VELOSIT® CW 111

High Strength Crystalline Waterproofing slurry

Application fields

VELOSIT CW 111 is a crystalline waterproofing slurry for concrete substrates. It is very economic and easy to apply. VELOSIT CW 111 becomes part of the concrete and creates a waterproof layer inside the concrete itself. It is especially strong against negative side water pressure. Typical application fields besides others are as follows:

- Waterproofing of basements and below grade parking structures
- Waterproofing of potable water structures
- Protection of dams and spill-ways
- Waterproofing of sewage structures
- Waterproofing of tunnels and pipelines
- Slab waterproofing (dry shake application)
- Waterproofing of elevator pits

Properties

VELOSIT CW 111 is a crystalline waterproofing slurry with unsurpassed strength development.

VELOSIT CW 111 cures a lot faster than the current standard products eliminating the need for days of water curing and protection. VELOSIT CW 111 creates a reactive layer inside the concrete that allows the structure to self-heal shrinkage cracks under contact with water.

VELOSIT CW 111 surpasses the requirements of EN 1504-3 for concrete repair (CR) and can be used according to the principles 3.1 and 3.3 acc. to EN 1504-9.

VELOSIT CW 111 can be applied by brush, dry-shake or suitable spray equipment.

- Self healing properties of up to 0.4 mm static cracks
- Unsurpassed strength development with more than 20 MPa (2900 psi) after 24 h and more than 50 MPa (7250 psi) after 28 days
- Open to foot traffic after 4 hours
- Extreme adhesive strength (concrete failure)
- Shrinkage compensated, no spider-web cracking
- Water curing only under hot and dry conditions required for 4 hours

- Good resistance against aggressive media with a pH range of 3-12 and against soft water with low ion content
- Good weathering resistance
- Potable water approved
- Good sulfate resistance

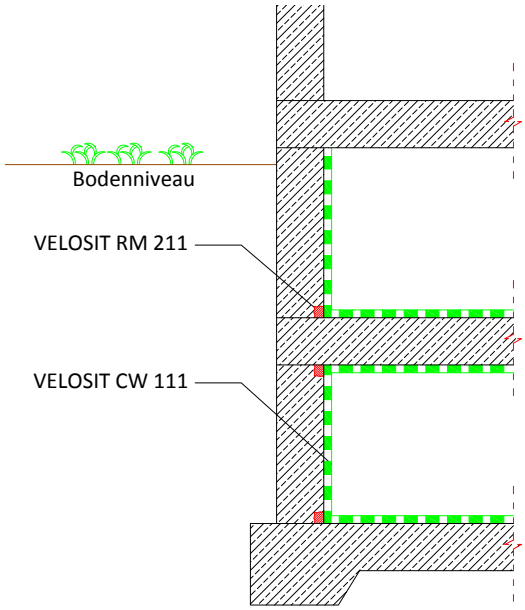
Application

1.) Substrate preparation

VELOSIT CW 111 can only be used on concrete substrates.

a.) Hardened concrete must be prepared with sand blasting, shot blasting or ideally high pressure water blasting (>100 bar/1450 psi) to remove all bond breaking substances. Substrate must be pore open and load bearing. The minimum requirement for adhesive strength is 1 MPa (145 psi) and for the compressive strength 20 MPa (2900 psi). Active water leaks must be treated and fully stopped with VELOSIT PC 221. Leaking cracks need to be sealed with a PU injection material. Fill all blowholes, honeycombs or other surface defects with VELOSIT RM 211. Before the application of VELOSIT CW 111, dampen the substrate with clean water to a saturated surface dry (SSD) condition.

b.) Cold joints can be treated by chiseling out approx. 5 cm (2“) concrete in a U shape around the joint. Fill the opening with VELOSIT RM 211 and finish with VELOSIT CW 111.



c.) Fresh concrete can be treated with VELOSIT CW 111 in a dry-shake application. The concrete must have sufficiently stiffened that a helicopter trowel can work on it. Do not use any curing compounds or other bond breaking materials before applying VELOSIT CW 111.

2.) Processing

a.) Brush application: Mix VELOSIT CW 111 with 22–23 % potable water, i.e. 5.50 – 5.75 l (1.45 – 1.5 gal.) water per 25 kg (55 lb.) bag. Fill the complete mixing water into a suitable bucket and mix the powder with a slow speed drill (300 – 600 rpm) into the water until a lump-free mix with a consistency of an oil paint is achieved. With hard water (high Calcium content) a slight false setting within the first 2 min. after mixing is possible. In such case, re-mix for another 30 seconds. Do not add water!
The product is workable for 30 – 45 min. at 23 °C. Apply the first coat with a masons brush in crossing applications to the pre-dampened substrate at the specified rate. The second coat must be applied within the recoat time, which is 60 – 90 min. at 23 °C. If too much time elapses after application of the first coat, a reduced bond between the layers may be the result.

b.) Spray application: Use suitable spray machines such as:
- Inotec GmbH: INOMAT-M8
- HighTech GmbH: HighPump Small
- Desoi GmbH: Desoi SP-Y

Prepare the product as described for the brush application under a.). The water addition may be reduced slightly to get a more thixotropic mix. Fill the product into the feed hopper of the spray machine and spray continuously. If less water is used the whole specified amount of VELOSIT CW 111 may be applied in one lift. Otherwise spray in two layers with a wait time of approx. 30 min. between coats. Long spray

interruptions may result in clogging of the spray hose. The product may cure a lot faster if

the hose is exposed to direct sunlight. Always empty and flush the machine after spraying or before long spray interruptions. VELOSIT CW 111 is a fast curing material and may be hard to remove if left in the machine.

c.) Dry-shake application: VELOSIT CW 111 can be applied in powder form onto fresh concrete before finishing the surface. The product is applied uniformly onto the concrete and then finished with a helicopter trowel. Make sure that the trowel forces sufficient moisture to the surface to completely wet and embed the powdered VELOSIT CW 111.

3.) Curing

VELOSIT CW 111 does not require long term curing as it reacts relatively fast with water. Only under hot weather or very dry conditions water curing for 3 – 4 hours is required.
Please consider for the dry shake application that the concrete may require curing. Take the required steps by either water curing as specified or applying a curing compound.

Estimating

Waterproofing concrete:
Brush application

1st coat VELOSIT CW 111:	0.8 kg/m²
2nd coat VELOSIT CW 111:	0.7 kg/m²

Spray application

VELOSIT CW 111:	1.5 kg/m²

Dry-Shake application

VELOSIT CW 111:	1.2 kg/m²

Cleaning

VELOSIT CW 111 can be removed in the fresh state with water. Once it has cured acidic cleaners like muriatic acid are required.

Quality features

Color:	gray
Mixing ratio by weight:	100 : 23
Mixing ratio by volume:	100 : 28
Density:	1.2 kg/l
Substrate temperature:	5 – 35 °C (40 – 95 °F)
Service temperature:	-18 – 97 °C (0 - 207 °F)

Water impermeability acc. EN 12390-8:

- Positive side:	13 bar (190 psi)
- Negative side:	13 bar (190 psi)

Compressive / flexural strength:

4 hours:	8 / 1 MPa (1160/145 psi)
24 hours:	21 / 4 MPa (3045/580 psi)
7 days:	35 / 5 MPa (5075/725 psi)
28 days:	51 / 7 MPa (7395/1015 psi)

Chloride ions:	< 0.05 %
Carbonation resistance:	passed
Capillary water absorption:	0.4 kg/m² x $h^{0,5}$
Adhesive strength: (concrete failure)	2.8 MPa (406 psi)
Restrained shrinkage: (concrete failure)	2.8 MPa (406 psi)
Fire rating EN13501-1:	Class A1

Packaging

VELOSIT CW 111 is available in 25 kg (55 lb.) watertight plastic bags.

Storage

VELOSIT CW 111 can be stored 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.

Used product containers must be emptied completely after use. They can be returned to VELOSIT GmbH & Co. KG on request.

Recommendations

VELOSIT CW 111 is only available for professional applicators.

The crystalline waterproofing principle requires several days of water contact to develop its full effect.

VELOSIT CW 111 may discolor or show strong efflorescence in water contact. This is normal and caused by the crystalline reaction.

All described product features are determined under controlled laboratory conditions according to the relevant international standards. Values determined under job site conditions may deviate from the stated values.

Please always use the latest version of this data sheet available from our website www.velosit.de.

CE

VELOSIT GmbH & Co. KG
Industriepark 7
D-32805 Horn-Bad Meinberg
19
VELOSIT CW 111

DIN EN 1504-3
Product for Structural and non structural repair for concrete

Compressive strength	R3
Chloride ion content	≤ 0.05 %
Adhesive bond	≥ 1.5 MPa
Restrained shrinkage/ expansion	NPD
Reaction to fire	E

Manufacturer

VELOSIT GmbH & Co. KG
Industriepark 7
32805 Horn-Bad Meinberg
Germany
www.velosit.de