VELOSIT® WP 101

High Strength Cementitious Waterproofing Slurry

Application fields

VELOSIT WP 101 is a cementitious waterproofing slurry for concrete and masonry. It is a good substrate for coatings and overlays. 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
- Waterproofing of elevator pits
- Waterproofing against rising dampness in walls
- Negative side waterproofing underneath flexible waterproofing membranes
- Prime coat to fill blow holes, honeycombs and surface roughness

Properties

VELOSIT WP 101 is a shrinkage compensated cementitious waterproofing slurry with very quick strength development. VELOSIT WP 101 gains strength a lot faster than the current standard products reducing or completely eliminating the need for days of water curing and protection. VELOSIT WP 101 creates a rigid abrasion resistant coating layer on the substrate.

VELOSIT WP 101 surpasses the requirements of EN 1504-3 class R3 for concrete repair (CR) and can be used according to the principles 3.1 and 3.3 acc. to EN 1504-9.

VELOSIT WP 101 can be applied by brush, trowel or suitable spray equipment.

- Minimal shrinkage/expansion under dry resp. wet curing conditions
- Hydrophobic
- Unsurpassed strength development with 20 MPa (2900 psi) after 24 h and 50 MPa after 28 days
- Resists 130 m (400 ft.) water pressure acc. to EN 12390-8
- 45 min. working time and 12 MPa compressive strength after 4 hours
- Final strength of more than 50 MPa (7250 psi) after 28 days

- Unsurpassed strength development with 20 MPa (2900 psi) after 24 h and 50 MPa after 28 d
- Open to foot traffic after 3 – 4 hours
- Ready for water pressure after 24 h
- Very good adhesion to concrete and masonry
- Water curing only under hot and dry conditions required for max. 4 hours
- No cracking if applied too thick
- 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 WP 101 is designed for mineralic substrates like concrete, masonry or absorptive natural stones.

Substrate 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 open porous and load bearing. The minimum requirement for adhesive strength is 1.5 MPa (218 psi) and for the compressive strength 25 MPa (3625 psi). Lower strength values can be accepted if lower adhesive strength is acceptable. Active water leaks must be treated and fully stopped with VELOSIT PC 221. Leaking cracks need to be sealed with a PU injection material. Blowholes, honeycombs or other surface defects can be filled with VELOSIT WP 101 or the repair mortar VELOSIT RM 202. Before the application of VELOSIT WP 101, dampen the substrate with clean water to a saturated surface dry (SSD) condition.

2.) Processing

Mixing: Mix VELOSIT WP 101 with 17 – 20 % potable water, i.e. 4.3 – 5.0 l (1.1 – 1.3 gal.) water per 25 kg (55 lb.) bag. Fill 17 % mixing water (4.3 l per bag)

into a suitable bucket and mix the powder with a slow speed drill (300 – 600 rpm) into the water until a lump-free mix is achieved. Add up to 3% water under stirring to adjust the desired consistency.

The product is workable for 45 – 60 min. at 23 °C.

a.) Brush application: Apply the first coat with a masons brush in crossing applications to the pre-dampened substrate at the specified rate. Second coat can be applied after the first one has gained sufficient strength which is after 3 hours at 23 °C. Colder temperatures extend, warmer temperatures shorten the recoat time.

b.) If building code or specification does not require two coats, VELOSIT WP 101 can be applied in one coat by trowel. Make sure to adjust the consistency to a thixotropic workability. Apply a scratch coat of VELOSIT WP 101 to the damp substrate to fill surface irregularities. Immediately apply the desired material amount with a notched trowel to the substrate. 2 mm (80 mils) dry film thickness can be achieved with a 6 mm (1/4 inch) notch size and application at a 45° angle. Finish the surface immediately afterwards. Make sure all grooves are completely closed without air entrapment.

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

Fill the product as described under „Mixing“ into the feed hopper of the spray machine and spray continuously. VELOSIT WP 101 can be applied in one lift if specification allows. Otherwise spray in two layers with a wait time of approx. 60 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 WP 101

is a fast curing material and may be difficult to remove if left in the machine.

d.) VELOSIT WP 101 can be used as a repair mortar for small repairs and especially as a cove mortar. Apply a slurry coat of VELOSIT WP 101 to at on the slab and approx. 25 cm (10”) on the lower section of the wall. The cove mortar can be produced with less water addition and can be applied wet in wet onto the slurry coat.

3.) Curing

VELOSIT WP 101 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.

Estimating

Brush application 2 mm:
1st coat VELOSIT WP 101: 1.6 kg/m²
2nd coat VELOSIT WP 101: 1.6 kg/m²

Trowel application 2 mm
Scratch coat VELOSIT WP 101: 0 – 0.5 kg/m²
2nd coat VELOSIT WP 101: 2.7 – 3.2 kg/m²

Spray application 2 mm:
VELOSIT WP 101: 3.2 kg/m²

Other thickness requirements:
1.6 kg* VELOSIT WP 101 per m² for 1 mm dry film thickness on smooth substrates. Depending on surface roughness application rates can be significantly higher.
* 1.6 kg VELOSIT WP 101 powder + 0.3 kg water, i.e. 1.9 kg mixed material per mm and m² (3.3 lbs per 40 mil dft and 10 sq.ft.)

Cleaning

VELOSIT WP 101 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 : 18
Mixing ratio by volume: 100 : 28

Density: 1.6 kg/l
Substrate temperature: 5 – 35 °C (40 – 95 °F)
Water impermeability acc. EN 12390-8:
- Positive side: 13 bar (190 psi)
- Negative side: 5 bar (72 psi)

Compressive / flexural strength:
4 hours: 12 / 2 MPa (1740/290 psi)
24 hours: 24 / 5 MPa (3480/725 psi)
7 days: 38 / 6 MPa (5510/870 psi)
28 days: 53 / 7 MPa (7685/1015 psi)
Chloride ions: ≤ 0.05 %
Carbonation resistance: passed
Adhesive strength: 1.6 MPa (232 psi
Restrained shrinkage: 1.5 MPa (218 psi)

Packaging

VELOSIT WP 101 is available in 25 kg (55 lb.) watertight plastic bags.

Storage

VELOSIT WP 101 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 WP 101 is only available for professional applicators.

Never add water to VELOSIT WP 101 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 WP 101

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	≥ 1,5 MPa
Thermal compatibility	NPD
Capillary absorption	NPD
Carbonation resistance	passed
Reaction to fire	E