

Dynasylan® 2201 EQ

3-Ureidopropyltriethoxysilane, 50% solution in methanol, ethylcarbamate-free, contains no carcinogenic by-products

Technical data

Properties and test methods	Value	Unit	Method
Density (20 °C/ 68 ° F)	approx. 0.92	g/cm ³	DIN 51757
Refractive index n (20,D)	approx. 1.39	-	DIN 51423
Viscosity (20 °C/ 68 ° F)	approx. 2.5/ 2.7	mPa·s / cSt	DIN 53015
Flash point	approx. 13/ 55	°C/ °F	DIN 51755

Registrations

Dynasylan® 2201 EQ

DSL/NDSL (Canada):	Yes
PICCS (Philippines):	Yes
TSCA (USA):	Yes
IECSC (P.R. China):	Yes
ENCS (Japan):	Yes
EINECS/ELINCS (EU):	Yes
AICS (Australia):	Yes
ECL (South Korea):	Yes

Dynasylan® 2201 EQ is a bifunctional organosilane possessing a reactive organic ureido group and a hydrolyzable inorganic triethoxysilyl group.

The dual nature of its reactivity allows **Dynasylan® 2201 EQ** to bind chemically to both inorganic materials (e.g. glass, metals, fillers) and organic polymers (e.g. thermosets, thermoplastics, elastomers), thus functioning as an adhesion promoter and as a surface modifier. **Dynasylan® 2201 EQ** is a 50% solution of silane in methanol, is a colorless liquid with an alcohol-like odor and is soluble in alcohols, ketones, esters or aromatic hydrocarbons.

Due to novel patented process, **Dynasylan® 2201 EQ** is the first ureidofunctional silane, which contains no carcinogenic by-products, e.g. ethylcarbamate. **Dynasylan® 2201 EQ** is therefore not classified as "carcinogenic, class 2".

Safety and handling

Before considering the use of **Dynasylan®** and **Protectosil®** products please read its Material Safety Data sheet (MSDS) thoroughly for safety and toxicological data as well as for information on proper transportation, storage and use. The Material Safety Data Sheet is available after registration on our website www.dynasylan.com or upon request from your local representative, customer service or from Evonik Industries AG, Product Safety Department, E-MAIL sds-im@evonik.com.

Packaging and storage

Dynasylan® 2201 EQ is supplied in 25 kg and 180 kg drums. **Dynasylan® 2201 EQ** should be stored in a cool, well-ventilated place protected from moisture. In the unopened container **Dynasylan® 2201 EQ** has a shelf life of at least one year.

Properties and application

Dynasylan[®] 2201 EQ finds application in the products of many industries. Examples are:

- as a size constituent of finish for glass fiber/glass fabric composites
- as an additive to phenolic, furan and melamine resins for foundry resins and abrasives
- as an additive for sealants and adhesives
- as an additive and/or primer for paints and varnishes to improve adhesion to the substrate

Important product effects that can be achieved through the use of **Dynasylan**[®] 2201 EQ are:

- improved mechanical properties: e.g. flexural strength, tensile strength, impact strength, modulus of elasticity
- improved resistance to moisture and corrosion
- higher temperature of deflection under load

Dynasylan[®] 2201 EQ also helps improve processing properties such as

- increased filler content

Reactivity

In the presence of water, the ethoxy (Si-OC₂H₅) groups of **Dynasylan**[®] 2201 EQ hydrolyze to form reactive silanol (Si-OH) groups which can bond to a variety of inorganic substrates. The organophilic ureido group of **Dynasylan**[®] 2201 EQ can react with a suitable polymer. Hydrolysis of **Dynasylan**[®] 2201 EQ can be catalyzed by acids.

Examples of suitable inorganic substrates are glass, glass fibers, glass wool.

Dynasylan[®] 2201 EQ may be used with such polymers as epoxy, phenolic, furan and melamine resins, polyurethanes, PA, PBT, PE, EVA, PP, PVB, PVAC, acrylics and silicones.

Processing

Dynasylan[®] 2201 EQ can be used for as a primer (approx. 1-10 wt.% solution in an organic solvent such as alcohol), or as a constituent of an aqueous size or solution.

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