

# REPARATUR MALTER F4

Cement-polymers based mortar, used for structural reparations of concrete in layers with 1,0-2,0 cm thickness, with compensated shrinkage and reinforced with polypropylene fibers

In compliance with EN 1504-3 Class R4

## FIELD OF APPLICATION

Reparatur Malter F4 is used for structural reparations of concrete and reinforce-concrete structures, increasing of protection layer of concrete covering steel reinforcement, reparation of damaged and segregated section on concrete (gravel pockets) etc.

## PROPERTIES

- Excellent adhesion to concrete substrate;
- High strength characteristics;
- Excellent durability performances;
- Easy for preparation and application;
- Resistant to atmospheric influences;
- Do not contain chlorides;

## TECHNICAL FEATURES

Property	Method	Declared values
Appearance	-	Grey powder
Water/material ratio	-	0.15 - 0.16
Maximal size of aggregate	-	4 mm
Specific density	EN 12190	(2100 - 2300) kg/m <sup>3</sup>
Setting time		
Start of setting	EN 13294	(2÷4)h
End of setting		(5÷7)h
Compressive strength		
after 7 days	EN 12190	≥30 MPa
after 28 days		≥45 MPa
Flexural strength		
after 7 days	EN 12190	≥ 6 MPa
after 28 days		≥ 8 MPa
Adhesive bond	EN 1542	≥ 2,0 MPa
Restrained shrinkage/expansion	EN 12617-4	≥ 2,0 MPa
Thermal compatibility:		
Freeze-thaw cycling with de-icing salt immersion	EN 13687-1	≥ 2,0 MPa
Capillary absorption	EN 13057	≤ 0,5 kg · m <sup>-2</sup> · h <sup>-0,5</sup>
Modulus of elasticity	EN 13412	≥ 20 GPa
Carbonation resistance	EN 13295	dk ≤ control concrete

CONCRETE REPAIR

## METHOD STATEMENT:

### 1. SUBSTRATE PREPARATION

Substrate on which Reparatur Malter F4 is applied need to be clean, free of dust and oil, all labile section must be removed. Substrate also need to be saturated with water. Surface temperature on material is applied must be between 5°C and 30°C. In case of reparation of steel reinforced structures, exposed reinforcement must be mechanically cleaned from corrosion (using steel brush or sand-blasting). For additional anti-corrosion protection, the steel elements prepared in this way are recommended to be coated with a coating for active corrosion protection Reparatur Penetrat.

In case of repair of a concrete substrate that is very porous or has low strength characteristics, it is recommended to impregnate the substrate with a primer prepared using Vrska U before applying Reparatur Malter F4.

### 2. APPLICATION

The application of the mixed material is done manually with a spatula, metal trowel or it is done mechanically by spraying.

#### 1. HAND APPLICATION

Reparatur Malter F4 is prepared by mixing with required quantity of water, 150 to 160g of water per 1,0 kg material (one bag of material - 25kg is mixed with 3,75 to 4,0kg water). Mixing is carried out with slow mixer until complete homogenization - minimum 3 minutes. The application of the mixed material is done with a spatula or metal trowel.

#### 2. MACHINE APPLICATION BY SPRAYING

Reparatur Malter F4 can be applied by machine spraying using "wet" and "dry" method. If necessary, the freshly applied material can be further processed with hand tools (trowels), to achieve the required appearance and smoothness of the surface.

#### 3. RECOMMENDED LAYER THICKNESS

The recommended thickness of the applied material Reparatur Malter F4 in one layer (one working procedure) is up to 2,0 cm. When applying Reparatur Malter F4 in several layers, each subsequent layer is applied after bonding the previous one (in a period of several hours, depending on the temperature, consistency, wind and humidity). If Reparatur Malter F4 is applied on vertical and ceiling surfaces in layers with greater thickness than recommended, it is possible that the applied material will slip or fall.

#### 4. CURING OF THE FRESH REPARATUR MALTER F4

For the first few hours after application, the material should be protected from excessive drying by applying appropriate mortar care methods - water spraying, covering and application of specialized fresh concrete care products (eg. Zastita B3). It is necessary to prevent direct exposure to sun and wind.

When applying Reparatur Malter F4 in fields with a larger area, they need to be divided with working joints.

### CONSUMPTION

For layer with thickness of 1.0 cm consumption is roughly 20-21 kg/m<sup>2</sup>.

### CLEANING

Tools and equipment are cleaned with water immediately after their use.


### PACKAGING

Bags 25 kg

### STORAGE

In original closed packing, in dry premises at temperature between 5 and 35 °C. Shelf life: 12 months.

## CE MARKING

 2032	
<b>ADING AD Skopje</b> <b>Novoselski pat (street 1409)No.11, 1060</b> <b>Skopje, Republic of North Macedonia</b> <b>17</b> <b>GCBK001/6</b> <b>EN 1504-3:2005</b> <b>REPARATUR MALTER F4</b> <b>Concrete repair product for structural repair PCC mortar (based on hydraulic cement)</b>	
<b>Compressive strength:</b>	<b>Class R4</b>
<b>Chloride ion content:</b>	<b>≤ 0.05%</b>
<b>Adhesive bond:</b>	<b>≥ 2.0MPa</b>
<b>Carbonation resistance:</b>	<b>Passes</b>
<b>Elastic modulus:</b>	<b>≥ 20GPa</b>
<b>Thermal compatibility, part 1:</b>	<b>≥ 2.0 MPa</b>
<b>Capillary absorption:</b>	<b>≤ 0,5 kg*m<sup>-2</sup>*h<sup>-0.5</sup></b>
<b>Reaction to fire:</b>	<b>Euroclass A1</b>

CONCRETE REPAIR

**Health hazards:** Reparatur Malter F4 does not contain toxic materials. Nevertheless, avoid contact of the product with skin and eyes and avoid swallowing. In case of contact with skin or eyes, rinse it immediately with clean running water. If swallowed, seek medical assistance. Additional information is provided in the Safety Data Sheet of the product.

**Fire:** Reparatur Malter F4 is non-flammable.

**Cleaning and disposal:** Loose residues of Reparatur Malter F4 should be cleaned with water. Old and used packaging should be disposed of in accordance with local rules and regulations for that type of waste. Additional information is provided in the Safety Data Sheet of the product.