1. Identification

1.1. Product identifier

Trade name: Dynasylan® F 8261
CAS-No.: 51851-37-7

1.2. Recommended use of the chemical and restrictions on use

Relevant applications identified: For industrial use
Function: Hydro- and oleophobicizing agent
Surface modifier

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 4
H227

2.2. Label elements

Statutory basis: Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
2.3. Other hazards
For spray applications in open systems, a concentration of Dynasylan F 8261 of 2% must not be exceeded in the product.

3. Composition/information on ingredients

Chemical nature
fluoroalkylsilane

<table>
<thead>
<tr>
<th>• Tetraxylylsilicate</th>
<th>Ø 3%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS-No.</td>
<td>78-10-4</td>
</tr>
<tr>
<td>Flammable liquids</td>
<td>Category 3</td>
</tr>
<tr>
<td>Eye irritation</td>
<td>Category 2A</td>
</tr>
<tr>
<td>Specific target organ toxicity - single exposure (Respiratory system)</td>
<td>Category 3</td>
</tr>
<tr>
<td>Acute aquatic toxicity</td>
<td>Category 3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>• NJTSR No.56705700001-0001X</th>
<th>Ø 97%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS-No.</td>
<td>Trade Secret</td>
</tr>
<tr>
<td>Remarks</td>
<td>Not a hazardous substance or mixture.</td>
</tr>
</tbody>
</table>

Other information
This material is classified as hazardous under OSHA regulations.
This product contains a component that is subject to a TSCA Significant New Use Rule (SNUR). This product may be used in anti-graffiti coatings, industrial and commercial applications with proper personal protection equipment. The product may not be used in consumer products. These limitations are cited in the US Code of Federal Regulations 40 CFR 721.9504. If a product containing the regulated component is distributed further, it is required that the distributor ensure that these limitations are communicated to downstream users.

4. First aid measures

4.1. Description of first aid measures

General advice
Remove contaminated or saturated clothing.

Inhalation
If aerosol or mists are formed:
Move victims into fresh air.

**Skin contact**
Wash off with plenty of water and soap.

**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**
Have the mouth rinsed with water.
After absorbing large amounts of substance:
Consult a physician.

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

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 water spray or fog, foam, dry chemical or CO2.

5.2. **Special hazards arising from the substance or mixture**
Combustible 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, pressure-demand breathing apparatus (MSHA-NIOSH approved or equivalent) and full protective gear.
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. Do not inhale vapours / aerosols.

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**
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
Observe the rules usually applicable when handling chemicals. Assure sufficient ventilation. For spray applications in open systems, a concentration of Dynasylan F 8261 of 2% must not be exceeded in the product. 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. Follow all MSDS/label precautions even after container is emptied because it may retain product residues.

7.2. Conditions for safe storage, including any incompatibilities
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.

Follow all MSDS/label precautions even after container is emptied because it may retain product residues. 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

- Tetraethyl silicate

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Time Weighted Average (TWA): (ACGIH)</th>
<th>Permissible exposure limit: (OSHA Z1)</th>
<th>Time Weighted Average (TWA) Permissible Exposure Limit (PEL): (US CA OEL)</th>
<th>Time Weighted Average (TWA): (TN OEL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>78-10-4</td>
<td>10 ppm 100 ppm 850 mg/m3</td>
<td>85 mg/m3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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

Glove material for example, butyl-rubber
Material thickness 0.5 mm
Break through time >= 480 min

Glove material for example, Fluorinated rubber (Viton)
Material thickness 0.4 mm
Break through time >= 480 min

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.
Suitability for specific workplaces should be clarified with protective glove manufacturers.

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.

Protective measures
Handle in accordance with good industrial hygiene and safety practice.
Wear suitable protective equipment.
If workplace exposure limits are exceeded and/or larger amounts are released (leakage, spilling, dust) the indicated respiratory protection should be used.
Do not breathe in vapours or aerosols.
Avoid contact with skin, eyes, and clothing.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>physical state</th>
<th>liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>colourless, clear</td>
</tr>
<tr>
<td>Form</td>
<td>liquid</td>
</tr>
<tr>
<td>Odour</td>
<td>almost odourless</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>not determined</td>
</tr>
<tr>
<td>pH</td>
<td>5.5</td>
</tr>
<tr>
<td>(1000 g/l)</td>
<td>(20 °C)</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>&lt; -38.0 °C</td>
</tr>
<tr>
<td>Boiling point/range</td>
<td>220 °C</td>
</tr>
<tr>
<td>(1013 hPa)</td>
<td>Method: DIN 51 751</td>
</tr>
</tbody>
</table>
Flash point 85 °C  Method:  DIN EN ISO 2719 (Pensky-Martens, Closed Cup)
Evaporation rate  not determined
Lower explosion limit  not determined
Upper explosion limit  not determined
Vapour pressure 7.1 hPa  (20 °C)  Method: EC Method A.4
Density 1.334 g/cm3 (20 °C)
Water solubility insoluble
Partition coefficient: n-octanol/water  not determined
Autoignition temperature  not determined
Viscosity, dynamic 3.5 mPa.s  (20 °C)  Method: DIN 53 015

9.2. Other information
Explosiveness Vapors can form explosive mixtures with air.

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 known.
10.4. Conditions to avoid
Keep away from heat and sources of ignition.
Hydrolyses on contact with water.
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.
10.5. Incompatible materials
oxidizing substances, water
10.6. Hazardous decomposition products
Decomposition products from hydrolysis in water: ethanol
Stable under normal conditions.
Product will not undergo hazardous polymerization.

11. Toxicological information

11.1. Information on toxicological effects

Acute oral toxicity: LD50 Rat: > 2000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity: No data available

Acute dermal toxicity: LD50 Rat: > 2000 mg/kg
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: No data available

Assessment of STOT repeat exposure: No data available

Risk of aspiration toxicity: No data available

Genotoxicity in vitro: no evidence of mutagenic effects

Carcinogenicity: No data available

Toxicity to reproduction: No data available

12. Ecological information

12.1. Toxicity

Toxicity to fish: Method: OECD 203
In the range of water solubility not toxic under test conditions.

Toxicity in aquatic invertebrates: Method: OECD 202
In the range of water solubility not toxic under test conditions.

Toxicity to algae: Method: OECD 201
In the range of water solubility not toxic under test conditions.

Toxicity to bacteria: EC50: > 1300 mg/l
Method: OECD 209
12.2. Persistence and degradability

Biodegradability

Result: Not readily biodegradable.
Method: (CO2; modif. Sturm test / OECD 301 B)
In the range of water solubility: not toxic under test conditions.

12.3. Bioaccumulative potential

Bioaccumulation: low

12.4. Mobility in soil

Mobility

Adsorption on the floor: low.

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, 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.

Uncleaned packaging

Packaging, that can not be reused after cleaning must be disposed or recycled in accordance with all federal, national and local regulations.
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: Combustible liquid, n.o.s.(tetraethyl silicate)
14.3. Transport hazard class(es): C
14.4. Packing group: III
14.5. Environmental hazards (Marine pollutant): --
14.6. Special precautions for user: Yes
ROAD: Not regulated in packages 450 liter or less.
(CFR)
RAIL: Not regulated in packages 450 liter or less.
(CFR)

Air transport ICAO-TI/IATA-DGR
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: --
14.6. Special precautions for user: Yes
   IATA-C: Not hazardous freight in air traffic (ICAO-TI / IATA-DGR).
   IATA-P: Not hazardous freight in air traffic (ICAO-TI / IATA-DGR).

Sea transport IMDG-Code/GGVSee (Germany)

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 classified as hazardous sea cargo (IMDG code)
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

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 : 2
Flammability : 2
Physical Hazard : 1

NFPA Ratings

Health : 2
Flammability : 2
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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SAFETY DATA SHEET
Dynasylan® F 8261

Material no. 116670
Specification
Order Number

Version 4.0 / US
Revision date 05/29/2015
Print Date 06/25/2015
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Legend
ACC American Chemistry Council
ACGIH American Conference of Governmental Industrial Hygenists
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
ICAO International Civil Aviation Organization
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(E)C50 LC50 or EC50
LOAEL Lowest observed adverse effect level
LOEL Lowest 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
SAFETY DATA SHEET
Dynasylan® F 8261

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