SAFETY DATA SHEET

Classified in accordance with 29 CFR 1910.1200

1. Identification

Product identifier: Dynasylan® VTMOEO
Chemical name:
Tris(2-methoxyethoxy)vinylsilane

Other means of identification
CAS Number: 1067-53-4

Recommended restrictions
Recommended use: For industrial use Coupling agent Crosslinking agents
Restrictions on use: Not determined.

Manufacturer/Importer/Distributor Information

Company Name	:	Evonik Corporation 2 Turner Place Piscataway, NJ 08854 USA
Telephone	:	+1 732 981 5000
E-mail	:	product-regulatory-services@evonik.com

Emergency telephone number:

24-Hour Health Emergency	:	+1 800 424 9300 (CHEMTREC - US & CANADA) 800 681 9531 (CHEMTREC MEXICO) +1 703 527 3887 (CHEMTREC WORLD)

2. Hazard(s) identification

Hazard Classification

Health Hazards

Toxic to reproduction	Category 1B

Label Elements

Hazard Symbol:

Signal Word: Danger

Hazard Statement:
May damage fertility. May damage the unborn child.

Precautionary Statements

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required.

Response: IF exposed or concerned: Get medical advice/attention.

Storage: Store locked up.

Disposal: Dispose of contents/ container to an approved facility in accordance with local, regional, national and international regulations.

Hazard(s) not otherwise classified (HNOC): None.

3. Composition/information on ingredients

Chemical name:
Tris(2-methoxyethoxy)vinylsilane

Substances

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%)*
Tris(2-methoxyethoxy)vinylsilane		1067-53-4	>=90 - <=100%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Composition information of impurities and stabilizers

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%)*
2-methoxyethanol		109-86-4	>=0.1 - <1%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

The exact concentration has been withheld as a trade secret.

4. First-aid measures

Description of first aid measures

General information: Pay attention to self-protection. Remove contaminated or soaked clothing immediately and dispose of safely.

Inhalation: If aerosol or mists are formed: Move to fresh air. Do not leave the victim unattended. Keep patient warm and at rest. Get medical attention immediately.

Skin Contact:	Wash off immediately with plenty of water. In case of complaints: Consult doctor immediately.
Eye contact:	Rinse thoroughly with plenty of water keeping eyelid open. In case of persistent discomfort: Consult an ophthalmologist.
Ingestion:	Get medical attention immediately. Only when patient fully conscious: Have the mouth rinsed with water. Do not leave the victim unattended. Keep patient warm and at rest. Place patients who are unconscious but breathing in the stabilized lateral position.
Personal Protection for First-aid Responders:	No data available.

Most important symptoms and effects, both acute and delayed

Symptoms:	None known.
Hazards:	None known.

Indication of immediate medical attention and special treatment needed

Treatment:	After absorbing large amounts of substance: Gastric lavage, administration of activated charcoal, acceleration of gastrointestinal passage.

5. Fire-fighting measures

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:	Water spray, fog, CO2, dry chemical, or alcohol resistant foam.
Unsuitable extinguishing media:	High volume water jet.
Special hazards arising from the substance or mixture:	Standard procedure for chemical fires.

Special protective equipment and precautions for firefighters

Special fire fighting procedures:	Water used to extinguish fire should not enter drainage systems, soil or stretches of water. Ensure there are sufficient retaining facilities for water used to extinguish fire. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for fire-fighters:	As in any fire, wear self-contained positive-pressure breathing apparatus, (MSHA/NIOSH approved or equivalent) and full protective gear.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Ensure sufficient ventilation. Use personal protective equipment.
Accidental release measures:	No data available.

Methods and material for containment and cleaning up:	Soak up with absorbent material, e.g., sand, silica gel, acid binder, universal binder or sawdust. Place in a marked, sealable container and dispose of in accordance with existing federal, provincial, state and local regulations.
Environmental Precautions:	Obey relevant local, state, provincial and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil.

7. Handling and storage

Handling

Technical measures:	Ensure good ventilation during processing.
Local/Total ventilation:	No data available.
Safe handling advice:	Use with adequate ventilation.
Contact avoidance measures:	No data available.

Storage

Safe storage conditions:	Normal measures for preventive fire protection.Keep containers tightly closed in a cool, well-ventilated place. Protect from moisture.
Safe packaging materials:	No data available.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values		Source
2-methoxyethanol	TWA	0.1 ppm		ACGIH (03 2016)
	REL	0.1 ppm	0.3 mg/m3	NIOSH (2010)
	PEL	25 ppm	80 mg/m3	OSHA Z1 (03 2016)

Please refer to the latest edition of the appropriate source text and consult an industrial hygienist or similar professional, or local agencies, for further information.

Biological Limit Values

Chemical name	Parameters / Sampling Time	Exposure Limit Values	Source
2-methoxyethanol	2-Methoxyacetic acid Sampling time: End of shift at end of work week.	1 mg/g (Creatinine in urine)	ACGIH BEI (03 2016)

Appropriate Engineering Controls Ensure good ventilation during processing.

Individual protection measures, such as personal protective equipment

Eye/face protection: Use chemical splash goggles or face shield.

Skin Protection

Hand Protection: Material: Butyl rubber.
Break-through time: >= 480 min
Material: Polychloroprene (PCP)
Break-through time: >= 240 min
Additional Information: The above mentioned hand protection is based on knowledge of the chemistry and anticipated uses of this product but it may not be appropriate for all workplaces. A hazard assessment should be conducted prior to use to ensure suitability of gloves for specific work environments and processes prior to use., Selection of protective gloves to meet the requirements of specific workplaces., The suitability for a specific workplace should be discussed with the producers of the protective gloves., Use impermeable gloves.

Skin and Body Protection: Safety showers and eye showers should be easily accessible. In order to determine further specifications applicable to the personal protection equipment, a hazard assessment according to the OSHA standards (29 CFR 1910.132) for personal protection equipment (PPE) is recommended before the product is used.

Respiratory Protection: A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed whenever workplace conditions warrant respirator use. NIOSH's "Respirator Decision Logic" may be useful in determining the suitability of various types of respirators.

Hygiene measures: Avoid contact with skin, eyes and clothing. Do not inhale vapors or aerosols. Do not eat, drink, or smoke when using the product. Remove contaminated or saturated clothing.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Physical state:	liquid
Form:	liquid
Color:	Colorless
Odor:	Unspecific
Odor Threshold:	No data available.
Freezing point:	-202 °F/ -130 °C at 1,013 hPa
Boiling Point:	226 °F/108 °C at 2.7 hPa Method: DIN 51 356

	545 °F/285 °C at 1,013 hPa Method: DIN 51751 Literature
Flammability:	No data available.
Upper/lower limit on flammability or explosive limits	
Explosive limit - upper:	No data available.
Explosive limit - lower:	No data available.
Flash Point:	239 °F/115 °C Method: DIN EN ISO 2719
Auto-ignition temperature:	410 °F/210 °C 1,013 hPa Method: DIN 51794
Decomposition Temperature:	No data available.
pH:	No data available.
Viscosity	
Dynamic viscosity:	2.8 mPa.s at 68 °F/20 °C Method: DIN 53015
Kinematic viscosity:	2.16 mm2/s at 104 °F/40 °C , Method: OECD 114 Capillary method 3.14 mm2/s at 68 °F/20 °C , Method: OECD 114 Capillary method
Flow Time:	No data available.
Solubility(ies)	
Solubility in Water:	not miscible decomposition by hydrolysis
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Vapor pressure:	0.43 Pa at 77 °F/25 °C
Relative density:	No data available.
Density:	1.05 g/cm3 at 68 °F/20 °C Method: DIN 51757
Bulk density:	No data available.
Relative vapor density:	No data available.
Other information	
Explosive properties:	Not explosive
Peroxides:	Not applicable

10. Stability and reactivity

Reactivity:	No dangerous reaction known under conditions of normal use.
Chemical Stability:	Stable under recommended storage conditions.
Possibility of hazardous reactions:	Reacts with: Peroxides.

Conditions to avoid:	Protect from moisture.
Incompatible Materials:	Water. Peroxide
Hazardous Decomposition Products:	2-methoxyethanol

11. Toxicological information

Information on likely routes of exposure

Inhalation:	Information on effects are given below.
Skin Contact:	Information on effects are given below.
Eye contact:	Information on effects are given below.
Ingestion:	Information on effects are given below.

Acute toxicity (list all possible routes of exposure)

Oral
Product: LD 50, Rat, Female, Male, > 2,000 mg/kg, OECD 401

Dermal
Product: LD 50, Rat, Female, Male, > 2,000 mg/kg, OECD 402, No deaths observed.
Not toxic after single exposure

Inhalation
Product: Not classified for acute toxicity based on available data.

Repeated dose toxicity
Product: NOAEL Rat, Male, Oral, 28 day, daily, 25 mg/kg
NOAEL Rat, Female, Oral, 28 day, daily, 75 mg/kg
NOAEC, Rat, Female, Male, Inhalation - vapor, 90 day, 5 days/weeks, 6 hours/day, 10 ppm, (analogy)

Skin Corrosion/Irritation
Product: Not irritating, OECD 404, (Rabbit)

Serious Eye Damage/Eye Irritation
Product: Not irritating, OECD 405, Rabbit

Respiratory or Skin Sensitization
Product: Buehler Test, OECD 406, Guinea Pig, Not a skin sensitizer.

Carcinogenicity
Product: No data available.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:
No carcinogens present or none present in regulated quantities

ACGIH: US.ACGIH Threshold Limit Values:
No carcinogens present or none present in regulated quantities

US. National Toxicology Program (NTP) Report on Carcinogens:
No carcinogens present or none present in regulated quantities

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053), as amended:
No carcinogens present or none present in regulated quantities

Germ Cell Mutagenicity
In vitro

Product:	Ames test, OECD 471: , negative gene mutation test, OECD 476: , negative Chromosomal aberration, OECD 473: , negative

In vivo

Product:	No data available.
Components:	
2-methoxyethanol	Chromosomal aberration, OECD 475, Oral, Mouse, Male, negative

Reproductive toxicity

Product:	Presumed human reproductive toxicant May damage fertility. May damage the unborn child.

Specific Target Organ Toxicity - Single Exposure

Product:	no evidence for hazardous properties

Specific Target Organ Toxicity - Repeated Exposure

Product:	no evidence for hazardous properties

Aspiration Hazard

Product:	No evidence of aspiration toxicity

Information on health hazards

Other hazards

Product:	Hydrolysis product, 2-methoxyethanol, may impair fertility. May cause harm to unborn child. Possible adverse effects on the progeny cannot be excluded, even if the TLV is observed.;

12. Ecological information

Ecotoxicity:
Acute hazards to the aquatic environment:

Fish

Product:	LC 50, Brachydanio rerio (zebrafish), 96 h, > 100 mg/lOECD 203

Aquatic Invertebrates

Product:	EC 50, Daphnia magna, 48 h, 314 mg/lOECD 202

Toxicity to Aquatic Plants

Product:	EC 50, Desmodesmus subspicatus (green algae), 72 h, 304 mg/l, OECD 201

Toxicity to microorganisms

Product:	EC 10, Pseudomonas putida, 5 h, > 2,000 mg/l, DIN EN ISO 10712, tested in the presence of emulsifiers

Chronic hazards to the aquatic environment:

Fish

Product:	No data available.
Components:	
2-methoxyethanol	NOEC, Fish, 30 d, 2,472 mg/l, QSAR

Aquatic Invertebrates

Product:	No data available.
Components:	
2-methoxyethanol	NOEC, Daphnia magna, 21 d, > 500 mg/l, OECD 211

Toxicity to microorganisms

Product:	EC 10, Pseudomonas putida, 5 h, > 2,000 mg/l, DIN EN ISO 10712, tested in the presence of emulsifiers

Persistence and Degradability

Biodegradation

Product:	89 %, 28 d, OECD 301 A, Readily biodegradable

BOD/COD Ratio

Product:	No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)

Product:	low

Partition Coefficient n-octanol / water (log Kow)

Product:	No data available.

Mobility in soil:

Product:	Adsorption on the floor: low.

Results of PBT and vPvB assessment:

Product:	No data available.

Other adverse effects:

Other hazards

Product:	The data we have at our disposal do not necessitate identification concerning environmental hazard.

13. Disposal considerations

Disposal methods:	Waste must be disposed of in accordance with federal, state, provincial and local regulations.
Contaminated Packaging:	Do not reuse empty containers and dispose of in accordance with the regulations issued by the appropriate local authorities. If there is product residue in the emptied container, follow directions for handling on the container's label. Incorrect disposal or reuse of this container is illegal and can be dangerous. Other countries: observe the national regulations.

14. Transport information

Domestic regulation

49 CFR
Not regulated as a dangerous good
Remarks : Not dangerous according to transport regulations.

International Regulations

UNRTDG
Not regulated as a dangerous good

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
None present or none present in regulated quantities.

US. Toxic Substances Control Act (TSCA) Section 5(a)(2) Final Significant New Use Rules (SNURs) (40 CFR 721, Subpt E)

Chemical Identity
Listed.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053), as amended
None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):
None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Reproductive toxicity

US. EPCRA (SARA Title III) Section 304 Extremely Hazardous Substances Reporting Quantities and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substances

None present or none present in regulated quantities.

US. EPCRA (SARA Title III Section 313 Toxic Chemical Release Inventory (TRI) Reporting

None present or none present in regulated quantities.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):
None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

None present or none present in regulated quantities.

US State Regulations

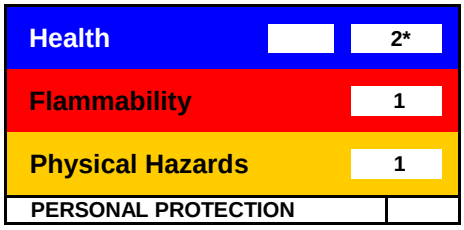
US. California Proposition 65

WARNING: This product can expose you to chemicals including, 2-methoxyethanol which is [are] known to the State of California to cause birth defects or other reproductive harm.

For more information go to www.P65Warnings.ca.gov.

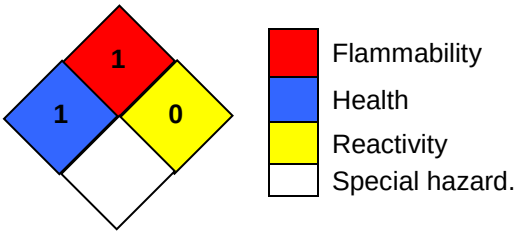
16.Other information, including date of preparation or last revision

HMIS Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible; *Chronic health effect

NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible

Version #: 1.1

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Abbreviations and acronyms:

ACGIH:	US. ACGIH Threshold Limit Values, as amended
ACGIH BEI:	US. ACGIH. BEIs. Biological Exposure Indices, as amended
NIOSH/GUIDE:	US. NIOSH: Pocket Guide to Chemical Hazards, as amended
OSHA_TRANS:	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended
ACGIH / TWA:	Time Weighted Average (TWA):
NIOSH/GUIDE / REL:	Recommended exposure limit (REL):
OSHA_TRANS / PEL:	Permissible exposure limit:

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx -

Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further Information: No data available.

Revision Information Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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