Dynasylan®

Product Information

Dynasylan® GLYEO

3-glycidyloxypropyltriethoxysilane

CAS NUMBER

2602-34-8

PRODUCT DESCRIPTION

Dynasylan® GLYEO is a bifunctional organosilane possessing a reactive organic epoxide and a hydrolyzable inorganic triethoxysilyl group.

The dual nature of its reactivity allows Dynasylan® GLYEO 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, crosslinking agent and/or surface modifier. Dynasylan® GLYEO is a colorless low-viscosity liquid with a slight terpentine-like odor. It is soluble in alcohols, ketones and aliphatic and aromatic hydrocarbons.

Typical Properties

Property	Unit	Value
Appearance		Colorless
Boiling Point, min. (1.013 hPa) DIN 51356	°C	270
Chemical Name		3-glycidyloxypropyl-triethoxysilane
Density (20 °C) DIN 51757	g/cm³	1.006
Flash Point, min. DIN EN ISO 2719	°C	125
Freezing Point OECD 102	°C	-70
pH Value (1.000g/l; 20 °C)DIN 38404-C5		~3,5-4,0
Viscosity (20 °C) dynamic DIN 53015	mPa·s	3,35

The data represents typical values (no product specification)

TYPICAL APPLICATIONS

Dynasylan® GLYEO is an important or even essential ingredient in the products of many industries.

Examples are:

- adhesives and sealants: as a primer or additive
- paints and coatings: as an additive and as a primer for improving adhesion to the substrate, especially glass and metal
- glass fiber/glass fabric composites: as a finish or a size ingredient
- foundry resins: as an additive to polyurethane resins
- mineral filled composites: for pretreatment of fillers and pigments or as an additive to the polymer

BENEFITS & ADVANTAGES

Important product effects that can be achieved through the use of Dynasylan® GLYEO include:

- adhesion properties on adhesives, sealants or coatings/paints to appropriate substrates or metals
- improved mechanical properties, such as flexural strength, tensile strength, impact strength and modulus of elasticity
- improved moisture and corrosion resistance
- improved electrical properties, for example dielectric constant, volume resistivity

Dynasylan® GLYEO can also improve such processing properties as

- better filler dispersion
- rheological behavior (i.e. viscosity reduction) Newtonian behavior
- increased filler loading

DOSAGE

For substrate pretreatment, Dynasylan® GLYEO can be used as a primer either as an approximately 0.5-2% solution in an organic solvent such as alcohol, as a constituent of an aqueous size, or neat. It can also be added to the polymer matrix as an additive (1-10 wt.-%). A chemical modification can be achieved by reaction with suitable functional monomers or polymers.

HANDLING & PROCESSING

In the presence of water, the ethoxy (-OCH_2CH_3) groups of Dynasylan® GLYEO hydrolyze to produce ethanol and reactive silanol (-Si-OH) groups which can bond to a variety of inorganic substrates. The organophilic glycidyl end of Dynasylan® GLYEO can react with a suitable polymer. Hydrolysis of Dynasylan® GLYEO is catalyzed by organic acids such as acetic acid. Examples of suitable inorganic substrates are glass, glass fibers, glass wool, mineral wool, silicic acid, quartz, sand, cristobalite, wollastonite, mica as well as aluminum hydroxide, kaolin, talc, other silicate fillers, metal oxides and metals.

Dynasylan® GLYEO may be used with such polymers as epoxy, phenolic and melamine resins, polyurethanes, ABS, PBT, PS, PVAC, PVC, acrylates, polysulfides, EPDM and butyl rubber.

Before considering the use of Dynasylan® 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 on our website https://silanes.evonik.com/en or upon request from your local representative, customer service or from Evonik Operations GmbH, Product Safety Department, E-MAIL sds-hu@evonik.com.

PACKAGING

Dynasylan® GLYEO is supplied in 25 kg cans, 200 kg drums and 1.000 kg IBC containers.

SHELF LIFE

In the unopened container Dynasylan® GLYEO has a shelf life of min. 12 months from delivery.

Registration Listings

Registry	Status
Australia (AIIC)	Yes
Canada (DSL)	Information on Request
China (IECSC)	Yes

Registration Listings

Registry	Status
EU (REACH)	Yes
EU (EINECS/ELINCS)	Yes
Japan (ENCS)	Yes
South Korea (KECL)	Yes
Philippines (PICCS)	Yes
Türkiye (KKDIK)	Yes
USA (TSCA)	Yes

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