage ranges from **0.6% bwc for approx. 3 hours** of maintained workability.

The dosage can be increased upto **2% bwc for approx. 72 hours** of maintained workability.

Dosage indicated in this data sheet is only to be used as a guideline. To obtain accurate dosage rates, field tests have to be done with cement and aggregates under local conditions. It is recommended that you consult your local Sika Technical representative.

Normal recommended dosage of SikaTard® HCA 50 varies between:

0.2% - 1% by weight of cement. The required dosage depends on:

- type of cement used
- w/c ratio
- ambient and concrete temperature
- targeted open time

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

SikaTard® HCA 50 is an irritant fluid. Contact with skin and eyes must be avoided. It is essential that safety glasses and rubber gloves are worn during handling. In case of contact with eyes or skin, flush immediately with plenty of water and seek medical advice. For further information, see the Material Safety Data Sheet.

LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

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.

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