

VELOSIT® FF 220

Fast Setting Floor Patching Mortar



Application fields

VELOSIT FF 220 is a cementitious patching mortar for underlayment and slabs. It is used to create a smooth surface for thin floor coverings. Typical application fields besides others are as follows:

- Interior and exterior use
- Smoothing of concrete slabs and floors
- Repair of small surface defects on concrete floors
- Ramps between floor coverings with slightly different height
- Application thickness from feather edge to 6 mm (¼").

Properties

VELOSIT FF 220 is a shrinkage compensated cementitious underlayment patching mortar with very quick strength development. VELOSIT FF 220 binds the mixing water very fast allowing a very short wait time before it can be covered. VELOSIT FF 220 creates a well bonded and very smooth layer on the substrate.

VELOSIT FF 220 surpasses the requirements of EN 1504-3 class R2 for concrete repair (CR) and can be used according to the principles 3 and 7 acc. to EN 1504-9.

VELOSIT FF 220 can be applied by rake or trowel.

- Minimal shrinkage/expansion under dry resp. wet curing conditions minimizing the risk of micro-cracking
- Creamy workability
- No sand, max. aggregate size < 0.07 mm (< 3 mils)
- Smooth surface profile
- Ready for covering with flooring system after 15 – 20 min.
- 10 min. working time and 0.5 MPa (73 psi) adhesive strength after 1 hour
- Open to foot traffic after 20 min.
- Very good adhesion to properly prepared concrete
- Excellent water resistance, no strength loss under water
- Light gray color close to concrete color

Application

1.) Substrate preparation

VELOSIT FF 220 is designed for all types of floor substrates. Steel may be coated with a suitable bonding bridge. Also plywood or OSB-floors with an engineers design for minimal deflection can be coated.

a.) Steel must be prepared to a purity of SA 2 acc. SIS 05 5900.

b.) Concrete substrates must be prepared with sand blasting, shot blasting or high pressure water blasting (>100 bar/1450 psi) to remove all bond breaking substances.

Substrate must be rough, open porous and load bearing. The minimum requirement for adhesive strength is 1.0 MPa (145 psi) and for the compressive strength 20 MPa (2900 psi). Lower strength values can be accepted if lower adhesive strength is acceptable. Active water leaks must be treated and fully stopped with VELOSIT WPC 221. Leaking cracks need to be sealed with a PU injection material. Well bonded load bearing adhesive or flooring residues can be left on the substrate.

c.) Wooden substrates must be free from bond breaking substances. Otherwise the surface must be sanded before priming.

Priming:

a.) Steel: Apply a corrosion protection coat on rebar with VELOSIT PCC 201. Other steel areas can be primed with VELOSIT WPR 303 with a full broadcast. Steel may expand and contract differently under temperature changes than a cementitious mortar. Thus steel application is only recommended if steel is embedded in larger concrete bodies or the temperature is not subject to major changes.

b.) Concrete substrates with a humidity of max. 4% and a water vapor emission rate of less than 0,6 g/m²h (3 lbs./24h x 1000 ft²) do not require a primer. At higher moisture levels or in case the moisture levels in the substrate are expected to increase, priming must be done with VELOSIT WPR 303 with a full broadcast with VELOSIT WPQ 901 if vapor sensitive floor systems are installed.

c.) No priming required on dry load bearing wooden substrates. Wood substrates swell with water. An overlay is only permitted if these are completely dry before the application and no negative side water source will impact the topping later on. Wood is generally not a sufficiently load bearing substrate to achieve high adhesive strengths. A mechanically fastened mesh can increase the bond to the wood substrate.

2.) Processing

Mixing: Mix VELOSIT FF 220 with 43-47% potable water, i.e. 8.6 – 9.4 l (2.3 – 2.5 gal.) water per 20 kg (44 lb.) bag. Fill the 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 is achieved.

The product is workable for approx. 10 min. at 23°C. Do not mix more material than can be used within this time.

a.) Trowel application: Pour VELOSIT FF 220 in small portions onto the prepared substrate and trowel to the desired thickness. Make sure there are no bond breaking substances on the surface. The product can be applied up to 6 mm (¼") in one application. Make sure to work in sections that can be finished within 10 min

Never overcoat joints or untreated cracks as this will most likely result in surface cracks!

3.) Curing

VELOSIT FF 220 does not require curing. Flooring system may be applied as soon as VELOSIT FF 220 has sufficiently set.

Estimating

Volume yield:

20 kg (44 lbs.) VELOSIT FF 220 result in approx. 20.0 liter (0.72 ft³) cured mortar.

Cleaning

VELOSIT FF 220 can be removed in the fresh state with water. Once it has cured acidic cleaners like muriatic acid and mechanical cleaning are required.

Quality features

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| Color: | gray |
| Mixing ratio by weight: | 100 : 43 |
| Mixing ratio by volume: | 100 : 60 |
| Density: | 1.4 kg/l |
| Substrate temperature: | 10 – 35°C* (50-95°F) |
| Initial set: | 12 min. |
| Final set: | 20 min. |
| Compressive / flexural strength: | |
| 24 hours: | 30 / 5 MPa (4350/725 psi) |
| Chloride ions: | < 0.05% |
| Carbonation resistance: | passed |
| Capillary water absorption: | < 0.1 kg/m ² x h ^{0.5} |
| Adhesive strength**: | |
| - primed with WPR 303: | 1.3 MPa (189 psi) |
| Restrained shrinkage: | 1.2 MPa (174 psi) |
| Length change after 56 days | |
| - dry storage: | -0.6 mm/m (-0.06%) |
| - water storage: | +0.1 mm/m (+0.01%) |
| Fire rating EN13501-1: | Class A1 |

**acc. EN 1542. Adhesion depends very much on proper surface preparation!

Packaging

VELOSIT FF 220 is available in 20 kg (44 lb.) watertight plastic bags and 10 kg in 8 l plastic pails.

Storage

VELOSIT FF 220 can be stored in unopened original packs for 9 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 FF 220 is only available for professional applicators.

Never add water to VELOSIT FF 220 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.

Effective date

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Manufacturer

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