

SAFETY DATA SHEET

Classified in accordance with 29 CFR 1910.1200

1. Identification

Product identifier: Dynasylan® MTMO

Chemical name:

3-Mercaptopropyltrimethoxysilane

Other means of identification

CAS Number: 4420-74-0

Recommended restrictions

Recommended use: For industrial use Coupling agent Crosslinking agents Surface modifier

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 : +1 800 424 9300 (CHEMTREC - US & CANADA)

Emergency 800 681 9531 (CHEMTREC MEXICO)
+1 703 527 3887 (CHEMTREC WORLD)

2. Hazard(s) identification

Hazard Classification

Physical Hazards

Flammable liquids Category 4

Health Hazards

Acute toxicity (Oral) Category 4

Skin sensitizer Category 1B

Environmental Hazards

Acute hazards to the aquatic environment Category 2

Chronic hazards to the aquatic environment Category 2

Label Elements

Hazard Symbol:



Signal Word: Warning

Hazard Statement:
Combustible liquid.
Harmful if swallowed.
May cause an allergic skin reaction.
Toxic to aquatic life with long lasting effects.

Precautionary Statements

Prevention: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid breathing dust/fume/gas/mist/vapors/spray. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response: IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention. Specific treatment (see supplemental first aid instructions on this label). In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction. Collect spillage.

Storage: Store in a well-ventilated place. Keep cool.

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:
3-Mercaptopropyltrimethoxysilane
Substances

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%) [*]
3-Mercaptopropyltrimethoxysilane		4420-74-0	80 - 100%

^{*} 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:	Remove contaminated or saturated clothing immediately and follow safe disposal procedures.
Inhalation:	If aerosol or mists are formed, take affected persons out into the fresh air. Possible discomfort include severe irritation of mucous lining (nose, throat, eyes), cough, sneezing and flow of tears. Call a physician immediately.
Skin Contact:	Wash skin immediately with plenty of water for at least 15 minutes, while removing contaminated clothing and footwear. Seek medical assistance. Wash clothes before wearing them again. Destroy contaminated shoes or clean them thoroughly before wearing them again
Eye contact:	Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Ingestion:	Have the mouth rinsed with water. Get medical attention immediately.
Personal Protection for First-aid Responders:	No data available.

Most important symptoms and effects, both acute and delayed

Symptoms:	If large amount of substance is absorbed, liberation of reaction product (methanol) can lead to symptoms of poisoning. Possible signs of poisoning include daze, dizziness, nausea, colicky abdominal pain or respiratory disturbance. Symptoms of increasing intoxication include dysopia or loss of eyesight. Treatment may include immediate gastric lavage, antidote treatment or correction of acid-base balance. Detection of the substance (methanol) is possible in blood. Evidence shows that the treatment of methanol absorption is enhanced through the administration of ethanol, which should be given to produce a blood level of at least 0.1%. Ethanol diminishes the production of toxic metabolites of methanol. Obtain treatment of allergic reaction if necessary.
Hazards:	None known.

Indication of immediate medical attention and special treatment needed

Treatment:	Treatment Immediate gastric lavage. Antidote treatment, correction of acid-base balance. Detection of substance (Methanol) possible in: Blood Antidote treatment: ethanol. Allergic reactions cannot be excluded. Treatment of allergic reaction if necessary.
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5. Fire-fighting measures

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:	Water spray, foam, dry powder or carbon dioxide.
Unsuitable extinguishing media:	High volume water jet.
Special hazards arising from the substance or mixture:	Combustible liquid. Vapors can travel to a source of ignition and flash back. Explosive mixtures may occur at temperatures at or above the flashpoint.

Special protective equipment and precautions for firefighters

Special fire fighting procedures:	Containers can build up pressure if exposed to heat (fire). Cool with water spray.
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:	Remove sources of ignition and ventilate area. Run off may create fire or explosion hazard in sewer. Assure sufficient ventilation.
Methods and material for containment and cleaning up:	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
Environmental Precautions:	Obey relevant local, state, provincial and federal laws and regulations. Do not contaminate any lakes, streams, rivers, groundwater or soil.

7. Handling and storage

Handling

Technical measures:	Provide for good ventilation if vapours/aerosols are formed.
Local/Total ventilation:	No data available.
Safe handling advice:	Ventilators required at emission site. Avoid contact with eyes, skin, and clothing. For personal protection see section 8. Vapors may spread long distances and travel to areas away from the work site before igniting or flashing back to the vapor source. Keep away from heat, sparks, flames and other sources of ignition. Keep container tightly closed. Use only with adequate ventilation. Wash thoroughly after handling.
Contact avoidance measures:	No data available.

Storage

Safe storage conditions:

Keep containers tightly closed in a cool, well-ventilated place. Protect from moisture. Residual vapors might explode on ignition; do not apply heat, cut, drill, grind or weld on or near this container. This material may have a low electrical conductivity and therefore may accumulate dangerous levels of static electricity. An ignitable vapor-air mixture can form inside storage tanks.

The user must be sure to dissipate static charge by careful bonding and grounding of all equipment and personnel involved in fluid transfer with continuity checks to prove effectiveness. Additional precautions against fire and explosion are the use of inert gas to purge vapor space; dip-pipes while filling vessels, especially lined vessels; grounded tank level floats; reduced flow velocity; self-closing valves on transfer lines and flame arrestors in vent lines.

Additional guidance on fire and explosion protection may be found in various consensus standards, including NFPA 30, 69 and 77 and API 2003 as well as OSHA regulation 29CFR1910.106.

Follow all SDS/label precautions even after container is emptied because it may retain product residues.

Safe packaging materials:

No data available.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

None of the components have assigned exposure limits.

Biological Limit Values

No biological exposure limits noted for the ingredient(s).

Appropriate Engineering Controls

Provide for good ventilation if vapours/aerosols are formed.

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: Fluorinated rubber (Viton)
Break-through time: ≥ 480 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., Personal protective equipment that provides a barrier to prevent dermal exposure to this substance is required.

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:

In case of dusts/vapours/aerosols being formed or if the limit values like TLV are exceeded: use respiratory equipment with suitable filter (filter type ABEK) or wear a self contained respiratory apparatus Use only respiratory protection equipment with CE-symbol including four digit test number. The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapor/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used. Note time limit for wearing respiratory protective equipment. 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: Clear Liquid

Color:	colorless to yellowish
Odor:	ester-like
Odor Threshold:	No data available.
Freezing point:	< -112 °F/ < -80 °C at 1,013 hPa Method: OECD 102
Boiling Point:	185 °F/85 °C at 4 hPa Method: DIN 51 356
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:	185 °F/85 °C Method: DIN 51758 (Pensky-Martens (A and B Closed Cup))
Auto-ignition temperature:	469 °F/243 °C 1,013 hPa Method: EC Method A.15
Decomposition Temperature:	No data available.
pH:	No data available.
Viscosity	
Dynamic viscosity:	2 mPa.s at 68 °F/20 °C Method: DIN 53015
Kinematic viscosity:	No data available.
Flow Time:	No data available.
Solubility(ies)	
Solubility in Water:	decomposition by hydrolysis
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	1.7 at 68 °F/20 °C Method: QSAR
Vapor pressure:	0.2 hPa at 68 °F/20 °C
Relative density:	No data available.
Density:	1.06 g/cm ³ 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
Molecular weight:	196.34 g/mol

10. Stability and reactivity

Reactivity:	No dangerous reaction known under conditions of normal use.
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Chemical Stability:	Stable under recommended storage conditions.
Possibility of hazardous reactions:	No dangerous reactions known.
Conditions to avoid:	Keep away from heat and sources of ignition.
Incompatible Materials:	Water.
Hazardous Decomposition Products:	Methanol in case of hydrolysis. Alcohol formed by hydrolysis lowers the flash point of the product.

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, Male, 893 mg/kg, OECD 401 LD 50, Rat, Female, 741 mg/kg, OECD 401
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Dermal

Product:	LD 50, Rat, Male, 2,497 mg/kg, OECD 402 LD 50, Rat, Female, 2,172 mg/kg, OECD 402
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Inhalation

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

Product:	No data available.
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Skin Corrosion/Irritation

Product:	Not irritating, OECD 404, (Rabbit)
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Serious Eye Damage/Eye Irritation

Product:	Not irritating, OECD 405, Rabbit
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Respiratory or Skin Sensitization

Product:	Buehler Test, OECD 406, Guinea Pig, Skin sensitizer
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Carcinogenicity

Product:	Contains no carcinogenic substances as defined by NTP, IARC and/or OSHA.
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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: gene mutation test, OECD 471: , negative

In vivo

Product: No data available.

Reproductive toxicity

Product: No data available.

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: No data available.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: LC 50, Brachydanio rerio (zebrafish), 96 h, 439 mg/l/EC 92/69
LC 0, Brachydanio rerio (zebrafish), 96 h, 350 mg/l/EC 92/69

Aquatic Invertebrates

Product: EC 50, Daphnia magna, 48 h, 6.7 mg/l/EC 92/69

Toxicity to Aquatic Plants

Product: EC 50, Desmodesmus subspicatus (green algae), 72 h, 267 mg/l, EC 92/69

Toxicity to microorganisms

Product: EC 10, activated sludge, mixed population, 3 h, 440 mg/l, EG L133/118 (5.88), in case of breathing test EC50 is concerned

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Aquatic Invertebrates

Product: No data available.

Toxicity to microorganisms

Product: EC 10, activated sludge, mixed population, 3 h, 440 mg/l, EG L133/118 (5.88), in case of breathing test EC50 is concerned

Persistence and Degradability

Biodegradation

Product: 51 %, 28 d, DOC Die Away test, Not readily degradable.

BOD/COD Ratio

Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)

Product: No data available.

Partition Coefficient n-octanol / water (log K_{ow})

Product: 1.7, 20 °C, QSAR

Mobility in soil:

Product: No data available.

Results of PBT and vPvB assessment:

Product: No data available.

Other adverse effects:

Other hazards

Product: Toxic to aquatic life with long lasting effects.

13. Disposal considerations

Disposal methods: Waste must be disposed of in accordance with federal, provincial, state and local regulations. Empty containers must be handled with care due to product residue. DO NOT HEAT OR CUT THE EMPTY CONTAINER WITH AN ELECTRIC OR GAS TORCH.

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

UN/ID/NA number : NA 1993
Proper shipping name : Combustible liquid, n.o.s.
(3-mercaptopropyl-trimethoxysilane)
Class : CBL
Packing group : III

Labels : NONE
ERG Code : 128
Marine pollutant : no
Remarks : Not regulated in packages 450 liter or less.

International Regulations

IATA-DGR

UN/ID No. : UN 3082
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.
(3-mercaptopropyl-trimethoxysilane)
Class : 9
Packing group : III
Labels : 9MI
Packing instruction (cargo aircraft) : 964
Packing instruction (passenger aircraft) : 964
Environmentally hazardous : yes
Remarks : ERG-Code 9L

IMDG-Code

UN number or ID number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S.
(3-mercaptopropyl-trimethoxysilane)
Class : 9
Packing group : III
Labels : 9
EmS Code : F-A, S-F
Marine pollutant : no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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 (on the basis of current knowledge of the product composition).

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

None present or none present in regulated quantities (on the basis of current knowledge of the product composition).

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053), as amended

None present or none present in regulated quantities (on the basis of current knowledge of the product composition).

CERCLA Hazardous Substance List (40 CFR 302.4):

None present or none present in regulated quantities (on the basis of current knowledge of the product composition).

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Flammable (gases, aerosols, liquids, or solids), Acute toxicity (any route of exposure), Respiratory or Skin Sensitization

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 (on the basis of current knowledge of the product composition).

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

None present or none present in regulated quantities (on the basis of current knowledge of the product composition).

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities (on the basis of current knowledge of the product composition).

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

None present or none present in regulated quantities (on the basis of current knowledge of the product composition).

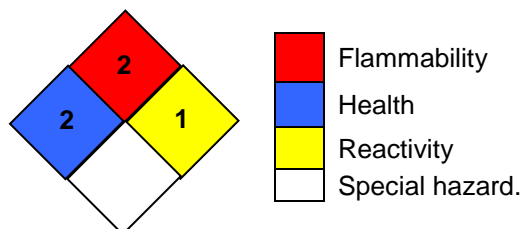
US State Regulations

US. California Proposition 65

No ingredient requiring a warning under CA Prop 65.

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

NFPA Hazard ID



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

Version #: 1.2

Generation date: 08/12/2024

Date of first report version: 07/09/2019

Abbreviations and acronyms:

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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