VELOSIT® SC 252

Binder for Pumpable Self Leveling Mortars

CE
EN13813

Application fields

VELOSIT SC 252 is a binder for the production of cementitious self leveling mortars for concrete floors. It creates a tough and smooth surface which is used as a high strength underlayment for coatings and floor coverings. Typical application fields besides others are as follows:

- Interior and exterior floors
- Leveling of concrete slabs and floors as a finished surface
- Repair of surface defects on concrete floors
- Application thickness from 3 mm (1/8”) to 50 mm (2“)
- On floor heating systems

Properties

VELOSIT SC 252 is a shrinkage compensated cementitious binder for self leveling mortars with very quick strength development. VELOSIT SC 252 binds the mixing water very fast allowing a very short wait time before it becomes trafficable or can be covered. VELOSIT SC 252 based self leveling mortars create a well bonded and very smooth layer on the substrate.

VELOSIT SC 252 surpasses the requirements of EN 13813. Depending on the aggregate grading and water addition the resulting screeds meet class CT-C25-F5 to CT-C50-F7.

VELOSIT SC 252 can be applied with suitable pumping equipment.

- Minimal shrinkage/expansion under dry resp. wet curing conditions minimizing the risk of micro-cracking
- Excellent flow with long slump life
- Smooth surface profile
- Fast air release with minimal requirement for agitation
- Ready for tiles after 4 hours, for moisture sensitive flooring materials after 16 hours.
- 30 – 40 min. working time and 16 MPa (2,340 psi) compressive strength after 4 hours

- Final strength of more than 30 to 50 MPa (4350 - 7,250 psi) after 28 days
- Excellent adhesion to properly prepared concrete
- Good resistance against CO_2 and Chloride penetration due to a very tight pore structure
- Excellent water resistance, no strength loss under water
- Good weathering resistance
- Good sulfate resistance
- Light gray color close to concrete color

Application

1.) Substrate preparation

VELOSIT SC 252 based self leveling mortars are 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.

a.) Steel
must be prepared to a purity of SA 2.5 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 1.5 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.

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.

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 with a full broadcast with suitable quartz sand 0.7 – 1.25 mm into the primer.

c.) Wooden substrates
must be primed with VELOSIT PU 411. 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

VELOSIT SC 253 is applied with suitable pump technology such as:
- GB Machines Mobileman D3
- Putzmeister TransMix 3200

VELOSIT SC 252 is filled into the clean and dry cement silo of the pump truck and the sand silo is filled with damp or dry sand of the required grading. The water rate must be adjusted by measuring the flow and should be between 24 and 28 cm (9.5 - 11“) determined with a flow ring with 177 ml (6.0

oz.) volume. Adjust the batch size so that the shaft of the mixer is fully immersed in the mix to avoid excess air entrainment.

Guide formulations for a 400 l (105 gal.) mix for

	High strength		Standard	
	Range 1 < 5 mm (0.2“)	**Range 2** 5-15 mm (0.2-0.6“)	**Range 1** < 5 mm (0.2“)	**Range 2** 5-15 mm (0.2-0.6“)
VELOSIT SC 252	350 kg (770 lbs)	315 kg (616 lbs)	280 kg (616 lbs)	260 kg (572 lbs)
Sand 0,1-0,5 mm*	350 kg (770 lbs)		420 kg (924 lbs)	
Sand 0,1-2 mm**		385 kg (924 lbs)		440 kg (968 lbs)
Water***	135 l (35.6 gal)	120 l (31.7 gal)	109 l (28.8 gal)	99 l (26.2 gal)
Flow	26 cm (10.2“)	26 cm (10.2“)	25 cm (10.0“)	24 cm (9.5“)

various application thickness ranges:

*95% passage through #35, 99% retention on #140
**95% passage through #10, 60% retention on #35, 99% ret. on #140
***Consider sand moisture

Screeds from 15 to 50 mm (0.6-2“) can be formulated with 230 kg VELOSIT SC 252, 470 kg screed sand*** and 76 l (20.0 gal) water.

***95% pass. #5, 20%ret. on #10, 60% ret. on #35, 99% ret. on #140

Control the flow with a flow cone every 5 to 10 min. Pump the mixed self leveling mortar 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 50 mm (2”) 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 the surface at larger application thickness. Finish with a smooth rake. Higher temperatures reduce, lower temperatures increase the required wait times.
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 SC 252 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!

For smaller areas use VELOSIT SL 502. Mechanical properties of the guide formulations are close to VELOSIT SL 502.

3.) Curing

VELOSIT SC 252 does not require curing. Protect the applied product for 24 hours against direct sun light, wind and temperature changes exceeding 5 °C (9 °F).

Estimating

Volume yield:
1.000 kg (2200 lbs.) VELOSIT SC 252 result mixed with 1.225 kg (2695 lbs) sand in approx. 1.25 m^3 (44 ft^3) cured mortar.

Standard leveling:
5 kg (11.0 lbs.)* VELOSIT SC 252 + 6.1 kg (13.4 lbs) sand per m^2 (10.7 ft^2) for 6 mm (1/4”) dry mortar thickness on smooth substrates. Depending on surface roughness application rates can be significantly higher.

* 5.0 kg VELOSIT SC 252 powder + 6.1 kg sand + 1.9 kg water, i.e. 13.0 kg mixed material per 6 mm and m^2

Cleaning

VELOSIT SC 252 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 : 39
Mixing ratio by volume:	100 : 55
Density:	1.4 kg/l

Substrate temperature:	10 – 35 °C (50 – 95 °F)
Initial set:	55 min.
Final set.	105 min.

Compressive / flexural strength (Range 1):

4 hours:	16 / 3 MPa (2340/435 psi)
24 hours:	30 / 5 MPa (4350/725 psi)
7 days:	41 / 7 MPa (5945/1015 psi)
28 days:	50 / 8 MPa (7250/1160 psi)

Adhesive strength*:

- primed with PR 303:	1.8 MPa (261 psi)
- primed with PA 911:	1.5 MPa (218 psi)

Length change after 56 days:

- dry storage:	- 0.5 mm/m (- 0.05 %)
Fire rating EN13501-1:	Class $A1_{fl}$

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

Packaging

VELOSIT SC 252 is available in 1000 kg (2200 lb.) BigBags.

Storage

VELOSIT SC 252 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 SLC 252 is only available for professional applicators.

Never add water to VELOSIT SC 252 when it has started to set. Stiffened material must be disposed.

Sand, water and VELOSIT 252 shall be at 10 – 30 °C (50 – 86 °F) during installation. Never use raw materials colder than 5 °C (41 °F).

Raw material temperatures of 30 °C (86 °F) and higher cause a significant reduction in working time. Using ice water can compensate high sand temperatures to a certain degree.

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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