

TRIMETHYLSILYL AZIDE, 96%

Safety Data Sheet SIT8580.0

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Version: 1.1

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product form	: Substance
Physical state	: Liquid
Trade name	: AZIDOTRIMETHYLSILANE
Product code	: SIT8580.0
Formula	: C3H9N3Si
Synonyms	: AZIDOTRIMETHYLSILANE; SILYL AZIDE, TRIMETHYL-; TRIMETHYLSILYL AZIDE
Chemical family	: ORGANOAMINOSILANE

1.2. Relevant identified uses of the substance or mixture and uses advised against**1.2.1. Relevant identified uses**

Use of the substance/mixture : Chemical intermediate

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet**GELEST, INC.**11 East Steel Road
Morrisville, PA 19067**USA**

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info@gelestde.com - www.gelestde.com**1.4. Emergency telephone number**

Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Flammable liquids, Category 3	H226
Acute toxicity (oral), Category 3	H301
Acute toxicity (dermal), Category 3	H311
Acute toxicity (inhalation:dust,mist) Category 3	H331
Serious eye damage/eye irritation, Category 2	H319
Full text of H statements : see section 16	

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements**Labelling according to Regulation (EC) No. 1272/2008 [CLP]**

Hazard pictograms (CLP) :



GHS02

GHS06

Signal word (CLP) :

: Danger

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Hazard statements (CLP)	: H226 - Flammable liquid and vapour. H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled H319 - Causes serious eye irritation.
Precautionary statements (CLP)	: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233 - Keep container tightly closed. P240 - Ground/bond container and receiving equipment. P241 - Use explosion-proof electrical equipment. P261 - Avoid breathing vapours, mist. P264 - Wash hands thoroughly after handling.
EUH-statements	: EUH014 - Reacts violently with water. EUH029 - Contact with water liberates toxic gas.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type	: Mono-constituent
Name	: TRIMETHYLSILYL AZIDE, 96%
CAS-No.	: 4648-54-8
EC-No.	: 225-078-5

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Silane, azidotrimethyl-	(CAS-No.) 4648-54-8 (EC-No.) 225-078-5	95 - 100	Flam. Liq. 3, H226 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331 Eye Irrit. 2, H319

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. If breathing is difficult, give oxygen. Immediately consult a doctor/medical service.
First-aid measures after skin contact	: Wash with plenty of water/.... Get medical advice/attention.
First-aid measures after eye contact	: Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.
First-aid measures after ingestion	: Obtain emergency medical attention. Never give anything by mouth to an unconscious person.

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

Symptoms/effects after inhalation	: Toxic if inhaled. Danger of serious damage to health by prolonged exposure through inhalation. Low levels of exposure will cause headaches, reddening of the skin, particularly the face. At slightly higher levels, palpitations, ataxia, weakness and cyanosis (blue-gray coloring of the skin, lips and fingernails) which is caused by lack of oxygen have been observed. Toxic effects in humans for hydrazoic acid (a hydrolysis product of this material) have been observed at 300 ppb. Hydrazoic acid is a potent vasodilator.
Symptoms/effects after skin contact	: Repeated exposure to this material can result in absorption through skin causing significant health hazard. Toxic in contact with skin.
Symptoms/effects after eye contact	: Causes serious eye irritation. Bloodshot eyes are a result of vapor contact by the eyes or inhalation.
Symptoms/effects after ingestion	: Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.
Chronic symptoms	: Sensitization to this material has been observed with repeated use.

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

NOTE TO PHYSICIAN: If cyanosis is evident, treat for cyanide poisoning. Provide oxygen. The effects of hydrazoic acid poisoning are more readily reversed than cyanide, since azide binding to cytochromes and presumably hemoglobin appears to be reversible. Hypotension and hypertension have both been reported for compounds in this class.

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SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Carbon dioxide. Dry chemical.
Unsuitable extinguishing media : Water. Foam. Toxic fumes of hydrazoic acid will develop when material is exposed to water.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Flammable liquid and vapour. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.
Explosion hazard : May form flammable/explosive vapour-air mixture.

5.3. Advice for firefighters

- Firefighting instructions : Exercise caution when fighting any chemical fire.
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Fire fighters must wear positive pressure self-contained breathing apparatus.
Other information : If no greater threat is present, this material should be allowed to burn, since combustion eliminates acute toxic potential.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Spill should be handled by trained clean-up crews properly equipped with respiratory equipment and full chemical protective gear (see Section 8). Remove ignition sources.

6.1.1. For non-emergency personnel

- Protective equipment : Wear protective equipment as described in Section 8.
Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Clean up any spills as soon as possible, using an absorbent material to collect it. Sweep or shovel spills into appropriate container for disposal.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : Handle empty containers with care because residual vapours are flammable.
Precautions for safe handling : Avoid all eye and skin contact and do not breathe vapour and mist. Handle in an enclosing hood with exhaust ventilation. Provide good ventilation in process area to prevent formation of vapour. Take precautionary measures against static discharge. Avoid contact with water.
Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical equipment.
Storage conditions : Keep container tightly closed.
Storage area : Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

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8.2. Exposure controls

Appropriate engineering controls:

Provide local exhaust or general room ventilation.

Personal protective equipment:

Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection:

Suggested glove materials are: Neoprene, Nitrile/butadiene rubber, Polyethylene, Ethyl vinyl alcohol laminate, PVC or vinyl. . Be aware that the chemical may penetrate the gloves. Frequent changes are advisable.

Eye protection:

Chemical goggles. Contact lenses should not be worn

Skin and body protection:

Wear long sleeves, and chemically impervious PPE/coveralls to minimize bodily exposure.

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. Wear a self contained breathing apparatus

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear.
Molecular mass	: 115.21 g/mol
Colour	: Straw.
Odour	: Pungent.
Odour threshold	: No data available
Refractive index	: 1.414
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: -95 °C
Boiling point	: 95 - 96 °C
Flash point	: 30 °C
Auto-ignition temperature	: 300 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: Flammable liquid and vapour.
Vapour pressure	: ≈ 100 mm Hg
Relative vapour density at 20 °C	: No data available
Relative density	: 0.876
% Volatiles	: 100 %
Solubility	: Reacts.
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable in sealed containers stored under a dry inert atmosphere.

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10.3. Possibility of hazardous reactions

Toxic fumes of hydrazoic acid will develop when material is exposed to water. Explosions have been observed on reaction of this compound with vinylsilanes. Can form explosive compounds on contact with monovalent heavy metals (lead, copper, silver, etc.).

10.4. Conditions to avoid

Open flame. Heat. Sparks.

10.5. Incompatible materials

Monovalent heavy metals (lead, copper, silver, etc.). Vinylsilanes. Acids. alcohols. Oxidizing agent. Water. Moisture.

10.6. Hazardous decomposition products

Hydrazoic Acid. Organic acid vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Toxic if swallowed. Toxic in contact with skin. Toxic if inhaled.

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ATE CLP (oral)	105.263 mg/kg bodyweight
ATE CLP (dermal)	315.789 mg/kg bodyweight
ATE CLP (dust,mist)	0.526 mg/l/4h

Silane, azidotrimethyl- (4648-54-8)

ATE CLP (oral)	100 mg/kg bodyweight
ATE CLP (dermal)	300 mg/kg bodyweight
ATE CLP (gases)	700 ppmv/4h
ATE CLP (vapours)	3 mg/l/4h
ATE CLP (dust,mist)	0.5 mg/l/4h

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Potential adverse human health effects and symptoms	: Toxic if swallowed. Toxic in contact with skin. Toxic if inhaled.
Symptoms/effects after inhalation	: Toxic if inhaled. Danger of serious damage to health by prolonged exposure through inhalation. Low levels of exposure will cause headaches, reddening of the skin, particularly the face. At slightly higher levels, palpitations, ataxia, weakness and cyanosis (blue-gray coloring of the skin, lips and fingernails) which is caused by lack of oxygen have been observed. Toxic effects in humans for hydrazoic acid (a hydrolysis product of this material) have been observed at 300 ppb. Hydrazoic acid is a potent vasodilator.
Symptoms/effects after skin contact	: Repeated exposure to this material can result in absorption through skin causing significant health hazard. Toxic in contact with skin.
Symptoms/effects after eye contact	: Causes serious eye irritation. Bloodshot eyes are a result of vapor contact by the eyes or inhalation.
Symptoms/effects after ingestion	: Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.
Chronic symptoms	: Sensitization to this material has been observed with repeated use.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity	: Not classified
Chronic aquatic toxicity	: Not classified

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

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12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.

Additional information : Handle empty containers with care because residual vapours are flammable.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : 2929
UN-No. (IMDG) : 2929
UN-No. (IATA) : 2929
UN-No. (ADN) : 2929
UN-No. (RID) : 2929

14.2. UN proper shipping name

Proper Shipping Name (ADR) : TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.
Proper Shipping Name (IMDG) : TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.
Proper Shipping Name (IATA) : Toxic liquid, flammable, organic, n.o.s.
Proper Shipping Name (ADN) : TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.
Proper Shipping Name (RID) : TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.
Transport document description (ADR) : UN 2929 TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S. (TRIMETHYLSILYL AZIDE), 6.1 (3), I, (C/D)
Transport document description (IMDG) : UN 2929 TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S. (TRIMETHYLSILYL AZIDE), 6.1 (3), I
Transport document description (IATA) : UN 2929 Toxic liquid, flammable, organic, n.o.s. (TRIMETHYLSILYL AZIDE), 6.1, I
Transport document description (ADN) : UN 2929 TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S. (TRIMETHYLSILYL AZIDE), 6.1 (3), I
Transport document description (RID) : UN 2929 TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S. (TRIMETHYLSILYL AZIDE), 6.1 (3), I

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : 6.1 (3)
Danger labels (ADR) : 6.1, 3



IMDG

Transport hazard class(es) (IMDG) : 6.1 (3)
Danger labels (IMDG) : 6.1, 3



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IATA

Transport hazard class(es) (IATA) : 6.1 (3)

Hazard labels (IATA) : 6.1, 3



ADN

Transport hazard class(es) (ADN) : 6.1 (3)

Danger labels (ADN) : 6.1, 3



RID

Transport hazard class(es) (RID) : 6.1 (3)

Danger labels (RID) : 6.1, 3



14.4. Packing group

Packing group (ADR) : I

Packing group (IMDG) : I

Packing group (IATA) : I

Packing group (ADN) : I

Packing group (RID) : I

14.5. Environmental hazards

Dangerous for the environment : No

Marine pollutant : No

Other information : No supplementary information available

14.6. Special precautions for user

- Overland transport

Classification code (ADR) : TF1

Special provisions (ADR) : 274, 315

Limited quantities (ADR) : 0

Excepted quantities (ADR) : E5

Packing instructions (ADR) : P001

Mixed packing provisions (ADR) : MP8, MP17

Portable tank and bulk container instructions (ADR) : T14

Portable tank and bulk container special provisions (ADR) : TP2, TP27

Tank code (ADR) : L10CH

Tank special provisions (ADR) : TU14, TU15, TE19, TE21

Vehicle for tank carriage : FL

Transport category (ADR) : 1

Special provisions for carriage - Loading, unloading and handling (ADR) : CV1, CV13, CV28

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Special provisions for carriage - Operation (ADR) : S2, S9, S14

Hazard identification number (Kemler No.) : 663

Orange plates :



Tunnel restriction code (ADR) : C/D

- Transport by sea

Special provisions (IMDG) : 274, 315

Limited quantities (IMDG) : 0

Excepted quantities (IMDG) : E5

Packing instructions (IMDG) : P001

Tank instructions (IMDG) : T14

Tank special provisions (IMDG) : TP2, TP13, TP27

EmS-No. (Fire) : F-E

EmS-No. (Spillage) : S-D

Stowage category (IMDG) : B

Stowage and handling (IMDG) : SW2

Properties and observations (IMDG) : Toxic if swallowed, by skin contact or by inhalation.

- Air transport

PCA Excepted quantities (IATA) : E5

PCA Limited quantities (IATA) : Forbidden

PCA limited quantity max net quantity (IATA) : Forbidden

PCA packing instructions (IATA) : 652

PCA max net quantity (IATA) : 1L

CAO packing instructions (IATA) : 658

CAO max net quantity (IATA) : 30L

Special provisions (IATA) : A4, A137

ERG code (IATA) : 6F

- Inland waterway transport

Classification code (ADN) : TF1

Special provisions (ADN) : 274, 315, 802

Limited quantities (ADN) : 0

Excepted quantities (ADN) : E5

Carriage permitted (ADN) : T

Equipment required (ADN) : PP, EP, EX, TOX, A

Ventilation (ADN) : VE01, VE02

Number of blue cones/lights (ADN) : 2

- Rail transport

Classification code (RID) : TF1

Special provisions (RID) : 274, 315

Limited quantities (RID) : 0

Excepted quantities (RID) : E5

Packing instructions (RID) : P001

Mixed packing provisions (RID) : MP8, MP17

Portable tank and bulk container instructions (RID) : T14

Portable tank and bulk container special provisions (RID) : TP2, TP27

Tank codes for RID tanks (RID) : L10CH

Special provisions for RID tanks (RID) : TU14, TU15, TU38, TE21, TE22

Transport category (RID) : 1

Special provisions for carriage - Loading, unloading and handling (RID) : CW13, CW28, CW31

Hazard identification number (RID) : 663

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14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

AZIDOTRIMETHYLSILANE is not on the REACH Candidate List

AZIDOTRIMETHYLSILANE is not on the REACH Annex XIV List

TRIMETHYLSILYL AZIDE, 96% is not subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

TRIMETHYLSILYL AZIDE, 96% is not subject to Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC

% Volatiles : 100 %

15.1.2. National regulations

Germany

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark

Class for fire hazard : Class II-1

Store unit : 5 liter

Classification remarks : R10 <H226;H301+H311+H331;H319>; Emergency management guidelines for the storage of flammable liquids must be followed

Danish National Regulations : Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor

Other information : Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3
Acute Tox. 3 (Inhalation)	Acute toxicity (inhal.), Category 3
Acute Tox. 3 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
H226	Flammable liquid and vapour.

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H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
EUH014	Reacts violently with water.
EUH029	Contact with water liberates toxic gas.

SDS EU (REACH Annex II) - Custom

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