



## Technical Data Sheet

### XIAMETER™ OFS-6697 Silane

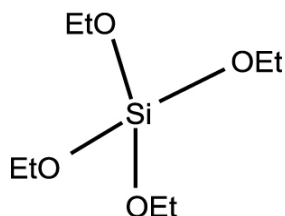
Tetraethyl orthosilicate (TEOS) for the consolidation of construction materials such as stones in buildings or monuments

#### Features & Benefits

- Pure grade (> 99%)
- Good penetration, due to small molecular size
- Inorganic binder, UV stable
- No aesthetical change to the substrate
- Water vapor permeability is maintained
- Can be used as crosslinker
- Used for sol-gel processes in combination with other alkylsilanes such as XIAMETER™ OFS-6070 Silane

#### Composition

- TEOS
- CAS# 78-10-4



#### Applications

- XIAMETER™ OFS-6697 Silane pure silane that can be applied neat, diluted or as part of a formulated product. Applied to natural stones or other construction materials, it forms a silica-gel like binder (SiO<sub>2</sub>) that increases the substrate strength.
- Polymerization of silicone resins for use in paints and other surface modification applications
- Intermediate for sol-gel process

#### Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

Property	Unit	Result
Appearance		Clear liquid
Active ingredient (GC)	%	> 99

## Typical Properties (Cont.)

Property	Unit	Result
Chloride content	ppm	< 10
Specific gravity at 25°C (77°F)	g/cm <sup>3</sup>	0.93
Flash point - (closed cup)	°C	54
	°F	> 113
SiO <sub>2</sub> content	%	28.7
Viscosity	mm <sup>2</sup> /s	0.72

### Description

Tetraethyl orthosilicate (TEOS) will react with moisture to form a silica-gel like binder and ethanol byproduct which evaporates. The siloxane resin formed is a very resistant inorganic binder to acid rain. Due to the low viscosity it can reach up to 10–20 cm penetration depth in very porous substrates.

### How To Use

Construction materials and specifically natural stones, vary considerably in composition and e.g. porosity. Thus the degree of degradation can be significantly different. Therefore treating a test area is always recommended to determine the process and quantity to be applied for successful restoration. XIAMETER OFS-6697 Silane can be applied pure, although good results are also obtained for 70–75% of active content in a suitable solvent (e.g. alcohols). The substrate has to be, dry and preferably free of dirt.

The product should be applied between 5°C (41°F) and 20°C (68°F) and relative humidity not below 40%. During the first 2–3 days after the treatment the substrate should be protected against rain and direct sunlight. The reaction will be complete after 2–4 weeks. Methods of application include spraying, brushing or dipping. For complex forms (statues) fabric soaked with XIAMETER OFS-6697 Silane can be used as compresses.

If necessary the treatment can be repeated after 2–4 weeks.

In low humidity environments the treatment can be accelerated by adding small amounts of water to (0.5% by weight) the XIAMETER OFS-6697 Silane just prior to the treatment. However since the product is not water soluble a co-solvent such as Ethanol should be used when water has to be added. The reaction can also be accelerated by adding neutral catalyst as titanium alkoxides or tin organic compounds.

Although some water beading effect can be temporarily observed after application, the XIAMETER OFS-6697 Silane will not make the substrate hydrophobic. If protection of the substrate against water ingress is desired, a water repellent should be applied after the product has fully reacted.

#### Formulation Of 2 In 1 Products

XIAMETER OFS-6697 Silane can be formulated in combination with a solvent-based water repellent such as DOWSIL™ Z-6689 Water Repellent. This is suitable to strengthen and protect stones which are not already degraded too much.

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XIAMETER™ OFS-6697 Silane

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Handling  
Precautions

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Storage

Product should be stored at or below 35°C (95°F) in original, unopened containers.

Limitations

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

Not intended for human injection. Not intended for food use.

Health And  
Environmental  
Information

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