



BI MORTAR LEVELLING SEAL



WATERPROOF MORTARS - RAPID-SETTING MORTARS



PRODUCT DESCRIPTION

BI MORTAR LEVELLING SEAL is a waterproof, castable, self-levelling, compensated-shrinkage concrete suitable for all uses requiring high-strength performance. Easily workable, when mixed with gravel it is suitable for thick castings.

PRODUCT APPLICATION

- Structural reintegration of columns and beams by casting in formworks
- Fixing of anchoring and metal structures
- Rebuilding of pile heads and diaphragm walls
- Fixing of anchor bolts of metal rails of gates, cranes and machinery in general
- Filling of rigid joints between precast elements
- Refurbishing of reinforced concrete of industrial, road, airport, and car park floors
- Horizontal refurbishment castings (e.g. slabs of lift pits, light-shafts, tanks, etc.) even in case of reduced thicknesses and/or negative water pressure conditions

ADVANTAGES

- Simplifies and reduces application phases as it reinforces and waterproofs in a single application
- High-strength anchoring
- High mechanical resistance
- Protection against radon

- Suitable for both indoor and outdoor application
- Good levelling
- No voids in the refurbishing
- Hardly subjected to wear

PREPARATION AND APPLICATION

Preparing the surfaces

Perfect adhesion of BI MORTAR LEVELLING SEAL to the surface depends on the quality of the surface preparation on which the mortar is to be applied; accordingly, it is necessary to preventively:

Seal any penetrations with AKTI-SEAL 201 mastic (see relative data sheet).

Seal any localised water flows with TAP 3/I-PLUG rapid-setting hydraulic mortar (see relevant technical data sheets).

Carefully remove all deteriorated parts by sand-blasting or bush-hammering.

Roughen the surface, removing any film or cement residues until the substrate is solid, strong and coarse with a roughness of 5 mm or more.

Clean each exposed reinforcement bar from rust.

Clean any dirt, oil, grease and remove any loose parts.

When repairing floors, areas must not be larger than 3x3 m (9 m²).

In fixing anchor bolts or localised restoration, if necessary provide for the installation of anchoring bars into the existing structure.

Install a metal reinforcement mesh fixed with dowels, or CONNECTOR 20 pins, to the surface in order to allow a balanced shrinkage of BI MORTAR LEVELLING SEAL.

Thoroughly soak the surfaces with water, keeping them damp from when the application process begins.

Remove all water stagnation.

Preparing the mixture

Pour the mixing water into a mortar mixer or a cement mixer (3 l per bag equivalent to 12% in weight).

Slowly add the product while the mixer is on.

High thick casting may require dry and clean gravel of suitable grain size (6÷16 mm) to be added, up to 30% in weight

Mix the mixture for approximately 3 minutes, then check its workability. If necessary, add a little water to obtain the required consistency (small variations in added water will not alter the characteristics of the product).

Continue mixing the mixture for 3 more minutes.

Application

BI MORTAR LEVELING SEAL must be applied in a single solution with a minimum thickness of 4 cm with suitable contrast steel reinforcement.

Thicknesses between 2 and 4 cm can be carried out provided that the substrate has been roughened and CONNECTOR 20 pins have been used to counteract the expansive action.

For casting without containment sides, preventively set up the required formwork, then pour in BI MORTAR LEVELLING SEAL from only one side of the formwork.

The casting must be carried out without interruption and, when containment side boards are used, kept in place for at least 24 hours.

In case of castings at different points in time, if waterproofing is required, the construction and/or expansion joints must be sealed with the BI FLEX System (see relevant data sheet).

In the case of intervention in correspondence with structural joints, contact the Volteco Technical Service.

Machine application

The product can also be applied with a plastering machine with levelling wands after separately mixing the product (for more information contact the Volteco Technical Service).

In this case, always follow the previous application indications.

Finishing

Finish the surface with a spatula or straight edge.

Before applying any coatings, let it cure for at least 7 days after casting.



References available at www.volteco.com

CONSUMPTION AND YIELD

19 kg/m² per centimetre of applied thickness.

A bag of BI MORTAR LEVELLING SEAL mixed with water yields about 13 l of mortar.

PACKAGING AND STORAGE

25 kg bags.

The products must be stored in a dry area protected from sunlight, humidity and from temperatures below 5 °C.

BIMORTAR CONCRETE SEAL in the original packaging has a storage time of 18 months

WARNINGS - IMPORTANT NOTES

Do not add water to extend the pot life.

In the presence of a high temperature or wind, keep the surface damp so as to guarantee a proper curing process.

Significant condensation may occur in environments with poor ventilation or high humidity.

The preparation and installation data refer to normal environmental conditions (temperature +20 °C; relative humidity 60%).

PHYSICAL AND TECHNICAL SPECIFICATIONS

Specification	Values
Appearance	grey powder
Mixture consistency	Fluid
Application temperature	from +5 °C to +30 °C
Workability time at +20 °C	20'
Maximum aggregate size	2.40 mm
Mixture ratio	100 parts powder 12 parts liquid

Feature	Test method	Performance requirements UNI EN 1504-3 Class R4	Declared performance (*)	Certified performance (**)
Specific weight	-	-	> 2.2 kg/l	-
Shrinkage	-	-	controlled	-
Flexural strength after 1 day after 7 days after 28 days	UNI EN 196-1 UNI EN 196-1 UNI EN 12190	- - -	> 4 MPa > 6 MPa > 7 MPa	- - 11.9 Mpa
Compressive strength after 28 days	UNI EN 12190	≥ 45 MPa	> 70 MPa	72.5 MPa
Chloride ions content	UNI EN 1015-17	≤ 0.05%	-	0.01%
Adhesion to the concrete	UNI EN 1542	≥ 2.0 MPa	> 3.0 MPa	3.5 MPa
Compressive modulus of elasticity after 28 days	UNI EN 13412	> 20 GPa	-	28.5 GPa
Resistance to carbonation	UNI EN 13295	dk < control concrete (0.45 MC)	-	fulfilled requisite
Capillary absorption coefficient	UNI EN 13057	≤ 0.5 kg*m ⁻² *h ^{-0.5}	< 0.4 kg*m ⁻² *h ^{-0.5}	0.11 kg*m ⁻² *h ^{-0.5}
Thermal compatibility Part 1 (adhesion after 50 un/freezing cycles)	UNI EN 13687-1	≥ 2.0 MPa	-	2.8 MPa
Thermal compatibility Part 2 (adhesion after 30 thunder cycles)	UNI EN 13687-2	≥ 2.0 MPa	-	2.83 MPa
Thermal compatibility Part 4 (adhesion after 30 dry thermal cycles)	UNI EN 13687-4	≥ 2.0 MPa	-	3.1 MPa

Feature	Test method	Performance requirements UNI EN 1504-3 Class R4	Declared performance (*)	Certified performance (**)
Slipping resistance	UNI EN 13036-4	Class I: >40 units with wet test Class II: >40 units with dry test Class III: >55 units with wet test	-	Dry: class II Wet: class I

Reaction to fire	UNI EN 13501-1	Classification	-	Euroclass A1
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Feature	Test method	Performance requirements UNI EN 1504-6	Declared performance (*)	Certified performance (**)
Chloride ions content	UNI EN 1015-17	≤ 0.05 %	-	0.01 %
Pull-out strength of steel bars - displacement at 75 kN load	UNI EN 1881	≤ 0.6 mm	-	0.35 mm
Reaction to fire	UNI EN 13501-1	Classification	-	Euroclass A1

Feature	Certifying body	Test method	Certified performance (**)
Impermeability	IMM SA (Switzerland)	UNI EN 12390-8	7 Bar: no passage
Radon diffusion coefficient	CZECH TECHNICAL UNIVERSITY IN PRAGUE	ISO/TS 11665-13	6,5 E-9 m ² /s

The quoted data are obtained in a laboratory at +20 °C and 60% RH.

* Performance thresholds guaranteed by VOLTECO

** Performance values certified by accredited third parties

WATCH VIDEOS AND INSIGHTS

Safety Data Sheets

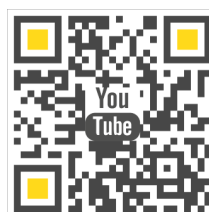
Declaration of performance

Specifications

Technical drawings and BIM

EPD Declaration

YouTube Video



SAFETY

Refer to the related Safety Data Sheet.

	VOLTECO S.p.a Via delle Industrie, 47 - 31050 Ponzano Veneto (I)		VOLTECO S.p.a Via delle Industrie, 47 - 31050 Ponzano Veneto (I)
23 DOP 0047 EN 1504-3:2006 1381-CPR-1160 BI MORTAR LS Structural and non-structural repairs: CC repair mortar for the restoration of concrete, structural strengthening and the preservation or restoration of passivity		23 DOP 0048 EN 1504-6:2006 1381-CPR-1160 BI MORTAR LS Anchoring cementitious mortar for strengthening concrete by installing reinforcing steel (rebars)	
Reaction to fire: Class A1 Compressive strength: Class R4 ≥ 45 MPa Chloride ions content: $\leq 0.05\%$ Adhesion: ≥ 2.0 MPa Resistance to carbonation: $dk \leq$ concrete ref. (MC 0.45) Modulus of elasticity: ≥ 20 GPa Thermal compatibility: • Part 1: Un/freezing cycles: ≥ 2.0 Mpa • Part 2: Thunderstorm cycles (thermal shock): ≥ 2.0 MPa • Part 4: Dry cycles: ≥ 2.0 MPa Slip resistance: dry class II; wet class I Capillary absorption: $\leq 0.5 \text{ kg} \cdot \text{m}^{-2} \cdot \text{h}^{-0.5}$ Hindered shrinkage/expansion: Not relevant Coefficient of thermal expansion: Not relevant Hazardous substances: See SDS		Reaction to fire: Class A1 Chloride ions content: $\leq 0.05\%$ Pull-out strength displacement: $\leq 0,6$ mm at load of 75 kN Hazardous substances: See SDS	

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