

**SAFETY DATA SHEET****Dynasylan® SIVO 203**

Material no.		Version	<b>3.0 / US</b>
Specification	<b>154685</b>	Revision date	<b>05/26/2015</b>
Order Number		Print Date	<b>06/25/2015</b>
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**1. Identification****1.1. Product identifier**

Trade name Dynasylan® SIVO 203

**1.2. Recommended use of the chemical and restrictions on use**

Relevant applications identified	For industrial use
Function	Coupling agent Crosslinking agents 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:**

<b>CHEMTREC - US &amp; CANADA:</b>	800-424-9300
<b>CHEMTREC MEXICO:</b>	01-800-681-9531
<b>CHEMTREC INTERNATIONAL:</b>	+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
Skin irritation	Category 2	H315
Serious eye damage	Category 1	H318

**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	H227 - Combustible liquid. H315 - Causes skin irritation. H318 - Causes serious eye damage.
Precautionary statement Prevention	P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P264 - Wash skin thoroughly after handling. P280 - Wear protective gloves/ eye protection/ face protection.
Precautionary statement Reaction	P302 + P352 - IF ON SKIN: Wash with plenty of water/ soap. P305 + P351 + P338 + P310 - 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. P332 + P313 - If skin irritation occurs: Get medical advice/ attention. P362 - Take off contaminated clothing and wash before reuse. P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Precautionary statement Storage	P403 + P235 - Store in a well-ventilated place. Keep cool.
Precautionary statement Disposal	P501 - Dispose of contents/ container to an approved waste disposal plant.

**2.3. Other hazards**

None known

**3. Composition/information on ingredients****Chemical nature**

Silane preparation

<b>• 3-(Trimethoxysilyl)propylamine</b>	<b>&gt;= 30% - &lt;= 60%</b>
CAS-No.	13822-56-5
Skin irritation	Category 2
Serious eye damage	Category 1

**Other information**

This material is classified as hazardous under OSHA regulations.

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

Take off all contaminated clothing immediately.

**Inhalation**

If aerosol or mists are formed:

Move victims into fresh air.

In case of persistent discomfort: Consult doctor immediately.

**Skin contact**

Wash off immediately with plenty of water.

Consult a doctor in the event of permanent skin irritation.

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**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.

Call a physician immediately.

**4.2. 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.

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

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.

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

Suitable extinguishing media: Use water spray or fog, foam, dry chemical or CO<sub>2</sub>.

Unsuitable extinguishing media: High volume water jet.

**5.2. Special hazards arising from the substance or mixture**

Hazardous fumes in fires, specific to the product:

nitrogen oxides (NO<sub>x</sub>)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**

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**

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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.

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

Wear personal protective equipment; see section 8. Keep away from heat, sparks, flames and other sources of ignition. Keep container tightly closed. Use only with adequate ventilation.

Vapors may spread long distances and travel to areas away from the work site before igniting or flashing back to the vapor source.

**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.

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

No substance-specific limiting value being known.

**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**

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**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.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

**Eye protection**

close-fitting protective goggles (e.g. closed goggles)

**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 (29CFR 1910.132) 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.

Wash contaminated clothing before re-use.

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

physical state	liquid
Colour	yellowish
Form	liquid
Odour	amine-like
Odour Threshold	not determined
pH	not determined
Melting point/range	not determined
Boiling point/range	not determined
Flash point	66 °C
Method:	DIN EN ISO 2719 (Pensky-Martens, Closed Cup)
Evaporation rate	not determined

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Flammability (solid, gas)	no data available
Lower explosion limit	not determined
Upper explosion limit	not determined
Vapour pressure	not determined
Density	ca. 1.03 g/cm <sup>3</sup> (20 °C) Method: DIN 51757
Water solubility	not miscible decomposition by hydrolysis
Partition coefficient: n-octanol/water	not determined
Autoignition temperature	not determined
Thermal decomposition	not determined
Viscosity, dynamic	ca. 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 Exothermic reaction with: acids

**10.4. Conditions to avoid**

Keep away from heat and sources of ignition.  
Vapours can form explosive mixtures with air.  
Protect from moisture.

**10.5. Incompatible materials**

Acids

**10.6. Hazardous decomposition products**

Methanol in case of hydrolysis.

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

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Further information                      No results of animal experiments with the product available.

**Toxicological information on components****3-(Trimethoxysilyl)propylamine**

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 Rabbit: > 10000 mg/kg  
 Method:                              OECD Test Guideline 402

Skin irritation                              Rabbit  
 Skin irritation  
 Method:                              OECD Test Guideline 404

Eye irritation                              Rabbit  
 Risk of serious damage to eyes.  
 Method:                              OECD Test Guideline 405

Sensitization                              maximization test Guinea pig: Does not cause skin sensitisation.  
 Method:                              OECD Test Guideline 406

Repeated dose toxicity                  Oral Rat(male/female) / 90-day  
 NOAEL:                              200 mg/kg  
 LOAEL:                              600 mg/kg  
 Method:                              OECD TG 408  
 Test substance:                      Structurally similar substance

Assessment of STOT single exposure      no evidence for hazardous properties

Assessment of STOT repeat exposure      no evidence for hazardous properties

Risk of aspiration toxicity              No evidence of aspiration toxicity

Gentoxicity in vitro                      Ames test *S. typhimurium* / *E. coli*  
 negative  
 Method:                              OECD TG 471

gene mutation Chinese hamster (CHO K1 -cells)  
 negative  
 Method:                              OECD TG 476  
 Test substance:                      Structurally similar substance

chromosomal aberration Chinese hamster (V 79 -cells)  
 negative  
 Method:                              OECD TG 473  
 Test substance:                      Structurally similar substance

Gentoxicity in vivo                      Micronucleus test Mouse intraperitoneal  
 negative  
 Method:                              OECD TG 474  
 Test substance:                      Structurally similar substance

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Carcinogenicity	No evidence that cancer may be caused.
Toxicity to reproduction	Oral Rat(male/female) Number of exposures: 90 day NOAEL (No Observed Adverse Effect Level) of parents: 600 mg/kg Method: OECD TG 408 Test substance: Structurally similar substance
Teratogenicity	Oral Rat NOAEL (No Observed Adverse Effect Level) teratogenesis: 600 mg/kg NOAEL maternal (No Observed Adverse Effect Level): 200 mg/kg Method: OECD TG 414 Test substance: Structurally similar substance

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**12. Ecological information****12.1. Toxicity****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**

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

Waste must be disposed of in accordance with federal, provincial, state and local regulations. Empty containers must be handled with care due to product residue. DO NOT HEAT OR CUT THE EMPTY CONTAINER WITH AN ELECTRIC OR GAS TORCH.

**Uncleaned packaging**

Packaging material should be recycled or disposed of in accordance with federal, state and local regulations.

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**14. Transport information**



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

- 14.1. UN number: UN 1993  
14.2. UN proper shipping name: Combustible liquid, n.o.s.(3-Aminopropyltrimethoxysilane)  
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)  
FOR USA ONLY: In packagings exceeding 450 L, this product must be classified, placarded, marked and shipped as Combustible Liquid to the USA.  
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

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**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****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
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Flammability : 2  
Reactivity : 1

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**16. Other information****Further information**

Revision date 05/26/2015

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

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**Legend**

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

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