SAFETY DATA SHEET

Classified in accordance with 29 CFR 1910.1200

1. Identification

Product identifier: Dynasylan® AMEO
Chemical name:
3-Aminopropyltriethoxysilane

Other means of identification
CAS Number: 919-30-2

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 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

Physical Hazards

Flammable liquids	Category 4

Health Hazards

Acute toxicity (Oral)	Category 4
Skin Corrosion/Irritation	Category 1B
Serious Eye Damage/Eye Irritation	Category 1
Skin sensitizer	Category 1

Label Elements

Hazard Symbol:

Signal Word: Danger

Hazard Statement:

Combustible liquid.
Harmful if swallowed.
Causes severe skin burns and eye damage.
May cause an allergic skin reaction.

Precautionary Statements

Prevention: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not breathe 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. Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER or doctor/ physician if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. 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). IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. 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): None.

3. Composition/information on ingredients

Chemical name:
3-Aminopropyltriethoxysilane

Substances

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%)*
3-Aminopropyltriethoxysilane		919-30-2	99%

* 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. If breathing difficulties occur: Keep patient half sitting with upper body raised.
Skin Contact:	Immediately wash with soap and water for at least fifteen minutes. Remove contaminated clothing and shoes. Obtain medical attention. Thoroughly wash clothing and shoes before reuse.
Eye contact:	Rinse eye thoroughly immediately with plenty of water for at least 10 minutes. Continue rinsing process with eye rinsing solution. Protect uninjured eye. For caustic burn of the eyes, call an ambulance and obtain immediate medical treatment from an ophthalmologist.
Ingestion:	If accidentally swallowed, rinse mouth thoroughly with water and afterwards, drink plenty of water. In case of discomfort, obtain medical attention.
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:	Allergic reactions cannot be excluded. Treatment of allergic reaction if necessary. If substance has been swallowed, apply therapy for chemical burn. Early endoscopy is recommended in order to assess mucosa lesions in the esophagus and stomach which may appear. If necessary, suck away left over substances.

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:	Hazardous fumes in fires, specific to the product: Nitrogen Oxides

Special protective equipment and precautions for firefighters

Special fire fighting procedures:	No data available.
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 unauthorized personnel away. Ensure adequate ventilation.
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, rivers, groundwater or soil.

7. Handling and storage

Handling

Technical measures:	Further Information Contact the accreditation office, AKMP. ACGIH (American Conference of Governmental Industry Hygienists)
Local/Total ventilation:	Application, processing: Provide good ventilation or extraction.
Safe handling advice:	Provide good ventilation or extraction. Do not breathe vapours or spray mist. For personal protection see section 8.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. Use protective clothing / face shield if necessary.
Contact avoidance measures:	No data available.

Storage

Safe storage conditions:	Normal measures for preventive fire protection. 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.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

Chemical Identity	Type	Exposure Limit Values		Source
Ethanol (Ethyl alcohol)	STEL	1,000 ppm		ACGIH (03 2016)
	REL	1,000 ppm	1,900 mg/m3	NIOSH (2010)
	PEL	1,000 ppm	1,900 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

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

Appropriate Engineering Controls Application, processing: Provide good ventilation or extraction. Further Information Contact the accreditation office, AKMP. ACGIH (American Conference of Governmental Industry Hygienists)

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: Polyvinyl chloride (PVC).
Break-through time: >= 120 min
Guideline: Source: GESTIS substance database (hazardous substance information system of commercial professional associations)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:	When handling larger quantities: chemical protective suit Flame retardant protective clothing 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 yellowish
Odor:	amine-like
Odor Threshold:	No data available.
Freezing point:	< -94 °F/ < -70 °C
Boiling Point:	428 °F/220 °C at 1,013 hPa Method: DIN 51 356
Flammability:	No data available.

Upper/lower limit on flammability or explosive limits

Explosive limit - upper:	Method: DIN EN 1839 17.5 %(V) at 392 °F/200 °C, 1 bar (200°C)
Explosive limit - lower:	Method: DIN EN 1839 0.7 %(V) at 392 °F/200 °C, 1 bar (200°C)
Flash Point:	192 - 201 °F/89 - 94 °C Method: DIN EN ISO 2719
Auto-ignition temperature:	572 °F/300 °C
Decomposition Temperature:	> 423 °F/> 217 °C
pH:	11.3 at 68 °F/20 °C Concentration: 500 g/l

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:	5.4 g/l at 68 °F/20 °C Method: QSAR decomposition by hydrolysis
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	1.7 at 68 °F/20 °C Method: QSAR
Vapor pressure:	2 Pa at 68 °F/20 °C Method: QSAR
Relative density:	No data available.
Density:	0.95 g/cm3 at 68 °F/20 °C Method: DIN 51757
Bulk density:	No data available.
Relative vapor density:	No data available.
Other information	
Self-ignition:	518 °F/270 °C 1,010 hPa Method: EC Method A.15
Peroxides:	Not applicable
Metal Corrosion:	Not to be expected.

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: Water. Inorganic acids. Organic acid
Conditions to avoid:	Keep away from heat and sources of ignition. Protect from moisture. In the presence of oxygen and heat, the ethanol forming during the reaction may produce acetaldehyde. Material may form acetaldehyde when heated with inorganic pigments in the presence of air.
Incompatible Materials:	Water. Strong oxidizing agents. Acids.
Hazardous Decomposition Products:	Ethanol 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, Female, 1,490 mg/kg, EPA Method

Dermal
Product: LD 50, Rabbit, > 2,000 mg/kg, EPA Method, Not toxic after single exposure

Inhalation
Product: LC 50, Rat, Female, 4 h, > 20 mg/l, Vapour, OECD 403
LC 50, Rat, Female, 6 h, > 144 mg/l, Vapour, OECD 403

Repeated dose toxicity
Product: NOAEL Rat, Female, Male, Oral, 90 day, daily, 200 mg/kg

Skin Corrosion/Irritation
Product: Corrosive., OECD 404, (Rabbit, < 1 h)

Serious Eye Damage/Eye Irritation
Product: Risk of serious damage to eyes., OECD 405, Rabbit

Respiratory or Skin Sensitization
Product: Buehler Test, OECD 406, Guinea Pig, May cause sensitization by skin contact.

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

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: Micronucleus test, OECD 474, Intraperitoneal, Mouse, Female, Male, negative

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 0, Brachydanio rerio (zebrafish), 96 h, > 934 mg/lOECD 203

Aquatic Invertebrates
Product: EC 50, Daphnia magna, 48 h, 331 mg/lOECD 202

Toxicity to Aquatic Plants
Product: EC 50, Desmodesmus subspicatus (green algae), 72 h, > 1,000 mg/l, OECD 201

Toxicity to microorganisms
Product: EC 10, Pseudomonas putida, 5.75 h, 13 mg/l, DIN EN ISO 10712

Chronic hazards to the aquatic environment:

Fish
Product: No data available.

Aquatic Invertebrates
Product: No data available.

Toxicity to microorganisms
Product: EC 10, Pseudomonas putida, 5.75 h, 13 mg/l, DIN EN ISO 10712

Persistence and Degradability

Biodegradation

Product: 67 %, 28 d, (DOC; Die Away test - 79/831/EEC part C.4-A), Not readily degradable.

BOD/COD Ratio

Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)
Product: not bioaccumulative

Partition Coefficient n-octanol / water (log Kow)
Product: 1.7, 20 °C, 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 and local regulations. Incineration is the preferred method. Empty containers must be handled with care due to product residue. DO NOT HEAT OR CUT THE EMPTY CONTAINER WITH 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	:	UN 3267
Proper shipping name	:	Corrosive liquid, basic, organic, n.o.s. (3-aminopropyl-triethoxysilane)
Class	:	8
Packing group	:	II
Labels	:	8
ERG Code	:	153
Marine pollutant	:	no

International Regulations

IATA-DGR

UN/ID No.	:	UN 3267
Proper shipping name	:	Corrosive liquid, basic, organic, n.o.s.

		(3-aminopropyl-triethoxysilane)
Class	:	8
Packing group	:	II
Labels	:	8
Packing instruction (cargo aircraft)	:	855
Packing instruction (passenger aircraft)	:	851

IMDG-Code

UN number or ID number	:	UN 3267
Proper shipping name	:	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (3-aminopropyl-triethoxysilane)
Class	:	8
Packing group	:	II
Labels	:	8
EmS Code	:	F-A, S-B
Marine pollutant	:	no
Remarks	:	Stowage category B, SW2 - Clear of living quarters., IMDG Code segregation group 18 - Alkalis, SG35 - Stow “separated from” SGG1 – acids.

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) Proposed 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 1910.1001-1053), 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

Flammable (gases, aerosols, liquids, or solids), Acute toxicity (any route of exposure), Skin Corrosion or Irritation, Serious eye damage or eye irritation, 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.

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

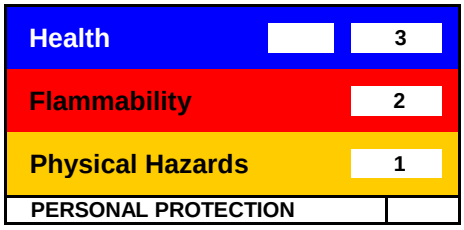
US. California Proposition 65

WARNING: This product can expose you to chemicals including, Toluene 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.

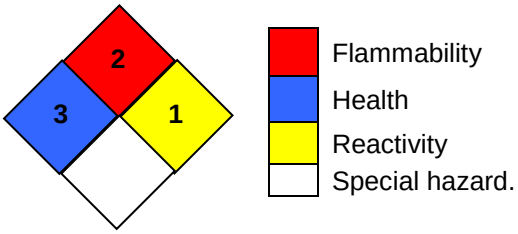
16.Other information, including date of preparation or last revision

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 #: 2.1

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Abbreviations and acronyms:

ACGIH:	US. ACGIH Threshold Limit Values, 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 / STEL:	Short Term Exposure Limit (STEL):
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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