

## TECHNICAL DATA SHEET

### SIOXGEL - Water repellent protective coating for clear glass

SIOXGEL is a sol-gel based product for the protection of glass surfaces by improving the water repellency. The liquid chemical contains nanostructured silica. Once applied, it forms an homogeneous layer of vitreous silica permanently bonded to the surface. The treatment prevents the absorption of grime, soap and limescale in the porosity of the glass.

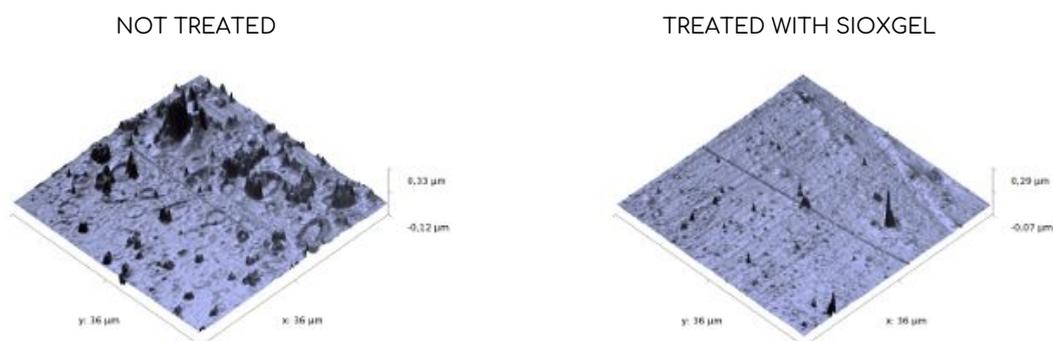


Fig. 1-2: AFM (Atomic Force Microscopy) images of an untreated glass (left) and a glass with SIOXGEL (right). The treatment reduces the surface roughness avoiding the deposition and penetration of grime and impurities.

## APPLICATION

### Surface preparation

The surface need to be clean and degreased to ensure best performances and to avoid grime to be trapped in the film. It is thus recommended a preliminary cleaning of the surface with automated or manual systems with isopropyl alcohol. Before the application the surface must be dry.

### Dilution

The product is ready to use without dilution.

### Directions for use

Spray or pour the product on the surface. Spread immediately the product evenly on the surface with a microfiber cloth until it dries, removing halos and reaching the original transparency of the glass. Horizontal and vertical movements have to be preferred during the application with the cloth. Treat small areas (max 1 square metre) until the whole surface is coated.

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 100 m<sup>2</sup>/L,

### Drying

The coated surface is dry in 1 minute.



#### Stability

The treated surface may be handled and wet with water 24 hours after the application. The thin film is completely stable after 72 hours and it is possible to use detergents to clean the surface.

#### Temperature conditions

min. 5°C – max. 35°C.

### CHEMICAL/PHYSICAL PROPERTIES

#### Composition

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

#### Aspect

Liquid, colorless, transparent.

#### Relative density

0,863 g/cm<sup>3</sup>

#### Drying

At room temperature.

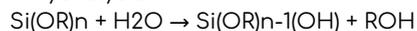
#### Flash point

24 °C

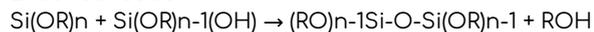
#### Reactions

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

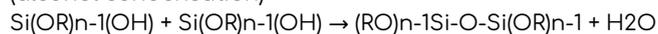
1. Hydrolysis



2. Condensation



(alcohol condensation)



(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

#### Optical properties

The silica film does not alter the aesthetic features of the glass being colorless and transparent. The coating is not absorbent in the range  $\lambda=200-900$  nm (UV-Vis spectroscopy measurements).

#### Adhesion

Good adhesion (GT 0) according to the norm UNI EN ISO 2409:1996.

#### Hardness

Pencil hardness 9H according to the norm UNI 10782:1999.

#### Resistance to detergents

When cleaning the treated surface use only water or water and mild detergent with microfibre cloths or soft sponges . For regular maintenance and in presence of hard water it is possible to use acid solutions (hot water and vinegar); avoid alkali wash, powder detergents and abrasives. it is recommended to remove water



drops by means of a silicon squeegee. With a proper maintenance the treatments can resist to 6500 washing.

**Compatibility with other materials and products**

The treated surface is compatible for the bonding with neutral and acetic silicon and MS polymer. The product is compatible to aluminum, steel, gasket, ceramic, stone, wood and corian.

**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. If there is an excess of product, this needs to be removed using alcohol (2-Propanol or ethanol) immediately after the application or abrasives as cerium oxide.

**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.