MX-PBO MASONRY

Fibre-reinforced inorganic matrix for FRCM strengthening solutions on masonry

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CE EN 998-2

FIELDS OF APPLICATION

Inorganic matrix for use with Ruregold FRCM system PBO meshes for:

- Retrofitting and upgrading the static and seismic behaviour of masonry buildings.
- Structural strengthening of load-bearing walls (piers) and perimeter strips (spandrels) in masonry buildings.
- Structural strengthening of masonry corners and floor edge beams.
- Structural strengthening of eaves edge beams in masonry walls.
- Structural strengthening of masonry arches, vaults, and domes.
- Structural strengthening of masonry infrastructure.
- Increased ductility of masonry buildings.
- Internal partition and external infill wall anti-overturn protection.

METHOD OF USE

Preparing the inorganic matrix

MX-PBO Masonry does not require any additional material and may be prepared using:

- A planetary type mixer.
- A concrete mixer (do not exceed 60% of the nominal load limit and mix with the axis of rotation almost horizontal).
- A screw mixer (e.g. Gras Calce **Turbomalt** mixer).
- The product may also be mixed manually in a bucket using a paddle mixer, pouring in a part of the contents of the bag and adding the appropriate quantity of water.

Mix as follows:

1. Pour in the contents of the bag of **MX-PBO Masonry** and add approx 5.5-6.5 litres of clean water.
2. Mix for about 3-4 minutes (4-5 minutes when using a concrete mixer) so as to obtain a smooth, homogeneous mix.
3. Leave the mix to stand for about 1-2 minutes before use.

FINISHING

Once the mortar is fully cured, apply the appropriate finishing, provided it does not contain chalk.

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IDENTIFICATION DATA

Classification EN 998-2:2016	G - Guaranteed performance masonry mortar for general use on elements subject to structural requirements
Grain size of aggregates	0 - 3 mm
Density of fresh mortar (EN 1015-6)	Approx. 1750 kg/m^3

TECHNICAL SPECIFICATIONS

PERFORMANCE SPECIFICATIONS	REQUIREMENTS IN ACCORDANCE WITH EN 998-2	PRODUCT PERFORMANCE SPECIFICATIONS
Compressive strength after 28 days	Between class M1 (≥ 1 MPa) and class Md (d > 20 MPa as a multiple of 5)	≥ 20 MPa M20
Modulus of elasticity in compression after 28 days	not requested	≥ 7.5 GPa
Chloride content	-	< 0.1%
Reaction to fire (Italian Ministerial Decree 10/03/2005)	-	Euroclass A1

APPLICATION DATA

Mixing water per 25 kg bag	approx. 5.5 - 6.5 litres
Mix consistency	Thixotropic
Application time at 20°C	Densification begins after approx. 10-15 minutes. Mix again and use within a maximum of about 45 minutes
Application temperature	From +5°C up to +35°C
Coverage	approx. 11.4 kg/m^2 per strengthening layer (4+4 mm) approx. 17.1 kg/m^2 per double strengthening layer (4+4+4 mm)
Packaging	Disposable wooden pallet laden with 60 x 25 kg bags - total weight 1500 kg
Storage conditions (Italian Ministerial Decree 10/05/2004)	In original packaging, indoors, in a cool, dry, unventilated place.
Durability (Italian Ministerial Decree 10/05/2004)	Not more than 12 months from packing date.

SPECIFICATION ITEM

Supply and implementation of an FRCM structural strengthening system, consisting of a unidirectional PBO fibre mesh and inorganic matrix, e.g. Ruregold **MX-PBO Masonry**. The PBO fibre has a density of 1.56 g/cm^3, toughness/tensile strength of approx. 5.8 GPa, maximum modulus of elasticity of 270 GPa, and fracture strain 2.5%. The compressive strength of the inorganic matrix, which is specifically designed for masonry substrates, is ≥ 20 Mpa, while the modulus of elasticity is ≥7.5 GPa. The FRCM systems in PBO fibre may be used to strengthen load-bearing walls (piers) and spandrels, reinforce masonry corners, floor and ceiling edge beams, and the intrados and extrados of arch and vault structures, as well as for anti-overturn protection solutions on internal partition and external infill walls. The system is resistant to high temperatures and freeze/thaw cycles and may be applied directly to moist substrates. The system meets the requirements of the FRCM Guidelines issued in March 2022. The substrate must be prepared and the system applied in accordance with the manufacturer's instructions.

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