VELOSIT® CW 111

High Strength Crystalline Waterproofing slurry

DATA SHEET

HYCHEM

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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.

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

VELOSIT CW 111 is the result of many years in the field testing and research. VELOSIT CW 111 cures a lot faster than the current standard products eliminating the need for days of water curing and protection.

TYPICAL APPLICATIONS

- 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

- Self healing properties of up to 0.4 mm static cracks
- Unsurpassed strength development with more than 20 MPa after 24 h and more than 50 MPa 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

TECHNICAL DETAILS

Color	grey
Mixing ratio by weight	100 : 23
Mixing ratio by volume	100 : 28
Density	1.2 kg/l
Substrate temperature	5 – 35 °C
Service temperature	-18 – 97 °C
Water impermeability acc. EN 12390-8	Positive side: 13 bar Negative side: 13 bar
Compressive / flexural strength	4 hours: 8 / 1 MPa 24 hours: 21 / 4 MPa 7 days: 35 / 5 MPa 28 days: 51 / 7 MPa
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
Restrained shrinkage (concrete failure)	2.8 MPa
Fire rating EN13501-1	Class A1

APPLICATION GUIDELINES

Surface preparation

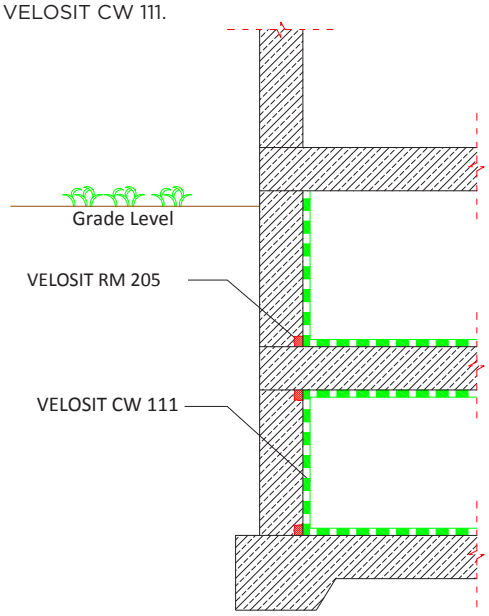
VELOSIT CW 111 can only be used on concrete substrates.

Hardened concrete

must be prepared with sand blasting, shot blasting or ideally high pressure water blasting (> 100 bar) to remove all bond breaking substances. Substrate must be pore open and load bearing. The minimum requirement for adhesive strength is 1 MPa and for the compressive strength 20 MPa. Active water leaks must be treated and fully stopped with VELOSIT PC 222. Leaking cracks need to be sealed with a PU injection material. Fill all blowholes, honeycombs or other surface defects with VELOSIT RM 205. Before the application of VELOSIT CW 111, dampen the substrate with clean water to a saturated surface dry (SSD) condition.

Cold joints

can be treated by chiseling out approx. 5 cm concrete in a U shape around the joint. Fill the opening with VELOSIT RM 205 and finish with VELOSIT CW 111.



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.

Processing

Brush application

Mix VELOSIT CW 111 with 22 – 23 % potable water, i.e. 4.4 – 4.6 l water per 20 kg 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.

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. 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.

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.

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.

CLEAN UP

VELOSIT CW 111 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 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.

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