



SCHEDA TECNICA

SIOX-5 RE39 - Pre-consolidant - inorganic silica based treatment

SIOX-5 RE39 is a pre-consolidant treatment based on sol-gel technology developed by the Group of Chemistry for Cultural Heritage at the University of Padua, Italy (Patent n. 0001370467 Synthesis of silica protective films by tin-catalized sol-gel process).

HOW IT WORKS

The product contains a stable lattice of nanostructured and functionalized silica. Once applied to the material and absorbed by pores, the liquid solidifies forming layers of amorphous silica able to restore the mechanical surface properties of stones, plasters, terracotta.

In contrast to traditional systems based on reactions between ethyl silicate and atmospheric humidity for silica formation (in 30-40 days), the sol-gel technology allows obtaining silica thanks to a neutral catalyst promoting room temperature reactions with a consolidant effect in 24 hours.

APPLICATION

Surface preparation

Before the application the surface must be dry without salt efflorescences.

Dilution

The product is ready to use without dilution.

Directions for use

Apply by means of low pressure sprayer (0,5 bar max) and repeat the operation until the mechanical properties necessary for cleaning and consolidation are reached. The product is compatible with immersion, application by brush and injection.

Surface coverage

The product yield is about 2-3 m²/L on the basis of material porosity.

Activation time

At 20°C the surface is protected after 30 minutes from possible rainfall. The consolidating power is operating after 24 hours from the treatment.

Stability

The treatment is completely stable after 72 hours.

Temperature conditions

Min. 5°C – max. 35°C.

CHEMICAL/PHYSICAL PROPERTIES

Composition

The product is liquid and contains pre-crosslinked silica (~ 20%) in alcoholic solution.

Aspect

Liquid, colorless, transparent.

Relative density

0,839 g/cm³

Drying

At room temperature.

Flash point

<19 °C

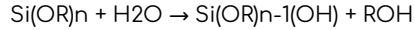


Punti di infiammabilità
<19°C

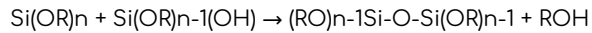
Reactions

The liquid products forms a thin layer of glass through two reactions:

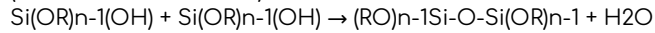
1. Hydrolysis



2. Condensation



(alcohol condensation)



(water condensation)

Permeability to water vapour

V1 class (high permeability to vapour) according to UNI EN ISO 7783, 2012.

Compatibility

Chemical covalent bonds are formed between the silica layer and the substrate: Si-O-Si (in case of silicate material) or Si-O-Ca (in case of carbonates), with water release.

ADDITIONAL NOTES

Cleaning of the application tools

After use the tools should be washed with alcohol (2-Propanol or ethanol).

Storage

Store in a closed container, away from heat in a cool, dry place. If properly stored, the storage life is 24 months.

Safety

The product is flammable.

Advices

The product is in alcoholic solution and has a quick setting: please avoid the application with temperatures higher than 35 °C. Carry out a preliminary test on a small surface area.

Note

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. We reserve the right to modify and improve the product and to adapt it to safety regulations as well as to modify the packages. We suggest to adapt the application of our products on the basis of the nature and of the conditions of the material to be treated by testing the product in a sample area. Our technical office is at disposal for any other explanation.