

Dynasytan® SILBOND® Pure

Tetraethyl orthosilicate 99.0%

Technical data

Properties and test methods	Value	Unit	Method
Physical Form	Clear Liquid	-	
Density (20 °C)	0.932 - 0.936	g/cm ³	
Viscosity (20 °C)	0.75	mPas (cSt)	
Boiling Point	167 / 333	°C/°F	
Flash Point	53 / 127	°C/°F	
Silica Content (as SiO ₂)	~ 28	% wt min	
Purity (GC-TCD)	>=99.0	% wt min	QC07114P

Dynasytan® SILBOND® Pure is a clear, low-viscosity liquid that is essentially pure tetraethyl orthosilicate monomer (99.0%). Dynasytan® SILBOND® Pure is used as a building block for zeolites and catalyst carriers, crosslinking agent, chemical intermediate, clear-coat component, and in any other application requiring pure TEOS monomer.

Safety and handling

Before considering the use of Dynasytan® SILBOND® 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® SILBOND® Pure could be available in pails, drums, totes, and tanker quantities.

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

Please ask us for further details.

Properties and applications

Dynasylan® SILBOND® Pure can replace Dynasylan® SILBOND® Condensed in every application, where higher purity is needed. Dynasylan® SILBOND® Pure is a ready source of silicic acid for many applications. Silicic acid is usually obtained by hydrolysis, or thermally by condensation at elevated temperatures.

The resulting silicic acid bonds well to many inorganic substrates and can be deposited in-situ in a controlled manner. The surfaces of glass, metals, pigments, fillers, and synthetic fibers can be coated with a very thin SiO₂ layer in order to improve chemical and thermal stability, and mechanical properties.

Other applications are:

- building blocks for zeolites and catalyst carriers
- raw material for optically clear coatings
- binders for fillers in inorganic zinc-rich paints or precision investment castings
- crosslinkers in silicone rubber systems
- drying agents in sealant compositions

Dynasylan® SILBOND® Pure is an important starting material for sol-gel processes, where the additional use of alkylalkoxysilanes (e.g. Dynasylan® MTES) can give the siloxane network a slight organic character as a result of the incorporation of alkyl groups.

It is also possible to construct an inorganic/organic network by adding silanes containing organofunctional groups (e.g. aminopropyl groups) and polymerizing with organic precursors.

This principle makes it possible to obtain highly scratch- and abrasion-resistant coatings.

Dynasylan® SILBOND® Pure is immiscible with water, so hydrolysis requires the use of a co-solvent such as ethanol. Suitable catalysts are mineral acids or ammonia, or even acetic acid and amines.

Partial hydrolysis gives hydrolysates of Dynasylan® SILBOND® Pure whose shelf-life depends on the amount of water and solvent used. The amount of water determines the activity of the hydrolysate. Activity and shelf-life are inversely proportional. The correct choice for the amount of water can give hydrolysates, which have a shelf life of up to a year (from the time of manufacture).

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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