

SAFETY DATA SHEET**Dynasylan® 9116**

Material no.		Version	3.0 / US
Specification	120824	Revision date	05/28/2015
Order Number		Print Date	06/25/2015
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1. Identification**1.1. Product identifier**

Trade name	Dynasylan® 9116
Chemical Name	Hexadecyltrimethoxysilane
CAS-No.	16415-12-6

1.2. Recommended use of the chemical and restrictions on use

Relevant applications identified	For industrial use
Function	Surface modifier Raw material

1.3. Details of the supplier of the safety data sheet

Company	Evonik Corporation USA 299 Jefferson Road Parsippany, NJ 07054-0677 USA
Telephone	973-929-8000
Telefax	973-929-8040
Email address	Product-Regulatory-Services@Evonik.com

1.4. 24 HOUR EMERGENCY TELEPHONE NUMBERS:

CHEMTREC - US & CANADA:	800-424-9300
CHEMTREC MEXICO:	01-800-681-9531
CHEMTREC INTERNATIONAL:	+1 703-527-3887 (collect calls accepted)

Product Regulatory Services : 973-929-8060

2. Hazards identification**2.1. Classification of the substance or mixture**

Classification according to Regulation 29CFR 1910.1200

Remarks Not a hazardous substance or mixture.

2.2. Label elements

Statutory basis	Classification according to Regulation 29CFR 1910.1200
Remarks	Not a hazardous substance or mixture.

Contains Hexadecyltrimethoxysilane
The following percentage of the mixture consists of ingredient(s) with unknown hazards to the aquatic environment: 99 %

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2.3. Other hazards

None known

Hexadecyltrimethoxysilane Not a PBT, vPvB substance as per the criteria of the REACH Regulation.**3. Composition/information on ingredients**

• Hexadecyltrimethoxysilane	<= 99%
CAS-No.	16415-12-6
Remarks	Not a hazardous substance or mixture.

Other information

This material is classified as hazardous under OSHA regulations.

4. First aid measures**4.1. Description of first aid measures****General advice**

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.

4.2. 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.

4.3. Indication of any immediate medical attention and special treatment needed

Treatment:

Immediate gastric lavage. Antidote treatment, correction of acid-base balance.

Detection of substance (Methanol) possible in:

Blood

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Antidote treatment: ethanol.

5. Fire-fighting measures**5.1. Extinguishing media**

Suitable extinguishing media: water spray, foam, Carbon dioxide (CO₂), dry powder

Unsuitable extinguishing media: High volume water jet

5.2. Special hazards arising from the substance or mixture

Standard procedure for chemical fires.

5.3. Advice for firefighters

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.

As in any fire, wear self-contained positive-pressure breathing apparatus, (MSHA/NIOSH approved or equivalent) and full protective gear.

6. Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment.

6.2. Environmental precautions

Obey relevant local, state, provincial and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil.

6.3. 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.

7. Handling and storage**7.1. Precautions for safe handling**

Ensure good ventilation during processing. Keep away from heat. Keep away from sparks, flames and other sources of ignition. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use with adequate ventilation. The need for grounding and bonding of containers in accordance with OSHA 29 CFR 1910.106 and NFPA 77 should be assessed for all product transfers. Follow all MSDS/label precautions even after the container is emptied because it may retain product residues. Wash thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities**Advice on protection against fire and explosion**

Normal measures for preventive fire protection.

Storage

Keep containers tightly closed in a cool, well-ventilated place. Protect from moisture.

Further information

Keep tightly sealed in original packing.

Protect from frost.

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8. Exposure controls/personal protection**8.1. Control parameters****DNEL/DMEL values**

Remarks not necessary (see chapter 15)

PNEC values

Remarks not necessary (see chapter 15)

8.2. Exposure controls**Engineering measures**

Provide adequate ventilation.

Personal protective equipment**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.

Hand protection

Use impermeable gloves.

Eye protection

Use chemical splash goggles or face shield.

Skin and body protection

A safety shower and eye wash fountain should be readily available.

To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product.

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**9.1. Information on basic physical and chemical properties**

physical state	liquid (20 °C) (1013 hPa)	
Colour	colorless	
Form	liquid	
Odour	odorless	
Odour Threshold	not determined	
pH	not determined	
Melting point/range	1.4 °C	(1005 hPa)
	Method:	OECD 102
Boiling point/range	180 °C	(100 hPa)
	Method:	DIN 51 356
	350 °C	(1005 hPa)

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	Method:	OECD 103
Flash point	165 °C	
	Method:	DIN EN ISO 2719 (Pensky-Martens, Closed Cup)
Evaporation rate	not determined	
Flammability (solid, gas)	no data available	
Lower explosion limit	not determined	
Upper explosion limit	not determined	
Vapour pressure	< 1 Pa	
Relative density	0.89 (20 °C)	
	Method:	OECD Test Guideline 109
Density	ca. 0.89 g/cm ³ (20 °C)	
	Method:	DIN 51757
Water solubility	not miscible decomposition by hydrolysis	
Partition coefficient: n- octanol/water	log Pow: 8.1 (20 °C)	
	Method:	QSAR
Autoignition temperature	not determined	
Thermal decomposition	not determined	
Viscosity, dynamic	7 mPa.s (20 °C)	
	Method:	DIN 53 015

9.2. Other information

Explosiveness not explosive

10. Stability and reactivity**10.1. Reactivity**

No dangerous reaction known under conditions of normal use.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions No dangerous reactions known.

10.4. Conditions to avoid

Protect from moisture.

10.5. Incompatible materials

Water

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10.6. Hazardous decomposition products

Methanol in case of hydrolysis.

11. Toxicological information**11.1. Information on toxicological effects**

Acute oral toxicity	LD50 Rat: > 5002 mg/kg Method: OECD Test Guideline 401
Acute inhalation toxicity	No data available
Acute dermal toxicity	LD50 Rat: > 2000 mg/kg Method: OECD Test Guideline 402 Test substance: Structurally similar substance Assessment: The substance or mixture has no acute dermal toxicity
Skin irritation	Rabbit No skin irritation Method: OECD Test Guideline 404
Eye irritation	Rabbit No eye irritation Method: OECD Test Guideline 405
Sensitization	Buehler Test Guinea pig: Does not cause skin sensitisation. Method: OECD Test Guideline 406
Assessment of STOT single exposure	Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.
Assessment of STOT repeat exposure	Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.
Risk of aspiration toxicity	No evidence of aspiration toxicity
Gentoxicity in vitro	Ames test Salmonella typhimurium negative Method: OECD TG 471 Chromosome aberration test in vitro CHO-cells negative Method: OECD 473 gene mutation TK +/- mouse lymphoma cell (L5178Y) negative Method: OECD TG 476 Test substance: Structurally similar substance
Carcinogenicity	No data available
carcinogenicity assessment	Contains no carcinogenic substances as defined by NTP, IARC and/or OSHA.

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Toxicity to reproduction No data available

12. Ecological information**12.1. Toxicity**

Toxicity to fish	LL50 Danio rerio (zebra fish): > 1000 mg/l / 96 h Method: OECD TG 203
Toxicity in aquatic invertebrates	EL50 Daphnia magna (Water flea): > 100 mg/l / 48 h Method: OECD TG 202
Toxicity to algae	EL50 Desmodesmus subspicatus (green algae): > 30 mg/l / 96 h Method: OECD TG 201
Toxicity to bacteria	EC50 local activated sludge: > 1000 mg/l / 3 h Method: OECD TG 209 NOEC local activated sludge: 1000 mg/l / 3 h Method: OECD TG 209

12.2. Persistence and degradability

Biodegradability	Exposure time: 28 d Result: 43 % Not readily biodegradable. Test substance: Structurally similar substance Method: OECD TG 301 C
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12.3. Bioaccumulative potential

Bioaccumulation	not bioaccumulative
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12.4. Mobility in soil

Mobility	Adsorption on the floor: low.
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12.5. Other adverse effects

Further Information	No ecotoxicological studies are available.
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13. Disposal considerations**13.1. Waste treatment methods**

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Waste must be disposed of in accordance with federal, state and local regulations. Incineration is the preferred method.

Uncleaned 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**Not dangerous according to transport regulations.**

- 14.1. UN number: --
- 14.2. UN proper shipping name: --
- 14.3. Transport hazard class(es): --
- 14.4. Packing group: --
- 14.5. Environmental hazards (Marine pollutant): --
- 14.6. Special precautions for user: Yes
Not dangerous according to transport regulations.

15. Regulatory information**US Federal Regulations****OSHA**

If listed below, chemical specific standards apply to the product or components:

- None listed

Clean Air Act Section (112)

If listed below, components present at or above the de minimus level are hazardous air pollutants:

- None listed

CERCLA Reportable Quantities

If listed below, a reportable quantity (RQ) applies to the product based on the percent of the named component:

- None listed

SARA Title III Section 311/312 Hazard Categories

The product meets the criteria only for the listed hazard classes:

- No SARA Hazards

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SARA Title III Section 313 Reportable Substances

If listed below, components are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

- None listed

Toxic Substances Control Act (TSCA)

If listed below, non-proprietary substances are subject to export notification under Section 12 (b) of TSCA:

- None listed

State Regulations

The Listing requirements of the Right to Know (RTK) legislation varies by state. All information for NJ, PA, MA and other states can be derived from the listing of hazardous and non-hazardous components in section 2 and 15 of this MSDS.

California Proposition 65

A warning under the California Drinking Water Act is required only if listed below:

- None listed

An employer using HMIS/NFPA labeling must through training ensure that its employees are fully aware of the hazards of the chemicals used.

HMIS Ratings

Health :	0
Flammability :	1
Physical Hazard :	0

NFPA Ratings

Health :	0
Flammability :	1
Reactivity :	0

16. Other information**Further information**

Revision date 05/28/2015

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

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Legend

ACC	American Chemistry Council
ACGIH	American Conference of Governmental Industrial Hygienists
ACS	Advisory Committee on Sustainability
ADI	Acceptable Daily Intake
ASTM	American Society for Testing and Materials
ATP	Adaptation to Technical Progress
BCF	Bioconcentration factor
BOD	Biochemical oxygen demand
c.c.	closed cup
CAO	Cargo Aircraft Only
Carc	Carcinogen
CAS	Chemical Abstract Services
CDN	Canada
CEPA	Canadian Environmental Protection Act
CERCLA	Comprehensive Environmental Response – Compensation and Liability Act
CFR	Code of Federal Regulations
CMR	carcinogenic-mutagenic-toxic for reproduction
COD	Chemical oxygen demand
DIN	German Institute for Standardization
DMEL	Derived minimum effect level
DNEL	Derived no effect level
DOT	Department of Transportation
EC50	half maximal effective concentration
EPA	Environmental Protection Agency
ErC50	Reduction of Growth Rate
ERG	Emergency Response Guide Book
FDA	Food and Drug Administration
GHS	Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
GLP	Good Laboratory Practice
GMO	Genetic Modified Organism
HCS	Hazard Communication Standard
HMIS	Hazardous Materials Identification System
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Container
ICAO-TI	International Civil Aviation Organization- Technical Instructions
ICCA	International Council of Chemical Association
ID	Identification number
IMDG	International Maritime Dangerous Goods
IUPAC	International Union of Pure and Applied Chemistry
ISO	International Organization For Standardization
LC50	50 % Lethal Concentration
LD50	50 % Lethal Dose
L(EC50)	LC50 or EC50
LOAEL	Low est observed adverse effect level
LOEL	Low est observed effect level
MARPOL	International Convention for the Prevention of Pollution from Ships
NFPA	National Fire Protection Association
NOAEL	No observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
o. c.	open cup
OECD	Organisation for Economic Cooperation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PBT	Persistent, bioaccumulative, toxic
PEC	Predicted effect concentration
PNEC	Predicted no effect concentration
RQ	Reportable Quantity
SDS	Safety Data Sheet
STOT	Specific Target Organ Toxicity
UN	United Nations
vPvB	very persistent, very bioaccumulative

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voc volatile organic compounds
WHMIS Workplace Hazardous Materials Information System
WHO World Health Organization