

Dynasytan[®] 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) | approx. 85/121 | °C/ °F | DIN 51751 |
| Density (20 °C) | approx. 1.06 | g/cm ³ | DIN 51757 |
| Viscosity (20 °C/ 68 °F) | approx. 2 / 2.1 | mPa*s / cSt | DIN 53015 |

Registrations

Dynasytan[®] 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 |
| REACH (Europe) | Registered |

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

The dual nature of its reactivity allows Dynasytan[®] 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.

Dynasytan[®] 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 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 Operations GmbH, Product Safety Department, E-MAIL sds-hu@evonik.com.

Packaging, storage and shelf life

Dynasytan[®] MTMO is supplied in 25 kg and 200 kg drums and 1.000 kg containers.

In the unopened container Dynasytan[®] MTMO has a shelf life of min. 12 months from delivery.

Properties and applications

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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