

Dynasylan® MTES

Methyltriethoxysilane

Technical data

Properties and test methods	Value	Unit	Method
Density (20 °C)	0.89	g/cm ³	DIN 51757
Viscosity (20 °C)	0.6	mPa·s	DIN 53015
Flash point	30	°C	EN 22719
Initial boiling point	142	°C	DIN 51751

Registrations

Dynasylan® MTES

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

Dynasylan® MTES, an alkyltrialkoxysilane is an important component in sol-gel systems.

Dynasylan® MTES is a colorless, low-viscosity liquid. Use requires acid- or alkali-catalysed hydrolysis. Dynasylan® MTES is regarded as trifunctional since all three alkoxy groups are able to participate in this reaction. Additionally Dynasylan® MTES contains a methyl group that adds organic character to the products. Hydrolysis leads to silanol groups which, in a subsequent condensation reaction, form very stable siloxane bonds (-Si-O-Si-). Condensation occurs parallel to hydrolysis once a certain amount of silanol groups have been formed. The absolute and relative rates of hydrolysis and condensation depends on a number of factors. The most important factors include pH, concentration, solvent, temperature and the catalyst.

Safety and handling

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 after registration on our website www.dynasylan.com or upon request from your local representative, customer service or from Evonik Resource Efficiency GmbH, Product Safety Department, E-MAIL sds-hu@evonik.com.

Packaging, storage and shelf life

Dynasylan® MTES are available in 25 kg, 180 kg and 900 kg drums/ containers.

Dynasylan® MTES must be stored with exclusion of moisture.

In a sealed container, the product has a shelf life of min. 12 months from delivery.

Properties and applications

In some sol-gel applications Dynasylan® MTES is partially hydrolyzed to form a preproduct that can be further crosslinked using temperature. This prehydrolysis is often done in conjunction with other organofunctional silanes, silicic acid esters (e.g. Dynasylan® A) or even a aqueous silica sol. This preproduct can be further modified by addition of organic resins or inorganic nanoparticles such as AEROSIL®. It is also possible to construct an inorganic/organic network by adding silanes containing organofunctional groups (e.g. aminopropyl groups) and organic resins and polymerizing using standard organic methods. This principle makes it possible to obtain mar resistant coatings having a higher UV-stability than traditional organic coatings. This can also lead to more flame resistant materials than using traditional resins.

Reactivity

Dynasylan® MTES reacts slower with water than Dynasylan® MTMS. For rapid hydrolyzation a hydrolysis catalyst (mineral acids or ammonia, or even acetic acid and amines) or a cosolvent such as ethanol can be added.

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