

VELOSIT® WP 121

Flexible Cementitious Waterproofing Slurry



Application fields

VELOSIT WP 121 is a polymer modified cementitious waterproofing slurry for concrete and masonry. Due to its fast curing characteristics it is especially suitable in cool and humid environments. It is a good substrate for coatings and overlays. It is crack bridging and a good barrier against carbon dioxide. Typical application fields besides others are as follows:

- Waterproofing of basements and below grade parking structures
- Waterproofing of potable water structures
- Protective coating on dams and spillways
- Waterproofing acc. DIN 18533
- Coating of tanks for manure and sewage
- Waterproofing of swimming pools
- Waterproofing underneath tiles and natural stones
- Protection against rising dampness
- Waterproofing of green roofs
- Coating of trafficable flat roofs

Properties

VELOSIT WP 121 is a highly flexible cementitious waterproofing slurry with rapid curing. VELOSIT WP 121 creates a crack bridging and abrasion resistant coating on the substrate.

VELOSIT WP 121 surpasses the requirements of EN 1504-2 for coatings (C) and can be used according to the principles 3.1 and 3.3 acc. to EN 1504-9.

VELOSIT WP 121 can be applied by brush, trowel or suitable spray equipment.

- Crack bridging
- Highly flexible, tensile elongation > 60 %
- Easy to apply
- Resists 50 m (160 ft.) water pressure acc. to EN 12390-8
- 30 min. working time
- Final strength is achieved within 2 – 3 days
- Open to foot traffic after 2-3 hours (23 °C/60 % r.h.)
- Ready for water pressure after 1 day
- Very good adhesion to concrete and masonry

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

Application

1.) Substrate preparation

VELOSIT WP 121 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 pore open 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 121, dampen the substrate with clean water to a saturated surface dry (SSD) condition.

Details:

a.) The wall-slab-detail can be solved with a cove made with VELOSIT WP 101 or RM 202 or alternatively with a joint tape VELOSIT DB 830. The joint tape can be applied with VELOSIT WP 121.

b.) Negative waterproofing: In case hydrostatic pressure effects VELOSIT WP 121 or may effect in the future from the reverse side a negative side waterproofing must be applied with at least 1 mm (40 mils) VELOSIT WP 101.

c.) Joints and dynamic cracks must be waterproofed with VELOSIT DB 830. The joint tape may be applied with VELOSIT WP 121.

d.) Pipe penetrations are waterproofed with a sleeve made from VELOSIT DB 830. Cut a hole into the sleeve with a diameter approx. 6 mm (¼") smaller than the pipe. The sleeve is made from a 12 cm (5") piece of VELOSIT DB 830. Brush plenty of VELOSIT WP 121 onto the pipe and the surrounding area. Pull the sleeve over the pipe push it with a trowel into the material. Work away from the pipe and take care not to entrap air or create wrinkles.

2.) Processing

Mixing: Pour the B-component of VELOSIT WP 121 into a suitable bucket and mix the powder with a slow speed drill (300-600 rpm) into the dispersion until a lump-free mix is achieved. Add up to 1 l (0.3 gal) water under stirring to adjust the desired consistency. Water addition extends the cure time and should be kept as low as possible. The product is workable for 30-40 min. at 23°C.

a.) Brush application: Apply the first coat with a masons brush in a 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 this time.

b.) If building code or specification does not require two coats, VELOSIT WP 121 can be applied in one coat by trowel. Make sure to adjust the consistency to a thixotropic workability without water addition. Apply a scratch coat of VELOSIT WP 121 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 (¼") 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 into the feed hopper of the spray machine and spray continuously. VELOSIT WP 121 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 121 is a fast curing material and may be hard to remove if left in the machine.

3.) Curing

VELOSIT WP 121 does not require curing as it reacts very fast with water from the B-component. Avoid direct sun light or wind or air flow after the application. Otherwise it is mandatory to work in two coats to avoid shrinkage cracks.

Estimating

Brush application 2 mm:

- 1st coat VELOSIT WP 121: 1.6 kg/m²
- 2nd coat VELOSIT WP 121: 1.6 kg/m²

Trowel application 2 mm

- Scratch coat VELOSIT WP 121: 0-0.5kg/m²
- 2nd coat VELOSIT WP 121: 2.7-3.2kg/m²

Spray application 2 mm:

- VELOSIT WP 121: 3.2 kg/m²

Other thickness requirements:

1.6 kg VELOSIT WP 121 per m² (3.5 lbs. per 10 ft²) for 1 mm (40 mils) dry film thickness on smooth substrates. Depending on surface roughness application rates can be significantly higher.

Recommended thickness:

- Dampproofing: 1.25 mm (50 mils)
- < 25 cm (5") water: 1.5 mm (60 mils)
- Hydrostatic pressure: 2.0 mm (80 mils)
- Hydrostatic pressure and water flow or light mechanical abrasion: 2.5 mm (100 mils)

Always observe building code or specification requirements!

Cleaning

VELOSIT WP 121 can be removed in the fresh state with water. Once it has cured mechanical cleaning is required.

Quality features

- Color: gray
- Mixing ratio by weight: 100 : 56
- Mixing ratio by volume: 100 : 80
- Density A-comp.: 1.5 kg/l
- Substrate temperature: 5 – 35 °C (40 – 95°F)
- Water impermeability acc. EN 12390-8:
 - Positive side: 5 bar (73 psi)
 - Negative side: 1.5 bar (22 psi)
- Tensile strength: 2.0 MPa (290 psi)
- Tensile elongation: 65 %
- Crack bridging:
 - Acc. DIN 28052-6: 0.4 mm(16 mils)/24h
 - Acc. ASTM C836: 2.4 mm (96 mils)
- S_D-value_{water}, 2 mm (80 mils): 3 m (10')
- S_D-value_{CO2}, 2 mm (80 mils): 250 m (820')
- Chloride ions: < 0.05 %
- Carbonation resistance: passed
- Capillary water absorption: 0.1 kg/m² x h^{0.5}
- Adhesive strength: 1.7 MPa (247 psi)

Packaging

The A-component of VELOSIT WP 121 is available in 18 kg (40 lb.) watertight plastic bags. The B-component is packages in 10 l (2.6 gal) plastic pails.

Storage

VELOSIT WP 121 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 121 is only available for professional applicators.


Never add water to VELOSIT WP 121 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.

Manufacturer

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VELOSIT GmbH & Co. KG Industriepark 7 D-32805 Horn-Bad Meinberg 16 VELOSIT WP 121	
EN 1504-2 Surface protection products – Coating	
Capillary absorption and permeability to water	$w < 0,1 \text{ kg/m}^2 \times \text{h}^{0,5}$
Water vapour permeability	class I
Permeability to CO ₂	sD > 50 m
Adhesion strength by pull off test	$\geq 0,8 \text{ N/mm}^2$
Reaction to fire	Klasse E