

SAFETY DATA SHEET

Classified in accordance with 29 CFR 1910.1200

1. Identification

Product identifier: Dynasylan® MTMS

Chemical name:

Trimethoxy(methyl)silane

Other means of identification

CAS Number: 1185-55-3

Recommended restrictions

Recommended use: For industrial use Raw material 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 2

Health Hazards

Toxic to reproduction Category 1B

Label Elements

Hazard Symbol:



Signal Word: Danger

Product name: Dynasylan® MTMS

Hazard Statement:

 Highly flammable liquid and vapor.
 May damage fertility.

Precautionary Statements
Prevention:

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof electrical, ventilating and lighting equipment. Use non-sparking tools. Take action to prevent static discharges. Wear protective gloves/eye protection/face protection. Use personal protective equipment as required.

Response:

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. IF exposed or concerned: Get medical advice/attention. In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage:

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

Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment.

3. Composition/information on ingredients
Chemical name:

Trimethoxy(methyl)silane

Substances

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%) [*]
Trimethoxy(methyl)silane		1185-55-3	>=98%

^{*} 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 (%) [*]
Dimethoxydimethylsilane		1112-39-6	0.3 - <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 necessary first-aid measures

General information:	Remove contaminated or saturated clothing immediately and follow safe disposal procedures.
Inhalation:	If aerosol or mists are inhaled, take affected persons out into the fresh air. In case of persistent discomfort or other symptoms, consult a physician immediately.
Skin Contact:	Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Obtain medical attention immediately if symptoms occur. Wash clothing before reuse.
Eye contact:	Keeping eyelid open, immediately rinse thoroughly for at least 5 minutes using plenty of water or, if necessary, eye rinsing solution. In case of persistent discomfort: Consult an ophthalmologist.
Ingestion:	If substance is accidentally swallowed, do not induce vomiting. If fully conscious, have patient rinse mouth with plenty of water and drink plenty of water in small sips. If unconscious, ensure person is in a stable position. Never give anything by mouth to an unconscious person. Obtain immediate medical attention.
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:	No data available.

Indication of immediate medical attention and special treatment needed

Treatment:	No data available.
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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:

Closed container may rupture if strongly heated. In case of fire cool endangered containers with water. Flammable 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. 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:	Use personal protective equipment. Keep away from sources of ignition - No smoking. Ensure adequate ventilation.
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). Suitable absorbents:
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 (e.g. Local and general ventilation):	Use this product preferably in a closed system, or use process enclosures, local exhaust ventilation or other engineering controls to minimize airborne exposure.
Safe handling advice:	Ensure good ventilation during processing. 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. Handle in accordance with good industrial hygiene and safety practice. Do not breathe in vapours or aerosols. If workplace exposure limits are exceeded and/or larger amounts are released (leakage, spilling, dust) the indicated respiratory protection should be used. Avoid contact with eyes, skin, and clothing. If there is the possibility of skin/eye contact, the indicated hand/eye/body protection should be used.

Contact avoidance measures: No data available.

Storage

Safe storage conditions: Take precautionary measures against static discharges. Keep away from sources of ignition - No smoking. Explosion protection equipment required. Danger of explosion from residual product fumes; therefore avoid spark production through cutting, grinding, or welding work in the area of the container. When repairs of the production system are to be made (e.g. welding work), the section to be repaired must be essentially free of product. 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. 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.

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

Use this product preferably in a closed system, or use process enclosures, local exhaust ventilation or other engineering controls to minimize airborne exposure.

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., Use impermeable gloves., 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.

Skin and Body Protection:

When handling larger quantities: Wear protective clothing made from non-flammable fibres. 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. Wash contaminated clothing before reuse.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Physical state:	liquid
Form:	liquid
Color:	colorless
Odor:	Characteristic
Odor Threshold:	No data available.
Freezing point:	< -94 °F/< -70 °C
Boiling Point:	216 °F/102 °C (1,013 hPa) (DIN 51751)
Flammability:	No data available.

Upper/lower limit on flammability or explosive limits

Explosive limit - upper:	(Literature) 27.0 %(V)
Explosive limit - lower:	(Literature) 1.5 %(V)

Flash Point:	52 °F/11 °C (DIN EN ISO 13736)
Self-ignition:	No data available.
Decomposition Temperature:	No data available.
pH:	No data available.
Viscosity	
Dynamic viscosity:	0.5 mPa.s (77 °F/25 °C, DIN 53015)
Kinematic viscosity:	No data available.
Flow Time:	No data available.
Solubility(ies)	
Solubility in Water:	Approximate 30 g/l (QSAR) decomposition by hydrolysis soluble in organic solvents
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	-2.36 (QSAR)
Vapor pressure:	30 hPa (68 °F/20 °C)
Relative density:	No data available.
Density:	0.95 g/cm ³ (77 °F/25 °C) (DIN 51757)
Bulk density:	No data available.
Relative vapor density:	No data available.

Other information

Explosive properties:	Vapours may form explosive mixtures with air.
Oxidizing properties:	Not to be expected in view of the structure
Minimum ignition temperature:	437 °F/225 °C (DIN 51794)
Peroxides:	Not applicable
Molecular weight:	136.2 g/mol

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:	Vapours may form explosive mixtures with air.
Conditions to avoid:	Keep away from heat and sources of ignition. Protect from moisture.
Incompatible Materials:	Water. Acids. Alkalies.
Hazardous Decomposition Products:	Methanol in case of hydrolysis. Alcohol formed by hydrolysis lowers the flash point of the product. in the presence of air small amounts of formaldehyde are evolved due to oxidative decomposition when heated to and above 150°C.

11. Toxicological information**Information on toxicological effects****Information on likely routes of exposure**

Inhalation:	No data available.
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Skin Contact: No data available.

Eye contact: No data available.

Ingestion: No data available.

Acute toxicity (list all possible routes of exposure)**Oral**

Product: LD 50 (Rat, Male): 11,685 mg/kg (OECD 401)

Dermal

Product: LD 50 (Rabbit): > 9,500 mg/kg (OECD 402)

Inhalation

Product: LC 50 (Rat, Female, Male, 4 h): > 42.1 mg/l

Repeated dose toxicity

Product: NOAEL (Rat(Female, Male), Oral, 90 day, 7 days a week): 50 mg/kg NOAEL
- No Observable Adverse Effect Level (Rat(Female, Male), Oral, 90 day, 7 days a week):
NOAEC (Rat(Female, Male), Inhalation, 90 day, 5 days/weeks, 6 hours/day): 560 mg/m³

Skin Corrosion/Irritation

Product: Not irritating OECD 404 (Rabbit, 24 h):

Serious Eye Damage/Eye Irritation

Product: Not irritating Rabbit, 24 h:

Respiratory or Skin Sensitization

Product: Local Lymph Node Assay (LLNA), OECD 429 (Mouse): Not a skin sensitizer.
Buehler Test, OECD 406 (Guinea Pig): Not a skin sensitizer.

Carcinogenicity

Product: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP, IARC, or OSHA.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

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 1910.1001-1050), as amended:

No carcinogens present or none present in regulated quantities

Germ Cell Mutagenicity**In vitro**

Product: gene mutation test (OECD 471): negative;
Chromosomal aberration (OECD 473): positive;
In vitro mammalian cell gene mutation test (OECD 476): positive;

In vivo

Product: Micronucleus test (OECD 474) Oral (Mouse, Female, Male): negative;

Reproductive toxicity

Product: No data available.

Components:

Product name: Dynasylan® MTMS

Dimethoxydimethylsilane Presumed human reproductive toxicant May damage fertility.

Specific Target Organ Toxicity - Single Exposure

Product: No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product: No data available.

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 (Oncorhynchus mykiss, 96 h): > 110 mg/l

Aquatic Invertebrates

Product: EC 50 (Daphnia magna, 48 h): > 122 mg/l

Toxicity to Aquatic Plants

Product: EC 50 (Algae (Pseudokirchneriella subcapitata), 72 h): > 120 mg/l (OECD 201)

Toxicity to microorganisms

Product: EC 50 (local activated sludge, 3 h): > 100 mg/l (OECD 209)

Chronic hazards to the aquatic environment:
Fish

Product: No data available.

Components:

 Dimethoxydimethylsilane NOEC (Pimephales promelas, 32 d): \geq 12 mg/l (OECD 210)

Aquatic Invertebrates

Product: NOEC (Daphnia magna, 21 d): 10 mg/l (OECD 211) (analogy)

Toxicity to Aquatic Plants

 Product: NOEC (Algae (Pseudokirchneriella subcapitata), 72 h): \geq 120 mg/l (OECD 201)

Toxicity to microorganisms

Product: EC 50 (local activated sludge, 3 h): > 100 mg/l (OECD 209)

Persistence and Degradability
Biodegradation

 Product: 54 % (28 d, (CO₂; modif. Sturm test - 92/69/EEC part C.4-C)) The product is not biodegradable., aerobic

BOD/COD Ratio

Product name: Dynasylan® MTMS

Product: No data available.**Bioaccumulative potential****Bioconcentration Factor (BCF)****Product:** low**Partition Coefficient n-octanol / water (log Kow)****Product:** Log Kow: -2.36 (QSAR)**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. Since empty containers retain product residue, follow MSDS and label warnings even after container is emptied. Residual vapors might explode on ignition; do not apply heat, cut, drill, grind or weld on or near this container.**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 : UN 1993
Proper shipping name : Flammable liquids, n.o.s.
(trimethoxy(methyl)silane)
Class : 3
Packing group : II
Labels : 3
ERG Code : 128
Marine pollutant : no**International Regulations****IATA-DGR**UN/ID No. : UN 1993
Proper shipping name : Flammable liquid, n.o.s.
(trimethoxy(methyl)silane)

Product name: Dynasylan® MTMS

Class : 3
Packing group : II
Labels : 3
Packing instruction (cargo aircraft) : 364
Packing instruction (passenger aircraft) : 353

IMDG-Code

UN number or ID number : UN 1993
Proper shipping name : FLAMMABLE LIQUID, N.O.S.
(trimethoxy(methyl)silane)

Class : 3
Packing group : II
Labels : 3
EmS Code : F-E, S-E
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.

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.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050), as amended

None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

Reportable Quantity not reasonably exceeded.

Superfund Amendments and Reauthorization Act of 1986 (SARA)**Hazard categories**

Flammable (gases, aerosols, liquids, or solids), Reproductive toxicity, Hazards Not Otherwise Classified (HNOC)

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, methanol 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.

Inventory Status:

US TSCA Inventory:	On or in compliance with the inventory	
Canada DSL Inventory List:	On or in compliance with the inventory	

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

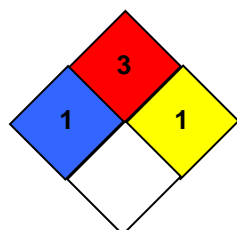
HMIS Hazard ID

Health	* 1
Flammability	3
Physical Hazards	Rating not possible
PERSONAL PROTECTION	K

K - Hood, Gloves, Protective Suit & Boots

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

NFPA Hazard ID



- Flammability
- Health
- Reactivity
- Special hazard.

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

Issue Date: 03/15/2019

Version #: 2.0

Further Information: No data available.

Revision Information

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

Disclaimer:

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