

VELOSIT® SL 506

Self Leveling Underlayment for Carpet, Vinyl and Laminate Floors



Application fields

VELOSIT SL 506 is a cementitious self leveling underlayment for concrete, gypsum, magnesia and asphalt substrates. It creates a smooth surface for coatings and floor coverings. Typical application fields besides others are as follows:

- Interior and exterior use
- Leveling of floors for covering with thin flooring materials
- Repair of surface defects on concrete floors
- Application thickness from 1 mm (40 mils) to 12 mm (½")
- As a binder for terrazzo floors

Properties

VELOSIT SL 506 is a shrinkage compensated cementitious self leveling underlayment with very quick strength development. VELOSIT SL 506 binds the mixing water very fast allowing a very short wait time before it can be covered. VELOSIT SL 506

creates a well bonded and very smooth layer on the substrate.

VELOSIT SL 506 meets the requirements of EN 13813 and is classified CT-C30-F7.

VELOSIT SL 506 can be applied by rake or suitable pumping equipment.

- Minimal shrinkage/expansion under dry resp. wet curing conditions minimizing the risk of micro-cracking
- Excellent flow with long slump life
- Extremely smooth surface profile due to superfine grading
- Easy to sand or polish after curing
- Fast air release with minimal requirement for agitation
- Ready for covering with ceramic tiles after 4 hours, for moisture sensitive floor coverings after 12* hours.
- 30 - 40 min. working time and 10 MPa (1450 psi) compressive strength after 4 hours
- Final strength of more than 30 MPa (4350 psi) after 28 days

- Open to foot traffic after 2 – 3 hours
- Very good adhesion to properly prepared substrates
- Excellent water resistance, no strength loss under water
- Light gray color close to concrete color

* at 3 mm layer thickness under laboratory conditions 23 °C / 50 rel. humidity

Application

1.) Substrate preparation

VELOSIT SL 506 is designed for concrete and various screed types. Steel may be coated with a suitable bonding bridge. Also plywood or OSB-floors with an engineers design for minimal deflection can be coated.

Rising components must be decoupled with the VELOSIT RD 800 edge insulation strip to prevent clamping. Movement and separation joints must be taken over, shrinkage must be excluded.

Any cracks in the substrate must be filled with VELOSIT GH 311 and sprinkled with suitable quartz sand 0.7 mm - 1.25 mm (see technical data sheet).

a.) Steel
must be prepared to a purity of SA 2.5 acc. SIS 05 5900.

b.) Concrete, gypsum, magnesia and asphalt substrates must be prepared with sand blasting, shot blasting or grinding 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 PC 221. Leaking cracks need to be sealed with a PU injection material.

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 CP 201. Other steel areas can be primed with VELOSIT PR 303 with a full broadcast (suitable quartz sand 0.7 mm – 1.25 mm, see technical data sheet). 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) can be primed with VELOSIT PA 911 (Acrylic Primer). VELOSIT PA 911 is ready to receive the leveler usually after 2 – 3 h curing. At higher moisture levels or in case the moisture levels in the substrate are expected to increase, priming must be done with VELOSIT PR 303. VELOSIT SL 506 can be applied into the tacky coating within 2 – 4 hours after application. Longer wait times require a full broadcast with suitable quartz sand 0.7 mm – 1.25 mm (see technical data sheet) into the primer.

c.) Wooden substrates:

must be sufficiently load-bearing, any deformation of the substrate must be eliminated. The wood substrate must be sufficiently load-bearing and any deformation of the substrate must be eliminated. Coating is only possible if the wood is completely dry and subsequent exposure to moisture is excluded.

2.) Processing

Mixing:

Mix VELOSIT SL 506 with 24 – 26 % potable water, i.e. 4.8 – 5.2 l (1.3 – 1.4 gal.) water per 20 kg (44 lb.) bag. Fill the 24 % mixing water (4.8 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. Use a cage type mixing paddle to reduce the air entrainment into the mix. Add max. 2 % additional water under stirring until the desired consistency is achieved. VELOSIT SL 506 may be used as a binder for terrazzo. For this application 2.5% of inorganic pigments like iron oxide or titanium oxide may be added and the water demand can be increased by up to 4 %. Do not over water the product!

The product is workable for 30 – 40 min. at 23 °C.

a.) Rake application:

Pour VELOSIT SL 506 onto the primed substrate and rake to the desired thickness. Make sure there are no bond breaking substances on the primer. The product can be applied up to 12 mm (½ ") in one application. Make sure to work in sections that can be finished within 30 min. Immediately after pouring use gauge rake to achieve thickness and force entrapped air to the surface. Alternatively a spiked roller can be used to help air to surface at larger application thickness.

b.) Pump application:

Suitable mortar pumps are for example:

- PFT GmbH: PFT G4
- HighTech GmbH: HighComb Big
- Wagner GmbH: PC 25
- Putzmeister GmbH: SP11 or MP 25
- Inotec GmbH: INOMAT-M8
- m-tec duo mix 2000

In mixing pumps feed the powder into the product hopper and adjust the water to the specified rate. The water rate can be adjusted by comparing the flow with a hand-mixed batch with a correct water addition. Control the flow with a flow cone every 5 to 10 min.

With mortar pumps add the mixed product as described under „Mixing“ into the feed hopper of the pump and pump continuously.

Rake and smooth the material as described under section a.).

Long pump interruptions may result in clogging of the pump hose. The product may cure a lot faster if the hose is exposed to direct sunlight. Always empty and flush the machine after pumping or before long spray interruptions. VELOSIT SL 506 is a fast curing material and may be hard to remove if left in the machine.

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

c.) Application as a terrazzo binder:

VELOSIT SL 506 can be blended with 2.0 to 2.2 kg terrazzo aggregate 6 – 9 mm per kg VELOSIT SL 506 (for example in a free fall mixer). The mix must be compacted manually to ensure a uniform distribution of the aggregates.

Alternatively, the aggregate can be applied as a loose mix with a small amount of a transparent binder the substrate. After the binder has cured VELOSIT SL 506 is poured onto the surface until all voids between the aggregates have been filled. The terrazzo floor can be ground with a diamond grinder/ fine grinding and polishing after 1 day or later.

d.) Wooden substrates:

Mix VELOSIT SL 506 with 24 – 26 % potable water, i.e. 4.8 – 5.2 l (1.3 – 1.4 gal.) water per 20 kg (44 lb.) bag. Fill the 24 % mixing water (4.8 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. Use a cage type mixing paddle to reduce the air entrainment into the mix. Immediately after mixing, add 1 bag (200 g) VELOSIT GF 825 to 1 bag (20 kg) VELOSIT SL 506 add. To do this, gradually stir in the contents of the bag.

When subsequently filling VELOSIT SL 506, a minimum layer thickness of 3 mm must be observed (according to technical data sheet VELOSIT GF 825).

3.) Curing

VELOSIT SL 506 does not require curing. Protect the applied product for 24 hours against direct sun light, wind and temperature changes exceeding 5 °C (9 °F).

4.) Finishing

To remove rake marks or if a smoother surface is desired VELOSIT SL 506 can be sanded or polished after it has gained sufficient strength. This is usually after 6 – 8 hours depending on application thickness and climatic conditions.

Estimating

Approx. 1.44 kg (3.2 lbs.) VELOSIT SL 506 powder per 1 mm dry film thickness on 1 m² (10.7 ft²) surface on smooth surfaces.

On rough substrates, the consumption may be considerably higher.

Cleaning

VELOSIT SL 506 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

Color:	gray
Mixing ratio by weight:	100 : 25
Mixing ratio by volume:	100 : 38
Density:	1.1 kg/l
Substrate temperature:	10 – 35 °C (50 – 95 °F)
Initial set:	60 min.
Final set:	90 min.
Compressive / flexural strength*:	
4 hours:	10 / 2 MPa (1450/290 psi)
24 hours:	17 / 4 MPa (2465/580 psi)
7 days:	27 / 5 MPa (3915/725 psi)
28 days:	32 / 7 MPa (4640/1015 psi)

Adhesive strength**:

- primed with PR 303: 1.3 MPa (188.5 psi)
- primed with PA 911: 1.2 MPa (174 psi)

Length change after 56 days:

- dry storage: - 0.3 mm/m (- 0.03 %)

Fire rating EN13501-1: Class A1_{fl}

* without VELOSIT GF 825 glass fibers

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

Packaging

VELOSIT SL 506 is available in 20 kg (44 lb.) watertight plastic bags.

Storage

VELOSIT SL 506 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 SL 506 is only available for professional applicators.


Never add water to VELOSIT SL 506 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 5 – 7 D-32805 Horn-Bad Meinberg 17 VELOSIT SL 506	
EN 13813 Cementitious screed material for use internally in buildings CT-C30-F7	
Reaction to fire	A1 _n
Release of corrosive substances	CT
Compressive strength	C30
Flexural strength	F7