

Dynasylan® MTMO

3-Mercaptopropyltrimethoxysilane

Technical data

Properties and test methods	Value	Unit	Method
Refractive index n (20,D)	approx. 1.445	-	DIN 51423
Boiling point (4 hPa / 3 torr)	approx. 85 / 121	°C / °F	DIN 51356
Flash point	approx. 96 / 185	°C / °F	DIN 51758
Viscosity (20 °C / 68 ° F)	approx. 2 / 2.1	mPa*s / cSt	DIN 53015
Density (20 °C / 68 ° F)	approx. 1.05-1.06	g/cm ³	DIN 51757

Registrations

Dynasylan® MTMO

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

Dynasylan® MTMO is a bifunctional organosilane possessing a reactive organic mercapto and a hydrolyzable inorganic methoxysilyl group.

The dual nature of its reactivity allows **Dynasylan®** MTMO 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, surface modifier or reactive reagent.

Dynasylan® MTMO is a clear, colorless to light yellow liquid with a slightly mercaptan odor. It is soluble in alcohols, ketones and aliphatic or aromatic hydrocarbons.

Safety and handling

Before considering the use of Dynasylan® 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® MTMO is supplied in 25 kg and 200 kg drums and 1.000 kg containers. In the unopened container **Dynasylan®** MTMO has a shelf life of at least one year.

Properties and application

Dynasylan[®] MTMO is used in applications such as:

- glass composites: as a finish or a size ingredient
- glass and metal primer
- sealants and adhesives: as a primer, additive, or for chemical modification of the polymer
- mineral filled polymers: for pretreatment of fillers and pigments or as an additive
- crosslinking of polymers

Important product effects that can be achieved through the use of **Dynasylan**[®] MTMO include:

- Compression set
- Improved mechanical properties, e.g. flexural strength, tensile strength, impact strength and modulus of elasticity, tear strength
- Improved moisture and corrosion resistance
- Improved electrical properties, e.g. dielectric constant, volume resistivity
- Increased thermal resistivity

Dynasylan[®] MTMO can also improve such processing properties as:

- cure time
- adhesion
- filler dispersion
- rheological behavior: (e.g. viscosity reduction)
- higher filler loading

Reactivity

In the presence of water, the methoxy groups of **Dynasylan**[®] MTMO hydrolyze and form reactive silanol groups which can bond to a variety of inorganic substrates. The organophilic mercapto end of **Dynasylan**[®] MTMO can react with a suitable polymer. Hydrolysis of **Dynasylan**[®] MTMO is catalyzed by acids.

Examples of suitable inorganic substrates are glass, glass fibers, silica, quartz, sand, cristobalite, mica kaolin, talc, other silicate fillers and metals. **Dynasylan**[®] MTMO may be used with such polymers as polyurethanes, polysulfides, sulfur-cured and metal oxide-cured elastomers.

Product modifications are possible by using **Dynasylan**[®] MTMO in addition or grafting reactions with suitable monomers or polymers (e.g. isocyanates, PVC etc.). An Si-O-Si crosslinking can take place via the silicon functional groups of the silane.

Processing

Dynasylan[®] MTMO can be used as a primer (i.e. a ca. 0.5-10 wt.% solution in an organic solvent such as alcohol), as an ingredient in a solution, or neat. A chemical modification can be achieved by reaction of **Dynasylan**[®] MTMO with suitable functional monomers or polymers.

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