

Dynasytan® F 8261

Fluoroalkylsilane

Technical data

Properties and test methods	Value	Unit	Method
Density (20 °C)	1.334	g/cm ³	DIN 51757
Viscosity (20 °C)	3.5	mPa·s	DIN 53015
Flash point	108	°C	DIN EN ISO 2719
Boiling point (1.013 hPa)	220	°C	DIN 51751
Melting point	< -38.0	°C	DIN ISO 3841
pH-value (20 °C, 1:1 in H ₂ O)	5.5	-	DIN 19268

Registrations

Dynasytan® F 8261

DSL/NDSL (Canada):	*
PICCS (Philippines):	No
TSCA (USA):	Yes; for professional or industrial use only. It is
a violation of federal law for this product to be	distributed to or used by consumers (40CFR721.3)
IECSC (P.R. China):	Yes
ENCS (Japan):	*
ECL (South Korea):	Yes
AICS (Australia):	Yes
EINECS/ELINCS (EU):	Yes
* = available on request	

Dynasytan® F 8261 is a bifunctional silane possessing hydrolyzable inorganic ethoxysilyl groups and a fluoroalkyl chain.

Dynasytan® F 8261 acts as a surface modifier on mostly hydroxyfunctional substrates (e.g. glass, ceramic). It can also be used as an adhesion promoter between inorganic materials and fluoropolymers (PTFE, fluorosilicones etc.). Dynasytan® F 8261 is a colorless and odorless liquid. It can be diluted to a proportion of about 25 wt.-% in ethanol and various other organic solvents, e.g. n-hexane, xylene, acetone or ethyl acetate.

Safety and handling

Before considering the use of Dynasytan® products please read its Safety Data Sheet (SDS) thoroughly for safety and toxicological data as well as for information on proper transportation, storage and use. The Safety Data Sheet is available after registration on our website www.dynasytan.com or upon request from your local representative, customer service or from Evonik Resource Efficiency GmbH, Product Safety Department, E-MAIL sds-hu@evonik.com.

Packaging, storage and shelf life

Dynasytan® F 8261 is supplied in drums containing 10 kg, 25 kg or 200 kg.

In the unopened container, the shelf life of Dynasytan® F 8261 is min. 12 months from delivery.

Properties and applications

Dynasylan® F 8261 can be applied in a wide variety of commercially important applications: Examples include:

- Treatment of automotive glass ("wiperless windshield")
- Easy-to-clean, water-repellent, UV-resistant coating of float glass (constructive glazing)
- Additive for sol-gel systems
- Synthesis of fluorosilicones
- Coating of pigments (e.g. in cosmetics)
- CVD processes
- Easy-to-clean coating on ceramics

Reactivity

In the presence of water, the ethoxy groups of Dynasylan® F 8261 hydrolyze to produce ethanol and form reactive silanol groups which can bond to a variety of inorganic substrates. The fluoroalkyl functional group provides a low energy surface.

Hydrophobic and oleophobic surface properties can also be achieved by treatment with commercial fluorocarbon surfactants and resins. However, Dynasylan® F 8261 has a distinct advantage: The formation of a Si-O-substrate bond and subsequent horizontal crosslinking, which takes place upon evaporation of the solvent. This process leads to the formation of 2- and 3-dimensional networks.

Thus starting from very low concentrations Dynasylan® F 8261 is able to form chemically and mechanically stable coatings which exhibit a thickness of only a few nanometers. Suitable substrates include glass, silica, quartz powder, sand, sandstone, cristobalite, wollastonite, mica, kaolin, talc, and other silicate surfaces.

Processing

Surfaces must be absolutely clean and degreased before treatment!

E.g. the glass surface can be ideally activated with cerium oxide. For example:

- Glass treatment (e.g. on automotive glass)

The silane is typically diluted to about 1 wt.-% in a suitable solvent (e.g. isopropanol) after which 2-10 wt.-% of distilled water and 0.2 wt.-% of hydrochloric acid (37%) are added. The solution is stirred for about 5 hours and should then be used within one day. Substrate treatment can be carried out by dipping, spraying, rinsing, painting or polishing.

The obtained polysiloxane film is completely invisible and will not lead to any optical impairment on the substrate.

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