1. Identification

1.1. Product identifier

Trade name	Dynasylan® BDAC
Chemical Name	Diacetoxydi-tert-butoxysilane
CAS-No.	13170-23-5

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)

Acute toxicity (Oral)	Category 4	H302
Skin corrosion	Category 1B	H314
Serious eye damage	Category 1	H318

2.2. Label elements

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

hazard-defining component(s) (GHS)

- Diacetoxydi-tert-butoxysilane
- Triacetoxy-tert-butoxysilane
- Acetoxytri-tert-butoxysilane

Symbol(s)	
Signal word	Danger
Hazard statement	H302 - Harmful if swallowed. H314 - Causes severe skin burns and eye damage. H318 - Causes serious eye damage.
Precautionary statement: Prevention	P264 - Wash skin thoroughly after handling. P270 - Do not eat, drink or smoke when using this product. P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection.
Precautionary statement: Reaction	P301 + P312 + P330 - IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth. P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304 + P340 + P310 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician. 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. P363 - Wash contaminated clothing before reuse.
Precautionary statement: Storage	P405 - Store locked up.
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

• **Diacetoxydi-tert-butoxysilane**	Ø 97%	
CAS-No.	13170-23-5	
Acute toxicity (Oral)		Category 4
Skin corrosion		Category 1B
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

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.

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

Symptoms
None known

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

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

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

Hazardous fumes in fires, specific to the product:
Acetic acid
Acetic anhydride

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

Provide good ventilation or extraction.

7.2. Conditions for safe storage, including any incompatibilities

Advice on protection against fire and explosion

Take precautionary measures against static charges, keep away from sources of ignition.

Storage

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

8. Exposure controls/personal protection

8.1. Control parameters

Other information

No substance-specific limiting value being known.

8.2. Exposure controls

Engineering measures

Provide adequate ventilation.
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

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.
Selection of protective gloves to meet the requirements of specific workplaces.
Suitability for specific workplaces should be clarified with protective glove manufacturers.
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	
Colour	colorless to yellowish	
Form	liquid	
Odour	of acetic acid	
Odour Threshold	not determined	
pH	not determined	
Melting point/range	not determined	
Boiling point/range	102 °C	(7 hPa)
	Method:	DIN 51 356
Flash point	95 °C	
	Method:	DIN EN ISO 2719 (Pensky-Martens, Closed Cup)
Evaporation rate	not determined	
Flammability (solid, gas)	not determined	
Lower explosion limit	not determined	
Upper explosion limit	not determined	
Vapour pressure	not determined	
Density	ca. 1.03 g/cm3	(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	7 mPa.s	(20 °C)
	Method:	DIN 53 015

9.2. Other information

Metal corrosion	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
Possibility of hazardous reactions: Exothermic reaction with: water, alkalis, alcohols, amines.

10.4. Conditions to avoid
Protect from moisture.

10.5. Incompatible materials
Water, Alcohols, Amines, alkalis

10.6. Hazardous decomposition products
Decomposition products in hydrolysis/thermal decomposition
Acetic acid, butanol, Acetic anhydride

11. Toxicological information

11.1. Information on toxicological effects

Acute oral toxicity	No data available
Acute inhalation toxicity	No data available
Acute dermal toxicity	No data available
Skin irritation	Causes burns.
Eye irritation	Risk of serious damage to eyes.
Sensitization	No data available
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
Further information	This product can hydrolyze to form a material posing additional health effects: Acetic acid: ACGIH TLV: TWA 10 ppm, STEL 15ppm. Corrosive. Contact with eyes causes painful stinging or burning of the eyelids, watering of the eyes, conjunctivitis, opaqueness of the cornea, possibly leading to loss of

sight. Contact with skin causes burning sensations, smarting, inflammation, burns, and painful blisters. Acetic acid is moderately toxic by inhalation, and causes severe irritation. Ingestion is also moderately toxic, and causes nausea, vomiting, and diarrhea. Acetic acid is considered to be an environmental hazard. Do not contaminate water, soil, or feed.

12. Ecological information

12.1. Toxicity
No ecotoxicological data is available for this product.

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 local, state, provincial and federal laws and regulations. Empty containers must be handled with care due to product residue.

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 3265
14.2.	UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.(diacetoxydi-tert-butoxysilane)

14.3. Transport hazard class(es): 8
14.4. Packing group: II
14.5. Environmental hazards (Marine pollutant): --
14.6. Special precautions for user: Yes
Keep separate from foodstuffs, luxury foods, feedstuffs

Air transport ICAO-TI/IATA-DGR

14.1. UN number: UN 3265
14.2. UN proper shipping name: Corrosive liquid, acidic, organic, n.o.s.(diacetoxydi-tert-butoxysilane)
14.3. Transport hazard class(es): 8
14.4. Packing group: II
14.5. Environmental hazards: --
14.6. Special precautions for user: Yes
IATA-C: ERG-Code 8L
IATA-P: ERG-Code 8L
Keep separate from foodstuffs, luxury foods, feedstuffs

Sea transport IMDG-Code/GGVSee (Germany)

14.1. UN number: UN 3265
14.2. UN proper shipping name: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.(diacetoxydi-tert-butoxysilane)
14.3. Transport hazard class(es): 8
14.4. Packing group: II
14.5. Environmental hazards (Marine pollutant): --
14.6. Special precautions for user: Yes
EmS: F-A,S-B
Clear of living quarters.
Keep separate from foodstuffs, luxury foods, feedstuffs

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:
for transportapproval 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

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 :	3
Flammability :	1
Physical Hazard :	1

NFPA Ratings

Health :	3
Flammability :	1
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 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
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(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

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