

# Mikrosana

## Colloidal calcium and active silica mixture for consolidating injections



Mikrosana is a mixture of cement-free binders, recommended for injecting consolidation of brick, stone and mixed structures. Its hydraulic grip is based on the active lime-microsilica reaction and the presence of hydraulic calcium free of harmful soluble salts. Its exceptional fluidity, coupled with extremely small particle size, allows it to penetrate less than 1.5 mm pores and cracks. The addition of natural and artificial pozzolans allows progressive hydration and hardening beyond the standard 28 days of ripening. Mikrosana, thanks to its particular constituents, is totally compatible with old mortars, which makes its use particularly recommended for the injection consolidation of antique plasters, even in the presence of frescoes.

**CUSTOMS CODE:** 3824 5090

**COMPONENTS:** Single-component

**APPEARANCE:** Powder

**AVAILABLE COLORS:** Hazel

**PACKAGING AND DIMENSIONS:** Bag 25 kg - Pallet: 50 x (Bag 25 kg)

### OBTAINED CERTIFICATIONS AND REGULATIONS



### FEATURES AND BENEFITS

"• Extremely low hydration heat; • High water vapour permeability; • Low elastic modulus; • Good mechanical resistance with slow and gradual mechanical resistance development; • High support adhesion; • Extremely fine binders and aggregates that allow high penetration crack and porous injections; • Well-distributed structural consolidation and rebalancing across the entire masonry body; • Compatibility with antique plasters and traditional materials; • No expansive crystallization reactions or rejection by standard antique masonry materials; • Absolutely no bleeding (mix water separation)."

### FIELDS OF APPLICATION

"Mikrosana is used for consolidating and re-adhesive injections of antique and frescoed plasters and as a grout for consolidation and rehabilitation injections of brick, stone and mixed structures. Particularly recommended for antique wall structures with issues of compatibility between wall structure components and standard cement-based or epoxy-based reinforcement injections. When applying consolidating injections in sizeable antique masonry volumes, it is recommended to avoid: • The hardening of some injected areas faster than others (e.g. use of rapid hardening cement) • Water vapour barriers that interfere with the normal breathability of the wall structure (e.g. use of epoxy resin injections); • Stressing the wall structure with excessive heat build-up during the hardening of binding mixtures (e.g. use of extra-fine Portland cement). • Chemical incompatibility with materials in the wall structure (e.g. potential formation of sulfoaluminates, such as ettringite and thaumasite, from the reaction between sulphates in the wall structure and Portland cement)."

### ALLOWED SUPPORTS

Plasters - Bricks - Mixed walls (bricks and stones) - Stone walls



## PREPARATION OF SUPPORTS

"Before consolidating injections, joint grouting and masonry cracks must be sealed to prevent the injected material from leaking out. This can be done in the following ways: • By providing, if plastering, a Untersana rendering coat or plaster made on site using the natural hydraulic lime CALCESANA; • By performing, if the masonry is to left exposed, perfect pointing of joints and discontinuities (e.g. cracks, dents, gaps) with one of the following mortars: Sanazieg, Sanalink or Unisan (to be chosen depending on the structural needs and characteristics of the antique mortars in the wall structure). After sealing the discontinuities, make a pattern of holes, with a slightly downward incline, in correspondence with the mortar joints. Usually 4-6 holes are made per square metre with approximately 50cm separation and 20mm diameter. However, the exact arrangement and diameter of holes, angle of inclination, depth of penetration and any reinforcement of holes is to be decided by the designer and works manager, according to decisions based on structure type, degradation and intended result. After blowing out disintegrated mortar and dust, wet the holes with water. Then insert plastic tubes (diameter 10 to 30 mm as needed) to convey the injection mixture well inside the holes. The tubes must be fixed to the masonry with one of the following mortars: Sanazieg, Sanalink or Unisan."

## MODE OF USE

"Mixing: Mikrosana mixing must be carried out with a high efficiency mechanical stirrer (e.g. twin-helix mixer with speed variator), with correct minimum/maximum water ratios (from 20% to 23% based on the weight of the premix), for at least three minutes. Mikrosana acquires exceptional fluidity only after effective mixing. Once the desired consistency has been obtained, it is recommended to pass the mix through a 2 mm mesh sieve (or similar) to remove any lumps before injecting. Injecting: Injecting can be performed using gravity or mechanical means, from the lower holes first up to the higher ones, and with a pressure limited to sub 2 atm. If using mechanical means, pumping must be adjustable to low pressures. The mixture has a long useful life (> 1 hour), but it is recommended to keep it moving during work pauses and to stop using it after more than 3 hours, since, though not visible to the eye naked, it can begin to lose its exceptional fluidity and ability to penetrate into micro-cavities and micro-cracks."

## APPLICATION METHODS


Injection


## TOOL CLEANING


Water

## KEY FEATURES

 Maximum diameter of aggregate: 0.5 mm

 Pot-life: 60 min

 Mix with water: 20-23 %

 Shelf-life: 12 months

## TECHNICAL SPECIFICATIONS

*UNI EN 1015-11*  
Compressive strength > **12 N/mm<sup>2</sup>**

*UNI EN 1015-12*  
Bonding force **0.8 N/mm<sup>2</sup>**

*EN 13142*  
Static elastic modulus **5000 - 7000 MPa**

*UNI EN 1015-18*  
Capillary absorption **0.48 kg•h<sup>0.5</sup>/m<sup>2</sup>**

*UNI EN 1015-17*  
Chloride content **0.0098 %**

*UNI EN 1015-11*  
Flexural strength > **3 N/mm<sup>2</sup>**

*EN 1745*  
Thermal conductivity **0.47 W/mK**

*EN 1745*  
Permeability to water vapor **5/20 μ**

*UNI EN 1015-6*  
Density **1700 kg/m<sup>3</sup>**

*UNI EN 1015-18*  
Water penetration after capillary absorption **2.2 mm**



## CONSUMPTION

Approximately 1400 kg of Mikrosana for each cubic metre of volume to be filled.

## STORAGE AND CONSERVATION

Protect from humidity. Store the product at a temperature between +5°C and +35°C.

## PHOTO GALLERY



## ADDITIONAL CONTENT



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