

VELOSIT® SR 206

Sulphate Resistant Medium Thickness Structural Grade Concrete Repair Mortar R4

Application fields

VELOSIT SR 206 is a structural grade, Sulphate-resistant cementitious re-profiling & repair mortar designed for concrete thin to medium restoration of concrete structures servicing the sewage industry acc. to EN 1504-9. It creates a very smooth surface for coatings and overlays. Typical application fields besides others are as follows:

- Repair of concrete surface defects on concrete
- Overlays and repairs on concrete structures like dams, bridges, beams, balconies, facades, manholes, primary & secondary sewage treatment basins, waste water collection & treatment basins
- Application Designed for horizontal and vertical incl. overhead applications
- Filling of blow holes, honeycombs and surface roughness
- Levelling of undulations
- Application thickness from feather-edge to 25 mm (1")

System components:

Corrosion primer: VELOSIT CP 201

Structural repair mortar: VELOSIT SR 207

SR Structural finish mortar: **VELOSIT SR 206**

Properties

VELOSIT SR 206 is a shrinkage compensated, Sulphate-resistant, cementitious repair mortar with quick early strength development.

VELOSIT SR 206 rapidly binds the mixing water fast reducing and/or completely eliminating the need for water curing and protection. VELOSIT SR 206 creates an extremely well bonded, rigid abrasion resistant layer on the substrate.

VELOSIT SR 206 surpasses the requirements of EN 1504-3 class R4 for concrete repair (CR) and can be used according to the principles 3, 4 and 7 acc. to EN 1504-9.

VELOSIT SR 206 can be applied by trowel or suitable spray equipment.

- Minimal shrinkage/expansion under dry resp. wet curing conditions minimizing the risk of micro-cracking
- Excellent workability especially overhead
- Fiber reinforced
- Hydrophobic
- 60 min. working time and 10 MPa (1450 psi) compressive strength after 4 hours
- Final compressive strength exceeds 50 MPa (7250 psi) after at 28 days
- Open to foot traffic after 3-4 hours
- Excellent adhesion to properly prepared concrete
- Water curing of max. 4 hours required only under hot and dry conditions required for max. 4 hours
- Good resistance against CO₂ and Chloride penetration due to a very tight pore structure
- Good resistance against aggressive media with a pH range of 3-12 and against soft water with low ion content
- Good weathering resistance
- Good sulfate Sulphate resistance
- Light gray grey color close to that of concrete color

Application

1.) Substrate preparation

VELOSIT SR 206 is designed for concrete substrates. Steel may be coated with a VELOSIT CP 201 as a bridging primer.

a.) Steel must be prepared to a purity of SA 2&½ 2 acc. SIS 05 5900. Apply a corrosion protection coat on rebar with VELOSIT CP 201.

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

Remove all carbonated concrete. Test with Phenolphthalein or other suitable indicator until concrete with sufficient alkalinity for rebar protection is reached. If rebar is exposed remove concrete at least 6 mm (1/4") behind rebar to fully embed the steel into VELOSIT SR 206.

Substrate must be rough, pore-open and load bearing. The minimum Minimum requirement for adhesive strength is 2.0 MPa (290 psi) and 30 MPa (4350 psi) for the compressive strength 30 MPa (4350 psi). Active water leaks must be treated and fully stopped with VELOSIT PC 221. Leaking cracks need to be sealed with a PU injection material. Before the application of VELOSIT SR 206, dampen the substrate with plenty of clean water to a saturated surface dry (SSD) condition. This is a precautionary measure to prevent pre-mature water loss.

c.) Concrete repair acc. EN 1504-9 principle 3, 4 or 7 requires a prime coat with VELOSIT CP 201 on concrete and rebar surface to ensure best adhesion strength results. VELOSIT SR 206 can be coated without a prime coat within 7 to 14 days of application.

2.) Processing

Mixing: Mix VELOSIT SR 206 with 15 -18% potable water, i.e. 3.8 – 4.5 l (1.0 – 1.2 gal.) water per 25 kg (55 lb.) bag. Fill the 15% mixing water (3.8 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. Add more water under stirring until the desired consistency is achieved. The product is workable for 60-75 min. at 23°C.

Priming: Apply a prime coat of VELOSIT CP 201 before applying VELOSIT SR 206 onto concrete.

a.) Trowel application: Trowel VELOSIT SR 206 can be applied, fresh- in- fresh into the prime coat. The product can be applied up to 50 mm (2") on vertical areas in a single application. For larger overhead applications areas may limit the thickness to max. 25 mm (1") use VELOSIT SR 207. Make sure to work in sections that can be finished within 60 min. at 23°C. Rebars and other penetrations must be fully embedded into the mortar.

b.) Spray application: Use suitable spray machines such as:

- PFT GmbH: PFT G4
- HighTech GmbH: HighComb Big
- Wagner GmbH: PC 25
- Putzmeister GmbH: SP12 or MP 25

- Inotec GmbH: INOMAT-M8

In mixing pumps feed the powder into the product hopper and adjust the water to the desired consistency. With mortar pumps add the mixed product as described above into the feed hopper of the spray machine and spray continuously.

If a smooth surface is required, follow with a trowel shortly after spraying. Work in sections.

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 SR 206 is a fast curing material and may be hard to remove if left in the machine. Once cured, VELOSIT SR 206 can only be removed mechanically

3.) Curing

VELOSIT SR 206 does not require long term curing as it reacts relatively fast with water. Only under hot weather or very dry conditions water curing for 3-4 hours is required.

Estimating

Repair of surface defects:

25 kg (55 lbs.) VELOSIT SR 206 result in approx. 15.6 liter (0.55 ft³) cured mortar.

Surface Coating:

10 kg (22 lbs.)* VELOSIT SR 206 per m² (10.7 ft²) for 6 mm (1/4") dry mortar thickness on smooth & level substrates. Consumption will increase proportionately to roughness of substrate surfaces. Depending on surface roughness application rates can be significantly higher.

* 10 kg VELOSIT SR 206 powder + 1.7kg water, i.e. 11.7kg mixed material per 6 mm and m²

Cleaning

VELOSIT SR 206 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 Grey

Mixing ratio by weight: 100 : 17
Mixing ratio by volume: 100 : 27
Density (Mixed): 1.6 kg/l
Substrate temperature: 5 – 35°C*
(40-95°F)

Initial set: 90 min.
Final set: 150 min.

Compressive / flexural strength:
4 hours: 10 / 3 MPa (1450/335 psi)
24 hours: 28 / 6 MPa (4060/870 psi)
7 days : 42 / 8 MPa (6090/1160 psi)
28 days: 53 / 9 MPa (7685/1305 psi)

Chloride ions: < 0.05%
Carbonation resistance: passed
Capillary water absorption: 0.1 kg/m² x h^{0.5}
Adhesive strength**:
- primed with CP 201: 2.4 MPa (348 psi)
Restrained shrinkage**: 2.1 MPa (305 psi)
Fire rating EN13501-1: Class A1

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

Packaging

VELOSIT SR 206 is available in 25 kg (55 lb.) watertight plastic bags.

Storage

VELOSIT SR 206 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.

Used product containers must be emptied completely after use. They can be returned to VELOSIT GmbH & Co. KG on request.

Recommendations

VELOSIT SR 206 is only available for professional applicators.

Never add water to VELOSIT SR 206 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

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