Product information

Dynasylan® IBTMO

isobutyltrimethoxysilane

Dynasylan® IBTMO, an alkyltrialkoxysilane is an important surface modifier and component in sol-gel systems.

Dynasylan® IBTMO, an alkyltrialkoxysilane is an important surface modifier and component in sol-gel systems.

Dynasylan® IBTMO, an alkyltrialkoxysilane is an important surface modifier and component in sol-gel systems. **Dynasylan®** IBTMO is a colourless, low-viscosity liquid. **Dynasylan®** IBTMO is regarded as trifunctional since all three alkoxy groups are able to hydrolyze. Additionally **Dynasylan®** IBTMO contains an isobutyl 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 depend on a number of factors. The most important factors include pH, concentration, solvent, temperature and the catalyst.

Technical data

Properties and test methods	Value	Unit	Method
Purity (GC-TCD)	> 98.0	%	AN-SAA 0715
Density (20°C)	approx. 0,93	g/cm3	DIN 51757
Viscosity (20°C)	approx. 0,8	mPas	DIN 53015
Boiling point	approx. 150	°C	DIN 51751
Flash point	approx. 39	°C	DIN 51755

Registrations

Dynasylan® IBTMO

EINECS/ELINCS (EU):	Yes
AICS (Australia):	Yes
DSL/NDSL (Canada):	Yes
PICCS (Phillipines):	Yes
TSCA (USA):	Yes
IECS (P.R. China):	Yes

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.

Properties and application

Dynasylan® IBTMO silane can be used as a surface modifier to generate hydrophobicity (e.g. on inorganic pigments, mineral fillers). The short-chain alkyl functionality results in unique compound properties when **Dynasylan®** IBTMO treated minerals or pigments are incorporated into polymers, e.g. polyethylene or polypropylene. Loading levels of 0.5 to 1.5 weight-% **Dynasylan®** IBTMO based on the weight of filler or pigment are typically recommended. **Dynasylan®** IBTMO is excellent as a dispersion and hydrophobation agent in mineral filled compounds. In the presence of moisture, the methoxy groups of **Dynasylan®** IBTMO hydrolyse to produce methanol and reactive silanol groups. These silanol groups react with the filler via silicon-oxygen bridges. **Dynasylan®** IBTMO can be used in many other applications such as filler and pigment coatings, dispersions etc.

Typical property improvements obtained by using **Dynasylan®** IBTMO in filled polymers are:

- improved filler dispersion
- good processability
- significantly reduced water-uptake
- strongly reduced stress cracking

Dynasylan® IBTMO is also an important starting material for sol-gel processes. It adds a certain amount of organic character to the siloxane network, due to the isobutyl group in the product. **Dynasylan®** A (tetraethoxysilane) is often used in conjunction with **Dynasylan®** IBTMO in order to control the amount of inorganic character of the inorganic network. In some sol-gel applications **Dynasylan®** IBTMO is partially hydrolyzed to form a pre-product that can be further hardened using temperature. This pre-hydrolysis is often done in conjunction with other organofunctional silanes (e.g. **Dynasylan®** GLYMO), silicic acid esters (e.g. **Dynasylan®** A) or even silica sol. This pre-product can be modified even further by addition of organic resins or inorganic nanoparticles such as AEROSIL®.

Packaging and storage

Dynasylan® IBTMO must be stored with exclusion of moisture. In a sealed container, the product has a shelf-life of 12 months with no loss of quality.

Dynasylan® IBTMO is sold in inner coated 180 kg steel drums and 25 kg PE cans.

Europe/Middle-East/Africa/RoW
Evonik Industries AG
Inorganic Materials
Rodenbacher Chaussee 4
63457 Hanau-Wolfgang
Germany
PHONE +49 6181 59 13636
FAX +49 6181 59 13737
dynasylan@evonik.com
www.dynasylan.com

North America
Evonik Corporation
Inorganic Materials
P.O. Box 677
299 Jefferson Road
Parsippany, NJ 07054-0677
USA
PHONE (TOLL FREE) +1 800 237 67 45
PHONE +1 973 929 8513
FAX +1 973 929 8503
dynasylan@evonik.com
www.dynasylan.com

Latin America
Evonik Brasil Ltda.
Inorganic Materials
Alameda Campinas, 579
01404-000 São Paulo-SP
Brazil
PHONE +55 11 3146 4123
FAX +55 11 3146 4109
dynasylan@evonik.com
www.dynasylan.com

Asia / Pacific
Evonik Degussa (SEA) Pte. Ltd.
Inorganic Materials
3 Internatioanl Business Park
#07-18, Nordic European Centre
Singapore 609927
PHONE +65 6809 6830
FAX +65 6809 6630
dynasylan@evonik.com
www.dynasylan.com

Asia / Pacific
Evonik Degussa (Shanghai) Co. Ltd.
Inorganic Materials
55, Chungdong Road
Shanghai 201108
P.R. China
PHONE +86 21 6119 1053
FAX +86 21 6119 1075
dynasylan@evonik.com
www.dynasylan.com

Asia / Pacific
Evonik Korea Ltd.
Inorganic Materials
94, Galsan 1-dong
Bupyeong-gu
Incheon, 403-081
Korea
PHONE +82 32 510 2433
FAX +82 32 505 2510
dynasylan@evonik.com
www.dynasylan.com

Asia / Pacific
Evonik Taiwan Ltd.
Inorganic Materials
Artist Construction Bldg.
9F, No. 133
Min Sheng East Road, Sec 3
Taipei, 105 Taiwan, R.O.C.
Taiwan
PHONE +886 227 17 1242
FAX +886 227 17 2106
dynasylan@evonik.com
www.dynasylan.com

Asia / Pacific
Evonik Japan Co. Ltd
Inorganic Materials
12th Floor Monolith Building
2-3-1, Nishi-Shinjuku-ku
Tokyo 163-0912
Japan
PHONE +81 353 23 7300
FAX +81 353 23 7399
dynasylan@evonik.com
www.dynasylan.com

Asia / Pacific
Evonik India Pvt. Ltd.
Inorganic Materials
Krislon House
Saki Vihar Road, Anderi (E)
Mumbai - 400 072
India
PHONE +91 226 7238 800
FAX +91 226 7238 811
dynasylan@evonik.com
www.dynasylan.com