

SAFETY DATA SHEET**Dynasylan® TES**

Material no.		Version	2.6 / US
Specification	116643	Revision date	05/29/2015
Order Number		Print Date	06/25/2015
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1. Identification**1.1. Product identifier**

Trade name	Dynasylan® TES
Chemical Name	Triethylsilane
CAS-No.	617-86-7

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**

Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
Flammable liquids Category 2 H225

2.2. Label elements

Statutory basis	Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
Symbol(s)	

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Signal word Danger

Hazard statement H225 - Highly flammable liquid and vapour.

Precautionary statement P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Prevention P233 - Keep container tightly closed.
P240 - Ground/bond container and receiving equipment.
P241 - Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P280 - Wear protective gloves/ eye protection/ face protection.

Precautionary statement P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated
Reaction clothing. Rinse skin with water/shower.
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to
extinguish.

Precautionary statement P403 + P235 - Store in a well-ventilated place. Keep cool.
Storage

Precautionary statement P501 - Dispose of contents/ container to an approved waste disposal plant.
Disposal

2.3. Other hazards

None known

3. Composition/information on ingredients**• Triethylsilane**

CAS-No. 617-86-7

Flammable liquids

Category 2

Other information

This material is classified as hazardous under OSHA regulations.

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

In case of contact, immediately flush eyes with plenty of water. Obtain medical attention if irritation develops.

Ingestion

If accidentally swallowed, rinse mouth thoroughly with water and afterwards, drink plenty of water. In case of discomfort, obtain medical attention.

4.2. Most important symptoms and effects, both acute and delayed

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Symptoms

None known

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

After absorbing large amounts of substance:
administration of activated charcoal.
Acceleration of gastrointestinal passage

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

Suitable extinguishing media: Use foam, dry chemical or CO₂.
Unsuitable extinguishing media: Water

5.2. Special hazards arising from the substance or mixture

In case of fire cool endangered containers with water.
Closed container may rupture if strongly heated. Flammable liquid. Vapors can travel to a source of ignition and flash back. Explosive mixtures may occur at temperatures at or above the flashpoint.

5.3. Advice for firefighters

Containers can build up pressure if exposed to heat (fire). Cool with water spray.
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**

Keep away from sources of ignition - No smoking. Ensure adequate ventilation.

6.2. Environmental precautions

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

6.3. 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).

Additional advice

Remove sources of ignition and ventilate area.
Run off may create fire or explosion hazard in sewer.
Assure sufficient ventilation.

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

Avoid contact with skin, eyes and clothing. Wear personal protective equipment; 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.

7.2. Conditions for safe storage, including any incompatibilities

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Advice on protection against fire and explosion

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.

Storage

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.

8. Exposure controls/personal protection**8.1. Control parameters****Other information**

Contains no substances with occupational exposure limit values.

8.2. Exposure controls**Engineering measures**

Extraction at the emission source required.

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

safety goggles with side-shields.

Skin and body protection

When handling larger quantities:

Flame retardant protective clothing

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.

Protective measures

Do not breathe in vapours or aerosols.

Avoid contact with skin and eyes.

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

physical state	liquid
Colour	clear
Form	liquid
Odour	odorless
Odour Threshold	not determined
pH	not determined
Melting point/range	not determined
Boiling point/range	107 °C (1013 hPa)
Flash point	-3 °C Method: DIN EN ISO 13736
Evaporation rate	not determined
Lower explosion limit	1 %(V)
Upper explosion limit	not determined
Vapour pressure	not determined
Density	0.731 g/cm ³ (20 °C)
Water solubility	not miscible decomposition by hydrolysis
Partition coefficient: n-octanol/water	not determined
Autoignition temperature	not determined
Thermal decomposition	not determined
Viscosity, dynamic	not determined

9.2. Other information

no data available

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

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Possibility of hazardous reactions Vapours may form explosive mixture with air.

10.4. Conditions to avoid

Keep away from heat and sources of ignition.

10.5. Incompatible materials

oxidizing agents, alkalis, Acids, water

10.6. Hazardous decomposition products

Decomposition products from hydrolysis in water hydrogen

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

Acute oral toxicity	LD50 Rat: > 2000 mg/kg Method: OECD TG 423 Assessment: The substance or mixture has no acute oral toxicity
Acute inhalation toxicity	No data available
Acute dermal toxicity	No data available
Skin irritation	Rabbit No skin irritation Method: OECD Test Guideline 404
Eye irritation	Rabbit No eye irritation Method: OECD Test Guideline 405
Sensitization	Guinea pig: Does not cause skin sensitisation. Method: OECD Test Guideline 406
Assessment of STOT single exposure	No data available
Assessment of STOT repeat exposure	No data available
Risk of aspiration toxicity	No data available
Gentoxicity in vitro	No data available
Carcinogenicity	No data available
Toxicity to reproduction	No data available

12. Ecological information**12.1. Toxicity**

No ecotoxicological data is available for this product.

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12.2. Persistence and degradability

Biodegradability No data available

12.3. Bioaccumulative potential

Bioaccumulation No data available

12.4. Mobility in soil

Mobility No data available

12.5. Other adverse effects

Further Information No further information available

13. Disposal considerations**13.1. Waste treatment methods****Product**

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.**

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**D.O.T. Road/Rail**

14.1. UN number:	UN 1993
14.2. UN proper shipping name:	FLAMMABLE LIQUID, N.O.S.(Triethylsilane)
14.3. Transport hazard class(es):	3
14.4. Packing group:	II
14.5. Environmental hazards (Marine pollutant):	--
14.6. Special precautions for user:	No

Air transport ICAO-TI/IATA-DGR

14.1. UN number:	UN 1993
14.2. UN proper shipping name:	Flammable liquid, n.o.s.(Triethylsilane)
14.3. Transport hazard class(es):	3
14.4. Packing group:	II
14.5. Environmental hazards:	--
14.6. Special precautions for user:	Yes

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IATA-C: ERG-Code 3H
IATA-P: ERG-Code 3H

Sea transport IMDG-Code/GGVSee (Germany)

- 14.1. UN number: UN 1993
14.2. UN proper shipping name: FLAMMABLE LIQUID, N.O.S. (Triethylsilane)
14.3. Transport hazard class(es): 3
14.4. Packing group: II
14.5. Environmental hazards (Marine pollutant): --
14.6. Special precautions for user: No
EmS: F-E,S-E
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: for transport approval see regulatory information

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:

- Acute Health Hazard
- Fire Hazard

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

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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 :	1
Flammability :	3
Physical Hazard :	2

NFPA Ratings

Health :	2
Flammability :	3
Reactivity :	1

16. Other information**Further information**

Revision date 05/29/2015

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