

Product name: Dynasylan® TRIAMO

SAFETY DATA SHEET

Classified in accordance with Health Canada Hazardous Products Regulations
(SOR/2015-17)

1. Identification

Product identifier:
Dynasylan® TRIAMO**Chemical name:**
N-(2-aminoethyl)-N'-(3-(trimethoxysilyl)propyl)ethylenediamine**Other means of identification**
CAS Number: 35141-30-1**Recommended use of the chemical and restrictions on use****Recommended use:** For industrial use Coupling agent Crosslinking agents Surface modifier**Restrictions on use:** Not determined.**Manufacturer/Importer/Distributor Information**

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2. Hazard identification

According to Hazardous Products Regulations**Health Hazards**

Acute toxicity (Inhalation - dust and mist)	Category 4
Serious Eye Damage/Eye Irritation	Category 1
Skin sensitizer	Category 1A

Label Elements**Hazard Symbol:**

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Signal Word:	Danger
Hazard Statement:	Harmful if inhaled. Causes serious eye damage. May cause an allergic skin reaction.
Precautionary Statements	
Prevention:	Avoid breathing dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/ eye protection/ face protection.
Response:	IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Specific treatment (see supplemental first aid instructions on this label). Take off contaminated clothing and wash it before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
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:

N-(2-aminoethyl)-N'-(3-(trimethoxysilyl)propyl)ethylenediamine

Substances

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%) [*]
N-(2-aminoethyl)-N'-(3-(trimethoxysilyl)propyl)ethylenediamine		35141-30-1	60 - 80%

^{*} 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

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Description of first aid measures

General information:	Immediately remove contaminated clothing.
Inhalation:	If aerosol or mists are formed: Move to fresh air. Get medical attention if any discomfort continues.
Skin Contact:	Wash off immediately with plenty of water. If skin irritation persists, call a physician.
Eye contact:	With eye held open, thoroughly rinse immediately with plenty of water for at least 10 minutes. Continue rinsing process with eye rinsing solution. Protect unharmed eye. Call ambulance. (Cue: caustic burn of the eyes) Immediate further treatment in eye clinic/by eye doctor. continue rinsing eye until arrival at ophthalmic hospital.
Ingestion:	Have the mouth rinsed with water. Only when patient fully conscious: Have patient drink plenty of water in small sips. Get medical attention immediately.
Personal Protection for First-aid Responders:	No data available.

Most important symptoms and effects, both acute and delayed

Symptoms:	After absorbing large amounts of substance: Liberation of reaction products (Methanol) can lead to symptoms of poisoning. Possible signs of poisoning: daze, dizziness, nausea, colicky abdominal pain, respiratory disturbance. Symptoms upon increasing intoxication: dysopia, loss of eyesight.
Hazards:	None known.

Indication of immediate medical attention and special treatment needed

Treatment:	If required, therapy of irritative effect. Treatment Early endoscopy in order to assess mucosa lesions in the oesophagus and stomach which may appear. If necessary, aspirate leftover substance. 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:	Standard procedure for chemical fires.

Special protective equipment and precautions for firefighters

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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:	Use personal protective equipment.
Accidental release measures:	No data available.
Methods and material for containment and cleaning up:	Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a 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, ponds, groundwater or soil.

7. Handling and storage

Handling

Technical measures:	No data available.
Local/Total ventilation:	Provide adequate ventilation.
Safe handling advice:	Application, processing: Provide good ventilation or extraction. Use with adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Wear suitable protective equipment. 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:	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

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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 adequate ventilation.

Individual protection measures, such as personal protective equipment

Eye/face protection:

Use chemical splash goggles or face shield.

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.

Other:

suitable protective clothing - Use disposable clothing if appropriate. 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 to yellow
Odor:	amine-like
Odor Threshold:	No data available.
Freezing point:	< -4 °F/ < -20 °C at 1,013 hPa

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	Method: EU Method A.1
Boiling Point:	237.2 - 334.4 °F/114.0 - 168.0 °C at 3 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:	327 °F/164 °C Method: DIN EN ISO 2719
Auto-ignition temperature:	599 °F/315 °C Method: DIN 51794
Decomposition Temperature:	No data available.
pH:	10.4 at 68 °F/20 °C
Viscosity	
Dynamic viscosity:	23 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:	not miscible decomposition by hydrolysis
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Vapor pressure:	< 0.10 hPa at 68 °F/20 °C
Relative density:	No data available.
Density:	Approximate 1.04 g/cm ³ at 68 °F/20 °C Method: DIN 51757
Bulk density:	No data available.
Relative vapor density:	No data available.
Other information	
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:	Exothermic reaction with: acids
Conditions to avoid:	Protect from moisture.
Incompatible Materials:	Acids.
Hazardous Decomposition Products:	Methanol in case of hydrolysis. Alcohol formed by hydrolysis lowers the flash point of the product.

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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, Not toxic after single exposure, (analogy)

Dermal

Product: LD 50, Rabbit, Female, Male, > 2,000 mg/kg, OECD 402, Not toxic after single exposure, (analogy)

Inhalation

Product: LC 50, Rat, Female, Male, 4 h, > 1.49 mg/l, Dust and mist, OECD 403, (analogy)

Repeated dose toxicity

Product: NOAEL Rat, Female, Male, Oral, daily, \geq 500 mg/kg, (analogy)

Skin Corrosion/Irritation

Product: Not irritating, OECD 404, (Rabbit), (analogy)

Serious Eye Damage/Eye Irritation

Product: Risk of serious damage to eyes., OECD 405, Rabbit

Respiratory or Skin Sensitization

Product: Maximization Test, OECD 406, Guinea Pig, Strong skin sensitizer.

Carcinogenicity

Product: Contains no carcinogenic substances as defined by NTP, IARC and/or OSHA.

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

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2), as amended

No carcinogens present or none present in regulated quantities

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act), as amended

No carcinogens present or none present in regulated quantities

Canada. Quebec OELs. (Ministry of Labor - Regulation respecting occupational health and safety), as amended

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No carcinogens present or none present in regulated quantities

Germ Cell Mutagenicity**In vitro**

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

In vivo

Product: No data available.

Reproductive toxicity

Product: No data available.

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, Danio rerio, 96 h, 597 mg/l, OECD 203, (analogy)

Aquatic Invertebrates

Product: EC 50, Daphnia magna, 48 h, 13.3 mg/l, OECD 202, The details of the toxic effect relate to the nominal concentration.

Toxicity to Aquatic Plants

Product: EC 50, Desmodesmus subspicatus (green algae), 72 h, 8.8 mg/l, OECD 201, (analogy)

Toxicity to microorganisms

Product: EC 10, Pseudomonas putida, 16 h, 25 mg/l, OECD 209, (analogy)

Chronic hazards to the aquatic environment:**Fish**

Product: No data available.

Aquatic Invertebrates

Product: NOEC, Daphnia magna, 21 d, > 1 mg/l, OECD 211, (analogy)

Toxicity to microorganisms

Product: EC 10, Pseudomonas putida, 16 h, 25 mg/l, OECD 209, (analogy)

Persistence and Degradability

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Biodegradation

Product: 39 %, 28 d, (DOC; Die Away test / 92/69/EEC part C.4-A), The product is not 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: No data available.

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 local, state, provincial and federal laws and regulations. Empty containers must be handled with care due to product residue.

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

TDG

Not regulated as a dangerous good

International Regulations

UNRTDG

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

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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**Canada Federal Regulations****List of Toxic Substances (CEPA, Schedule 1)**

Not Regulated

Export Control List (CEPA 1999, Schedule 3)

Not Regulated

National Pollutant Release Inventory (NPRI)**Canada. National Pollutant Release Inventory (NPRI) Substances, Part 5, VOCs with Additional Reporting Requirements****Chemical Identity**

METHANOL

Canada. National Pollutant Release Inventory (NPRI) (Schedule 1, Parts 1-4)

NPRI Not Regulated

Greenhouse Gases

Not Regulated

Canada. Substances Subject to Significant New Activity (SNAc) Reporting Requirements

Not Regulated

Controlled Drugs and Substances Act

CA CDSI	Not Regulated
CA CDSII	Not Regulated
CA CDSIII	Not Regulated
CA CDSIV	Not Regulated
CA CDSV	Not Regulated
CA CDSVII	Not Regulated
CA CDSVIII	Not Regulated

Precursor Control Regulations

Not Regulated

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

Issue Date: 12/17/2021

Version #: 1.1

Abbreviations and acronyms:

Product name: Dynasylan® TRIAMO

AIIIC - 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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