Dynasylan®

Product Information

Dynasylan® BTSE

Bis(triethoxysilyl)ethane

PRODUCT DESCRIPTION

Dynasylan® BTSE is a commercially available bipodal alkylsilane. It is used in numerous applications where its nature as an excellent crosslinking agent is crucial. Its use usually requires acid- or alkali-catalysed hydrolysis.

Since all six ethoxy groups are able to participate in this reaction, Dynasylan® BTSE is regarded as hexafunctional. Hydrolysis leads to silanol groups which, in a subsequent condensation reaction, form very stable siloxane bonds (-Si-O-Si-). Condensation starts before hydrolysis is complete. During storage of these hydrolysates, condensation continues until a gel is formed. The rate of gelation depends on the concentration of catalyst and water.

Typical Properties

Property	Unit	Value
Boiling Point OECD 102 (1.013 hPA)	°C	≤267
Chemical Name		Bis(triethoxysilyl) ethane
Density (20 °C) OECD 109	g/cm³	~0.966
Flash Point DIN EN ISO 2719	°C	≤116

The data represents typical values (no product specification)

TYPICAL APPLICATIONS

Dynasylan® BTSE is a dipodal alkylsilane, and as such can be used in many diverse applications. It is often used as crosslinking agent for organic and inorganic networks.

Its main applications are:

Silicones:

- adhesion promoter and crosslinking agent for silicone sealants and putty compounds

Sol-gel systems:

- Due to its high crosslinking density, it is used as an additive in sol-gel systems. It can increase the chemical as well as mechanical stability of such coatings and primers. Dynasylan® BTSE is commonly used with other sol-gel precursors such as Dynasylan® 9265, Dynasylan® MTES, or Dynasylan® GLYEO.

Precursor for electronic materials:

- used as a precursor for low-κ dielectric materials and other inorganic materials

Filler treatment:

- coupling agent and surface modifier for mineral fillers in organic thermosets or duroplasts

PVD:

- Use as PVD-precursor for barrier coatings on plastics (plasma-activated), silane barriers against water and oxygen for plastic foils or films

BENEFITS & ADVANTAGES

Especially scratch resistant hardcoats and corrosion protection primers are formulated with Dynasylan® BTSE. Resulting hydrophobic and high crosslink density silane layers.

HANDLING & PROCESSING

It is also possible to construct an inorganic/organic network by adding silanes containing organofunctional groups (e.g. aminopropyl groups) and polymerizing with organic precursors. This principle makes it possible to obtain highly scratch- and abrasion-resistant coatings.

Dynasylan® BTSE is immiscible with water, so hydrolysis requires the use of a cosolvent such as ethanol. Suitable

catalysts are mineral acids or ammonia, or even acetic acid and amines.

Partial hydrolysis gives hydrolysates of Dynasylan® BTSE whose shelf life depends on the type of catalyst, the amount of water and solvent used. The amount of water determines the activity of the hydrolysate. Activity and shelf life are inversely proportional. The correct choice of the amount of water can give hydrolysates which have a shelf life of up to a year.

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® BTSE is supplied in 25 kg, 180 kg drums and 900 kg IBC container.

STORAGE

Dynasylan® BTSE must be stored with exclusion of moisture.

SHELF LIFE

In a sealed container, Dynasylan® BTSE has a shelf-life of min. 12 months from delivery with no loss of quality.

Registration Listings	
Registry	**Status**
Australia (AIIC)	Yes
Canada (DSL)	Yes
China (IECSC)	Yes

Registration Listings	
Registry	**Status**
EU (EINECS/ELINCS)	Yes
Japan (ENCS)	Yes
South Korea (KECL)	Yes
New Zealand (NZIoC)	Yes
Philippines (PICCS)	Yes
Taiwan (TCSI)	Yes
USA (TSCA)	Yes

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