

Dynasytan® PTEO

Propyltriethoxysilane

Technical data

Properties and test methods	Value	Unit	Method
Density (20°C)	approx. 0.89	g/cm ³	DIN 51757
Flash point	approx. 57	°C	DIN 51755
Initial boiling point	approx. 175	°C	DIN 51751

Registrations

Dynasytan® PTEO

EINECS/ELINCS (EU):	Yes
AICS (Australia):	Yes
DSL/NDSL (Canada):	*
PICCS (Philippines):	Yes
TSCA (USA):	Yes
IECS (P.R. China):	Yes
ENCS (Japan):	Yes
ECL (South Korea):	No
REACH (Europe)	Registered
* = information on request	

Dynasytan® PTEO, an alkyltrialkoxysilane is important component in sol-gel systems.

Dynasytan® PTEO is a colourless, low-viscosity liquid. Dynasytan® PTEO is regarded as trifunctional since all three alkoxy groups can hydrolyze. Additionally Dynasytan® PTEO contains a propyl group that adds a hydrophobic character to the coatings. 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 depend 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 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 Resource Efficiency GmbH, Product Safety Department, E-MAIL sds-hu@evonik.com.

Packaging, storage and shelf life

Dynasytan® PTEO is sold in plastic lined 25 kg and 180 kg steel drums.

Dynasytan® PTEO must be stored with exclusion of moisture.

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

Properties and applications

In some sol-gel applications Dynasylan® PTEO is partially hydrolyzed to form a preproduct that can be further crosslinked using temperature. This pre-hydrolysis often is done in conjunction with other organofunctional silanes, silicic acid esters or even an aqueous silica sol. This pre-product can be modified even further 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. The mixture is then cured using standard organic methods. In this way it is possible to obtain more resistant coatings having a higher UV-stability than traditional organic coatings. This can also lead to more flame resistant materials than using traditional resins. Dynasylan® PTEO reacts slower with water than Dynasylan® PTMO and often a hydrolysis catalyst (mineral acids or ammonia, or even acetic acid and amines) must be added to hydrolyze at appreciable rates. Hydrolysis can also be furthered by adding a cosolvent such as ethanol.

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