MasterFill™ 222 (Albaria® Iniezione)

Puzolanic Lime Based Injection Mortar Designed For Historical Masonry Buildings

Material Description

MasterFill™ 222 is an injection mortar containing pozzolanic lime and micronized carbonates, developed for the structural repair and consolidation of masonry elements. It is a factory-produced masonry mortar designed specifically for conservation applications.

Areas of Application

MasterFill™ 222 is an injection mortar designed for repair applications in historical structures made of brick, stone, or tufa, particularly in areas where cracks have formed and the load-bearing capacity has been lost. It is used for:

- Consolidation of masonry walls exposed to sulphate environments
- Strengthening of historical masonry domes and vaults
- Filling of small and large internal voids
- Sealing and injection of cracks
- Injection into masonry foundations

Features and Benefits

- Can be used safely in sulphate-containing environments
- Does not cause adverse physical or chemical reactions with the original building materials or with other restoration materials applied before or after
- The superior hydraulic nature of the binder ensures deep penetration of the injection mortar into the structure
- The medium elasticity modulus makes it ideal for filling both small and large voids, even in cases of load-bearing problems caused by high moisture content in the original material
- Maintains the vapor and moisture permeability of masonry without altering the wall's natural breathability
- Provides controlled expansion that prevents shrinkage and eliminates the risk of harmful internal stresses in the structure
- Contains natural water retainers that allow injection without prior wetting of the surface, preventing free water from migrating toward frescoes and causing damage
- Can be easily injected through low-pressure pumps, syringes, or fine needles thanks to new - generation, polycarboxylate - based superplasticizers
- Free from harmful additives and soluble salts (alkalis, sulphates, chlorides, nitrates) and does not deteriorate over time

Technical Properties

Product Chemistry	Pozzolanic lime and micronized carbonates	
Color	Off white – Light brow	
Grain Size of Injection Mortar	0,1-30 µm D_{85}=15 µm	KR
Compressive Strength (20^{0}C) TS EN 196 7 days 28 days	 >7,0 N/mm^2 >13 N/mm^2	
Flow (DIN Cup, No.6) At the Beginning 20 Minutes Later	 <35 sn <45 sn	
Application Temperature	+5^{0}C +35^{0}C	
Pot Life (20^{0}C)	30 minutes	

Typical values are obtained from the test results of 4x4x16 mortar prism in 23°C and 50% relative humidity conditions. High temperatures shortens the curing and working time, lower temperatures extends the durations.

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Processing Method

(A) Surface Preparation

Remove existing plaster until the entire crack plane is visible. Clean the surface from dust, oil, and construction residues. Remove all loose or damaged material. If active water leakage exists, it must be properly drained or sealed with a suitable plugging mortar.

Cracks 1–5 mm wide

According to crack width, depth, and ambient conditions, drill holes alternately on both sides of the crack plane at intervals of approximately 30–50 cm. Each hole should cross the crack plane at about a 45° angle and reach the opposite side. Blow compressed air into the holes to remove dust and loose particles, then install and tighten plastic packers. After all packers are installed, seal around them and over the crack with MasterCrete™ 285 Thix to ensure tightness. Depending on temperature and humidity, start injection with MasterFill™ 222 after at least 24 hours using a suitable injection pump.

Cracks wider than 5 mm

Cracks Wider than 5 mm Depending on crack width, depth, and ambient conditions, insert pneumatic hoses into the crack at 75–100 cm intervals. Clean the inside of the crack with compressed air. After placing the hoses, seal around them and over the crack with MasterCrete™ 285 Thix to ensure complete sealing. After at least 24 hours, begin the injection process with **MasterFill™ 222** using an appropriate pump.

(B) Mixing

Pour the required amount of clean water into a mixing bucket. Add **MasterFill™ 222** gradually while mixing with a mechanical mixer at 400–600 rpm for 3–4 minutes until a homogeneous and lump-free consistency is obtained. Allow the mixture to rest for about 4 minutes, then remix for 30 seconds before use.

Mixing Ratio

MasterFill™ 222	1 kg Powder	15 kg Bag
Water Quantity	0,29 liter	4,35 liter
Mixed Density	1,93 kg/liter	

(C) Processing

Connect the pump hose to the **lowest** packer or hose on the cracked surface. Pump the mortar until it appears from the next higher packer. Close the lower packer and move upward sequentially until mortar exits the top packer indicating the crack has been completely filled. After 24 hours, remove or cut packers/hoses and finish the surface with suitable **MasterCrete™** repair mortar.

Consumption

Approximately **1.50 kg of powder** is required to obtain **1 liter** of mortar.

Points to Consider

- Apply only when ambient and substrate temperatures are between **+5 °C and +35 °C**
- Injection should be carried out by trained and qualified applicators
- Mixing must be done using mechanical mixers — hand mixing is not allowed
- During curing, the substrate temperature must not fall below the permitted minimum

Cleaning of Tools

Clean tools and equipment with water immediately after use.Once hardened, **MasterFill™ 222** can only be removed mechanically.

Packaging

15 kg polyethylene-reinforced kraft bag.

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Shelf Life

12 months after the production date under appropriate storing conditions.Opened packages must be stored by tightly sealing the bag/cover and must be used in one week.

Storage

Store unopened bags in a cool and dry environment, protected from frost.For short-term storage, stack a maximum of **3 pallets** and follow the **first in–first out (FIFO)** principle. For long-term storage, pallets must not be stacked on top of each other.

Health and Safety

Standard precautions for handling chemical products should be followed. Wash hands thoroughly during breaks and after work. Do not eat, drink, or smoke during application. Refer to the **Material Safety Data Sheet (MSDS)** for detailed safety and handling information. Product and packaging disposal must comply with local regulations; responsibility lies with the end user.

Disclaimer

The information in this technical document is based on current scientific and practical knowledge. **MBT Teknik Yapı Kimyasalları Sanayi ve Ticaret A.Ş.** is responsible only for the quality of the product. The company cannot be held liable for results arising from improper use or applications outside the written recommendations. This technical data sheet remains valid until replaced by a newer version.

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