VELOSIT® RM 224

Vertical and Overhead Finishing Mortar

CE
EN1504-3

Application fields

VELOSIT RM 224 is a cementitious finishing mortar for various types of construction substrates. It creates a very fine surface texture and is especially suitable for fair-faced concrete. Typical application fields besides others are as follows:

- Finishing of surface defects on concrete, masonry and many natural stones
- Application on horizontal and vertical incl. overhead areas
- Filling of blow holes, honeycombs and surface roughness
- As a finish on concrete repair systems
- Application thickness from feather-edge to 10 mm (3/8”)

Properties

VELOSIT RM 224 is a shrinkage compensated cementitious finish mortar with fast strength development. VELOSIT RM 224 binds the mixing water very fast reducing or completely eliminating the need for water curing and protection. VELOSIT RM 224 creates an extremely well bonded, rigid, abrasion resistant layer on the substrate.

VELOSIT RM 224 surpasses the requirements of EN 1504-3 class R3 for concrete repair (CR) and can be used according to the principle 3.1 acc. to EN 1504-9.

VELOSIT RM 224 is 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
- 30 min. working time and 15 MPa (2175 psi) compressive strength after 4 hours
- Final strength of more than 35 MPa (5075 psi) after 28 days
- Open to foot traffic after 2 – 3 hours
- Very good adhesion to properly prepared concrete and masonry

- Water curing only under hot and dry conditions required for max. 4 hours
- Good resistance against CO_2 and Chloride penetration due to a very tight pore structure
- Good weathering resistance
- Good sulfate resistance
- Medium gray color close to concrete color

Application

1.) Substrate preparation

VELOSIT RM 224 is designed for mineralic substrates like concrete, masonry or absorptive natural stones.

Mineralic substrates (concrete, masonry, cement compatible natural stones) must be free from all bond breaking substances.

Substrate must be rough, open porous and load bearing. The minimum requirement for adhesive strength is 0.7 MPa (100 psi) and for the compressive strength 20 MPa (2900 psi). Lower strength values can be accepted if lower adhesive strength is acceptable. Before the application of VELOSIT RM 224, dampen the substrate with clean water to a saturated surface dry (SSD) condition.

2.) Processing

Mixing:
Mix VELOSIT RM 224 with 27 – 32 % potable water, i.e. 5.4 – 6.2 l (1.4 – 1.7 gal.) water per 20 kg (44 lb.) bag. Fill the 27 % mixing water (5.4 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 up to 5 % water under stirring until the desired consistency is achieved. Clean mixing paddle immediately after mixing.
The product is workable for 30 min. at 23 °C.

Priming:
Apply a prime coat of VELOSIT RM 224 with a wet sponge to the pre-dampened substrate. Work approximately 0.3 – 1 kg per m^2 (1 – 2 lbs. per 10 ft^2) into the surface pores.

a.) Trowel application:
Trowel VELOSIT RM 224 fresh in fresh into the prime coat or clean surface. The product can be applied up to 10 mm (3/8”) on vertical areas. Make sure to work in sections that can be finished within 30 min.

b.) Re-modeling of architectural features:
Once VELOSIT RM 224 has started to set it can be sculpted as needed. Shave off material in thin layers to achieve desired form. If needed finish surface with a slightly wet sponge to remove surface imperfections and air voids.

3.) Curing

VELOSIT RM 224 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:

20 kg (44 lbs.) VELOSIT RM 224 result in approx. 13.7 liter (0.5 ft^3) cured mortar.

Surface Overlay:
1.5 kg (3.3 lbs.)* VELOSIT RM 224 per m^2 (10.7 ft^2) for 1 mm (40 mils) dry mortar thickness on smooth substrates. Depending on surface roughness application rates can be significantly higher.
* 1.5 kg VELOSIT RM 224 powder + 0.4 kg water, i.e. 1.9 kg mixed material per 1 mm and m^2

Cleaning

VELOSIT RM 224 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:	medium gray
Mixing ratio by weight:	100 : 28
Mixing ratio by volume:	100 : 36
Density:	1.3 kg/l
Substrate temperature:	5 – 35°C (40 – 95 °F)
Initial set:	55 min.
Final set.	85 min.
Compressive / flexural strength:	
4 hours:	13 / 2 MPa (1885/290 psi)
24 hours:	20 / 5 MPa (2900/725 psi)
7 days:	33 / 7 MPa (4785/1015 psi)
28 days:	36 / 8 MPa (5220/1160 psi)
Chloride ions:	< 0.05 %
Carbonation resistance:	passed
Capillary water absorption:	0.1 kg/m² x $h^{0.5}$
Adhesive strength*:	1.5 MPa (218 psi)
Restrained shrinkage*:	1.5 MPa (218 psi)
Fire rating EN13501-1:	Class A1

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

Packaging

VELOSIT RM 224 is available in 20 kg (44 lb.) watertight plastic bags.

Storage

VELOSIT RM 224 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 RM 224 is only available for professional applicators.

Never add water to VELOSIT RM 224 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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