VELOSIT® PC 221

Plug Cement

Application fields

VELOSIT PC 221 is a rapid setting cement with crystalline effect for concrete and masonry.
The product is used to waterproof water leakages, as an anchoring mortar and as an accelerator for other VELOSIT mortars. It is especially strong against negative side water pressure. Typical application fields besides others are as follows:

- Waterproofing of punctual water leakages for example in concrete pipes, water tanks and basement walls
- Mortar for anchoring of starter bars, radiator mountings and similar
- Repair mortar for small surface repairs
- Set accelerator for VELOSIT repair mortars

Properties

VELOSIT PC 221 is a shrinkage compensated plug cement with very fast strength development.
VELOSIT PC 221 sets within 1 – 2 minutes.

VELOSIT PC 221 is immediately waterproof and anchors itself into the concrete surface.

VELOSIT PC 221 surpasses the requirements of EN 1504-3 class R2 for concrete repair (CR) and can be used according to the principles 3.1 and 3.3 acc. to EN 1504-9.

VELOSIT PC 221 can be applied by hand or trowel.

- Minimal shrinkage/expansion under dry resp. wet curing conditions
- Fast strength development with 12 MPa compressive strength after 1 hours and final strength of more than 50 MPa (7250 psi) after 28 days
- Resists 130 m (400 ft.) water pressure acc. to EN 12390-8
- 1 min. working time and
- Ready to receive top coat after 10 min.
- Ready for water pressure after a few minutes
- Very good adhesion to concrete and masonry
- No cracking
- No curing required
- 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

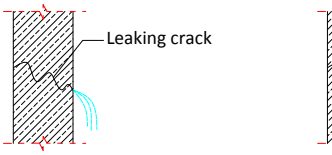
VELOSIT PC 221 is designed for mineralic substrates like concrete, masonry or absorptive natural stones.

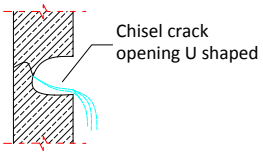
Chisel defective area or water leakage open achieving a U-shaped profile. Drill holes for starter bars and radiator mountings. Remove all dust and debris from areas to be treated. Dampen the surface with water to a saturated surface dry (SSD) condition before application of VELOSIT PC 221.

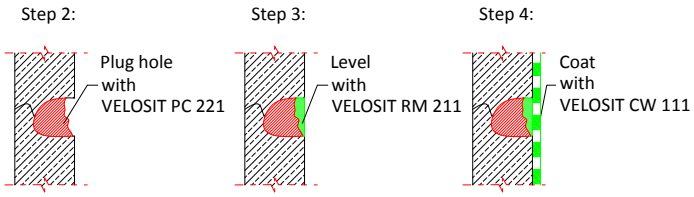
2.) Processing

Mix 3 volume parts VELOSIT PC 221 with 1 part potable water in a small mixing vessel by hand (for example with a spatula). Make sure that a lump-free mix with the desired consistency is achieved.
The product is workable for 1 min. at 23°C. Only mix as much material as can be applied immediately!

a.) Plugging of water leakages: Form mixed material by hand (wear protective gloves!) to a ball shape and push immediately into the prepared leakage. Hold for 1 to 2 minutes until the product has sufficiently hardened. Immediately shave the surface flush with the substrate. After a short waiting time the area waterproofing with VELOSIT WP 101 or CW 111 can be applied.







b.) Application as repair mortar: Mix VELOSIT PC 221 to the required consistency and fill immediately into the prepared defective area and smoothen with a trowel. Excessive material can be shaved off after 3 – 5 min.

c.) Use as anchoring mortar: Mix VELOSIT PC 221 to a slightly thinner consistency and immediately fill into the prepared anchor holes. Push starter bars immediately into the holes and adjust direction. Remove excess material as soon as possible.

d.) Use as accelerator: VELOSIT PC 221 acts as an accelerator for many cementitious mortars. Required amount must be determined in trial mixes.

3.) Curing

VELOSIT PC 221 does not require curing.

Estimating

1,4 kg* VELOSIT PC 221 produces 1 liter of cured material.
* 1.4 kg VELOSIT PC 221 powder + 0.4 kg water i.e. 1.8 kg mixed material per liter

Cleaning

VELOSIT PC 221 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 : 25
Mixing ratio by volume:	100 : 33
Density:	1.3 kg/l
Substrate temperature:	5 – 35 °C (40 – 95 °F)

Water impermeability acc. EN 12390-8:
- Positive side: 5 bar (72 psi)
- Negative side: 5 bar (72 psi)

Compressive / flexural strength:

1 hour:	12 / 2 MPa (1740/290 psi)
24 hours:	30 / 5 MPa (4350/725 psi)
7 days:	40 / 6 MPa (5800/870 psi)
Chloride ions:	< 0.0 5%
Carbonation resistance:	passed
Capillary water absorption:	0.4 kg/m² x $h^{0.5}$
Adhesive strength:	1.2 MPa (174 psi)
Restrained shrinkage:	1.2 MPa (174 psi)

Packaging

VELOSIT PC 221 is available in 12 kg (26 lb.) plastic pails.

Storage

VELOSIT PC 221 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.

Recommendations

VELOSIT PC 221 is only available for professional applicators.

Never add water to VELOSIT PC 221 when it has started to set. Stiffened material must be disposed. 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.

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VELOSIT PC 221

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

Compressive strength	R2
Chloride ion content	≤ 0.05 %
Adhesive bond	≥ 0.8 MPa
Restrained shrinkage/ expansion	NPD
Reaction to fire	E