

Dynasylan® 1122

Bis(3-triethoxysilylpropyl)amine

Technical data

Properties and test methods	Value	Unit	Method
Density (20 °C)	approx. 0.97	g/cm ³	DIN 51757
Boiling point (1013 hPa)	> 300	°C	ASTM D-1120
Viscosity (20 °C)	approx. 5.5	mPa·s	DIN 53015

Registrations

Dynasylan® 1122

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

Dynasylan® 1122 is a secondary aminofunctional ethoxysilane possessing two symmetric silicone atoms. Dynasylan® 1122 acts as an adhesion promoter between inorganic materials (for example glass, metals and fillers) and organic polymers (thermosets, thermoplastics and elastomers), as a surface modifier and can be used for the chemical modification of substances.

Dynasylan® 1122 is a colourless to yellow liquid with an amine-like odor which is, for example, soluble in alcohols, aliphatic or aromatic hydrocarbons.

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® 1122 is supplied in convenient small sized package (25 kg) and in 180 kg drums.

In the originally sealed containers Dynasylan® 1122 has a shelf life of min. 12 months from delivery.

Properties and applications

Dynasylan® 1122 is an important additive in many applications.

Examples are:

- glass fiber/glass fabric composites: as size constituent or finish
- metal primers
- mineral fiber insulating materials, abrasives: as additive to phenolic resin binders
- foundry resins: as additive to phenolic, furane and melamine resins
- adhesives and sealants: as primer or additive
- mineral-filled polymers (composites) or HFFR cables: for pretreatment of fillers and pigments
- paints and coatings: as additive and primer for improving adhesion to the substrate

The most important effects which can be achieved using Dynasylan® 1122 are:

improvement in product properties, such as

- flexural strength, tensile strength, impact strength and modulus of elasticity
- moisture and corrosion resistance

improvement in processing properties, such as

- adhesion
- filler dispersion
- rheological behaviour: reduction in viscosity, Newtonian behaviour
- higher degree of filling

Reactivity

Dynasylan® 1122 is a bifunctional organic compound in which the silicon-functional ethoxy-groups hydrolyze in the presence of water to form reactive silanols, which can be bonded to an inorganic substrate; the organophilic amino group can interact with a suitable polymer. Due to 6 hydrolyzable substituents present in one molecule, Dynasylan® 1122 is exceptionally suitable to form highly crosslinked networks on and between substrates and in organic matrices.

The hydrolysis of Dynasylan® 1122 in water takes place by acidic catalysis (e.g. formic or acetic acid at a pH of 2-3). In order to achieve solubility in organic solvents simply add 2-4 wt.-% of water per wt.-% of Dynasylan® 1122. Upon stirring for 5h the solutions are ready for use.

Examples of suitable inorganic substrates are glass, glass fibres, glass wool, mineral wool, silicic acid, quartz, sand, cristobalite, wollastonite and mica; also suitable are aluminium hydroxide, kaolin, talc, other silicate fillers, metal oxides and metals. Examples of suitable polymers are epoxy resins, polyurethanes, phenolic resins, furan resins, melamine resins, PA, PBT, PC, EVA, modified PP, PVB, PVAC, PVC, acrylates and silicones.

The secondary amino group in Dynasylan® 1122 provides high basicity at somewhat lower reactivity compared to primary amino groups. This is of major advantage in e.g. adhesives and sealants where the silane is added to the polymer matrix: Homogeneous distribution and bonding/networking of Dynasylan® 1122 to the inorganic filler can commence unless bonding to organic materials (e.g. polymers) will proceed.

Moreover, Dynasylan® 1122 has been successfully used as a component in aqueous PA- and PU-sizes for glass fibers.

Processing

Dynasylan® 1122 can advantageously be employed in organic solvents, as constituent of aqueous sizes, as pure substance or added to the polymer as an additive. In higher concentrations (1-5 wt.-%) chemical modification can be achieved by reaction with suitable functional monomers or polymers, for example those containing epoxy groups.

This information and any recommendations, technical or otherwise, are presented in good faith and believed to be correct as of the date prepared. Recipients of this information and recommendations must make their own determination as to its suitability for their purposes. In no event shall Evonik assume liability for damages or losses of any kind or nature that result from the use of or reliance upon this information and recommendations. EVONIK EXPRESSLY DISCLAIMS ANY REPRESENTATIONS AND WARRANTIES OF ANY KIND, WHETHER EXPRESS OR IMPLIED, AS TO THE ACCURACY, COMPLETENESS, NON-INFRINGEMENT, MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE (EVEN IF EVONIK IS AWARE OF SUCH PURPOSE) WITH RESPECT TO ANY INFORMATION AND RECOMMENDATIONS PROVIDED. Reference to any trade names used by other companies is neither a recommendation nor an endorsement of the corresponding product, and does not imply that similar products could not be used. Evonik reserves the right to make any changes to the information and/or recommendations at any time, without prior or subsequent notice.

Europe/Middle-East/Africa/RoW

Evonik Resource Efficiency GmbH

Business Line Silanes
Rodenbacher Chaussee 4
63457 Hanau-Wolfgang
Germany
PHONE +49 6181 59 13636
FAX +49 6181 59 713915
dynasytan@evonik.com
www.dynasytan.com

Asia / Pacific

Evonik (SEA) Pte. Ltd.

Business Line Silanes
3 Internatioanl Business Park
#07-18, Nordic European Centre
Singapore 609927
PHONE +65 6809 6576
FAX +65 6809 6699
dynasytan@evonik.com
www.dynasytan.com

Asia / Pacific

Evonik Japan Co. Ltd

Business Line Silanes
12th Floor Monolith Building
2-3-1, Nishi-Shinjuku-ku
Tokyo 163-0912
Japan
PHONE +81 353 23 7446
FAX +81 353 23 7397
dynasytan@evonik.com
www.dynasytan.com

North America

Evonik Corporation

Business Line Silanes
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
dynasytan@evonik.com
www.dynasytan.com

Asia / Pacific

**Evonik Specialty
Chemicals (Shanghai) Co. Ltd.**

Business Line Silanes
55, Chungdong Road
Xinzhuang Industry Park
Shanghai 201108
P.R. China
PHONE +86 21 61191-399
FAX +86 21 61191-648
dynasytan@evonik.com
www.dynasytan.com

Asia / Pacific

Evonik India Pvt. Ltd.

Business Line Silanes
Krislon House
Saki Vihar Road, Anderi (E)
Mumbai - 400 072
India
PHONE +91 226 7238 809
FAX +91 226 7238 811
dynasytan@evonik.com
www.dynasytan.com

North America

Silbond Corporation

9901 Sand Creek Highway
Weston, MI 49289
USA
PHONE +1 517 436 9316
FAX +1 517 436 3148
dynasytan@evonik.com
www.dynasytan.com

Asia / Pacific

Evonik Korea Ltd.

Business Line Silanes
94, Galsan 1-dong
Bupyeong-gu
Incheon, 403-081
Korea
PHONE +82 2320 4773
FAX +82 2783 2520
dynasytan@evonik.com
www.dynasytan.com

Latin America

Evonik Brasil Ltda.

Business Line Silanes
Alameda Campinas, 579
01404-000 São Paulo-SP
Brazil
PHONE +55 11 3146 4123
FAX +55 11 3146 4148
dynasytan@evonik.com
www.dynasytan.com

Asia / Pacific

Evonik Taiwan Ltd.

Business Line Silanes
Artist Construction Bldg.
9F, No. 133
Min Sheng East Road, Sec 3
Taipei, 105 Taiwan, R.O.C.
Taiwan 10596
PHONE +886 227 17 1242
FAX +886 227 17 2106
dynasytan@evonik.com
www.dynasytan.com