



## TECHNICAL DATA SHEET

### SIOX-5 RE16C - Protective coating for enamels and glazed ceramic

SIOX-5 RE16 is a water repellent protective coating 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 nanostructured silica gel. Once applied it forms a layer of amorphous silica thin, colorless, transparent, compatible with the substrate, able to bond with glass surfaces and fill microcracks (craquelure). The ceramic is water resistant and the penetration of stain, salts and microorganisms is prevented.

### APPLICATION

#### Surface preparation

Remove dust and deposits from the surface to be treated. Before the application the surface must be dry.

#### Dilution

The product is ready to use without dilution.

#### Directions for use

Use spray or brush to apply the product on the surface. Spread immediately the product evenly on the surface with a microfiber cloth until it dries in a uniform coating. Treat small areas until the whole surface is coated. Possible retouching must be performed until wet, without waiting.

ATTENTION: Quick setting product, once sprayed it has to be spread immediately and not left on the surface.

#### Surface coverage

The product yield is about 70 m<sup>2</sup>/L, values could be different on the basis of material porosity.

#### Temperature conditions

Min. 5°C – max. 35°C.

### CHEMICAL/PHYSICAL PROPERTIES

#### Composition

The product is liquid and contains nanostructured silica ( 25%) in alcoholic solution functionalized with silica alkoxides organically modified.

#### Aspect

Liquid, colorless, transparent.

#### Relative density

0,822 g/cm<sup>3</sup>

#### Drying

At room temperature.

#### Flash point

<19°C

#### Reactions

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

1. Hydrolysis



2. Condensation



$\text{Si(OR)}_n + \text{Si(OR)}_{n-1}(\text{OH}) \rightarrow (\text{RO})_{n-1}\text{Si-O-Si(OR)}_{n-1} + \text{ROH}$   
(alcohol condensation)

$\text{Si(OR)}_{n-1}(\text{OH}) + \text{Si(OR)}_{n-1}(\text{OH}) \rightarrow (\text{RO})_{n-1}\text{Si-O-Si(OR)}_{n-1} + \text{H}_2\text{O}$   
(water condensation)

#### **Interaction with the surface**

The interaction between the silica layer and the surface is a chemical covalent bond of the type Si-O-Si with water release.

#### **Reversibility**

Reversible with alkaline poultice.

#### **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.