VELOSIT® SL 502

UNIVERSAL SELF LEVELING UNDERLAYMENT

HYCHEM
Infrastructure

Product Description

VELOSIT SL 502 is a cementitious self leveling underlayment for concrete substrates. It creates a very smooth surface for coatings and floor coverings. VELOSIT SL 502 is a shrinkage compensated cementitious self leveling underlayment with very quick strength development. VELOSIT SL 502 binds the mixing water very fast allowing a very short wait time before it can be covered. VELOSIT SL 502 creates a well bonded and very smooth layer on the substrate. VELOSIT SL 502 is the result of many years in the field testing and research. VELOSIT SL 502 is a shrinkage compensated cementitious self leveling underlayment with very quick strength development.

Typical Applications

- Interior and exterior use
- Suitable for permanently water immersed applications
- Leveling of concrete slabs and floors
- Cosmetic repair of surface defects on concrete floors
- Structural repair of concrete
- Application thickness from 3 mm to 38 mm
- Self leveling screed
- Floor heating systems
- As a binder for terrazzo floors

Properties

- Ready for covering with ceramic tiles after 4 hours, for moisture sensitive floor coverings after 16 hours
- Open to foot traffic c after 3 hours
- Excellent fl ow with long slump life
- Final strength of more than 50 MPa after 28 days
- Good resistance against CO2 and Chloride penetration due to a very tight pore structure
- Excellent water resistance, no strength loss under water
- Good weathering resistance
- Good sulfate resistance
- Fast air release with minimal requirement for agitation

Technical Details

Color	Light gray, gray, anthracite
Mixing ratio by weight	100 : 19
Mixing ratio by volume	100 : 30
Density	1.6 kg/l
Substrate temperature	10 - 35ºC
Initial set	55 minutes
Final set	105 minutes

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Compressive / flexural strength	4 hours: 16 / 3 MPa 24 hours: 25 / 5 MPa 7 days: 38 / 6 MPa 28 days: 52 / 7 MPa
Restrained shrinkage	1.7 MPa
Length change after 56 days	Dry storage: - 0.5 mm/m (- 0.05 %) Water storage: + 0.0 mm/m (+ 0.00 %)
Fire rating EN13501-1	Class A1f

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

APPLICATION GUIDELINES

Surface preparation

VELOSIT SL 502 is designed for concrete 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.

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

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 1.5 MPa and for the compressive strength 25 MPa. Lower strength values can be accepted if lower adhesive strength is acceptable. Active water leaks must be treated and fully stopped with VELOSIT PC 222. Leaking cracks need to be sealed with a Hychem Spetec PU Injection material.

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

Priming

Steel Apply a corrosion protection coat on rebar with VELOSIT CP 201. Other steel areas can be primed with Hychem E100SS or E500P with a full broadcast (suitable quartz sand 0.7 mm – 1.25 mm). 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.

Concrete substrates with a humidity of max. 4 % and a water vapor emission rate of less than 0.6 g/m2h can be primed with VELOSIT PA 911 (Acrylic Primer). VELOSIT PA 911 is ready to receive the leveler usually after 2 – 3 hr curing. At higher moisture levels or in case the moisture levels in the substrate are expected to increase, priming must be done with Hychem GP Epoxy. VELOSIT SL 502 can be applied into the tacky primer coating within 2 – 4 hours after application. Longer wait times require a full broadcast with suitable quartz sand 0.7 – 1.25 into the primer.

Wooden substrates must be primed with Hychem E500P. 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.

Processing

Mixing

Mix VELOSIT SL 502 with 18 – 20 % potable water, i.e. 3.6 – 4.0 l water per 20 kg bag. Note: for the anthracite color, 1 % (0.20 l = 0.05 gal.) More water per 20 kg is required, i.e. 3.80 - 4.20 l (1.0 – 1.1 gal.) Per 20 kg. Fill 18 % mixing water (3.6 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

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mixing paddle to reduce the air entrainment into the mix. Add max. 2 % additional water under stirring until the desired consistency is achieved. Do not over water the product!

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

Rake application

Pour VELOSIT SL 502 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 38 mm 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. Finish with a smooth rake.

Pump application

Use suitable mortar pumps such as:

- 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 fl ow with a hand-mixed batch with a correct water addition. Control the fl ow with a fl ow 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 “Rake application”.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 502 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!

Application as a terrazzo binder

VELOSIT SL 502 can be blended with 2.0 to 2.2 kg terrazzo aggregate 6 – 9 mm per kg VELOSIT SL 502 (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 502 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.

Curing

VELOSIT SL 502 does not require curing. Protect the applied product for 24 hours against direct sun light, wind and temperature changes exceeding 5 °C.

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Coverage

Volume yield:
20 kg VELOSIT SL 502 result in approx. 11.2 Litre cured mortar.

Standard leveling:
11 kg* VELOSIT SL 502 per m² for 6 mm dry mortar thickness on smooth substrates. Depending on surface roughness application rates can be significantly higher.

* 11 kg VELOSIT SL 502 powder + 1.9 kg water, i.e. 12.9 kg mixed material per 6 mm and m²

Clean up

VELOSIT SL 502 can be removed in the fresh state with water. Once it has cured acidic cleaners like muriatic acid and mechanical cleaning are required.

Packaging

20 kg watertight plastic bags.

Storage and shelf life

In unopened original packs for 12 months at 5 – 35°C 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.

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