

VELOSIT[®] CA 112

Crystalline Waterproofing Admixture

DATA SHEET



HYCHEM

velosit

VELOSIT CA 112 is a crystalline waterproofing admixture for concrete. It is very economic and easy to apply. VELOSIT CA 112 creates a crystalline structure inside the concrete reducing the amount and diameter of the capillary pores. Treated concrete is able to self-heal static cracks up to 0.5 mm.

VELOSIT CA 112 is a powder admixture that initiates a crystalline reaction in concrete. The reaction takes place with the free lime of the concrete and creates a permanent reduction of water permeability.

VELOSIT CA 112 is the result of many years in the field testing and research. VELOSIT CA 112 is a crystalline waterproofing admixture for concrete.

TYPICAL APPLICATIONS

- Waterproof concrete for basements and below grade parking structures
- Waterproofing of potable water structures
- Waterproofing of sewage structures
- Waterproofing of tunnels and pipelines
- Slab waterproofing
- Waterproofing of elevator pits
- Waterproofing of shotcrete

PROPERTIES

- Self healing properties of treated concrete of up to 0.5 mm static cracks
- Waterproof up to 16 bars in properly formulated mix designs
- Easy to mix
- Increased final strength
- Little influence on concrete setting and strength development
- Increased resistance against aggressive media with a pH range of 3 - 12 and against soft water with low ion content
- Does not effect rebar passivation
- Potable water approved
- Fast air release with minimal requirement for agitation

TECHNICAL DETAILS

Color	gray
Density	1.1 kg/l
Water impermeability acc. EN 12390-8	Positive side: 16 bar (232 psi) Negative side: 16 bar (232 psi)
Compressive strength compared to untreated concrete*	7 days: + 2 % 28 days: + 3 %
Self-healing of static cracks	max. 0.5 mm
Chloride ions	< 0.05 %
*Concrete mix design	Wesersand 0/2 (Sand): 670 kg/m ³ Weserkies 2/8 (Aggregate): 750 kg/m ³ Weserkies 8/16 (Aggregate): 700 kg/m ³ water: 139.5 l per m ³
w/c = 0.45	3.49 kg / m ³

APPLICATION GUIDELINES

Concrete requirements

Waterproof concrete requires several measures to ensure a dense structure.

Cement: VELOSIT CA 112 can be used with most CEM I - III R and N (ASTM Type I - V) cements. Only cement types with more the 50% pozzolanic content are not suitable. Cement content must be at least 280 kg/m³.

Fly ash: Total fly ash must be less than 50 % of the cement content.

Water: potable water quality with a maximum dosage of 55 % on cement content (water/cement ratio < 0.55).

Pozzolans: Pozzolanic additives like Microsilica or slag should be avoided as they compete with VELOSIT CA 112 for the available lime.

Aggregates and sand: Ensure a proper sieve curve according to good concreting practice as outlined for example in the ACI guidelines.

Admixtures: VELOSIT CA 112 is compatible with most concrete admixtures.

For compatibility of VELOSIT CA 112 trial mixes are strongly recommended.

Rebar: Amount and layout of reinforcement must be planned to minimize the risk of crack development. The rebar design is not influenced by the use of VELOSIT CA 112.

Processing

The dosage depends on the amount of mixing water including aggregate moisture in the batch mix. Add 1.8 % VELOSIT CA 112, i.e. 1.8 kg per 100 liter. In a typical 300 kg cement per m³ with a water/cement ratio of 0.45 this equals a dosage of 0.8 % of Cement/Cementitious content.

a.) Batch-plant: Add VELOSIT CA 112 together with the aggregates. Use normal mixing procedure.

b.) Concrete truck: Add VELOSIT CA 112 into the drum when the truck arrives at the job site. Mix for 8 min. at high speed before pumping. Trial mixes with the concrete mix design are strongly recommended for this application.

c.) Site mixes: Concrete mixed in small tumbler mixers can also be improved with VELOSIT CA 112. As the mixing intensity is lower, we recommend producing a slurry of VELOSIT CA 112 with 100 - 200 % water to ensure proper mixing results.

Placing

Concrete can be placed as specified. Take special care of the compaction by properly vibrating the placed concrete. Install joint waterproofing solutions for example VELOSIT WS 801 in any cold joints or construction joints.

Curing

Follow standard curing procedures for the site conditions. Take the required steps by either water curing as specified or applying a curing compound.

COVERAGE

Dosage per m³ (yd³) concrete

Water Cement	40 %	45 %	50 %	55 %
280 kg/m ³	2.02 kg	2.27 kg	2.52 kg	2.77 kg
310 kg/m ³	2.24 kg	2.51 kg	2.79 kg	3.07 kg
340 kg/m ³	2.45 kg	2.76 kg	3.06 kg	3.36 kg
370 kg/m ³	2.66 kg	3.00 kg	3.33 kg	3.66 kg

CLEAN UP

VELOSIT CA 112 can be removed in the fresh state with water. Once it has cured acidic cleaners like muriatic acid are required.

PACKAGING

20 kg watertight plastic bags.

STORAGE

In unopened original packs for 12 months at 5 - 35 °C (40 - 95 °F) in a dry storage place protected against sunlight.

SAFETY

Please observe the actual valid material safety data sheet and follow the described safety measures for handling of the product.

NOTE: Customer responsibility

The technical information and application advice given here is based on the best information available at the time of print. As the information herein is of a general nature, no assumption can be made as to the products suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by Commonwealth or State Legislation.

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If unsure contact Hychem for further technical advice before proceeding.

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