

**ETHYLSILANE**

Safety Data Sheet SIE4898.0

Date of issue: 11/18/2015

Version: 1.0

SECTION 1: Identification**1.1. Identification**

Product name : ETHYLSILANE
 Product code : SIE4898.0
 Product form : Substance
 Physical state : Gas
 Formula : C₂H₈Si
 Synonyms : 1-SILAPROPANE
 Chemical family : ORGANOHYDRIDOSILANE

1.2. Recommended use and restrictions on use

Recommended use : Chemical intermediate

1.3. Supplier**GELEST, INC.**

11 East Steel Road
 Morrisville, PA 19067
 USA

T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST

info@gelest.com - www.gelest.com

1.4. Emergency telephone number

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

SECTION 2: Hazard(s) identification**2.1. Classification of the substance or mixture****GHS-US classification**

Flammable gases Category 1 H220 Extremely flammable gas
 Gases under pressure Liquefied gas H280 Contains gas under pressure; may explode if heated
 Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements**GHS US labeling**

Hazard pictograms (GHS US) :



Signal word (GHS US) : Danger

Hazard statements (GHS US) : H220 - Extremely flammable gas
 H280 - Contains gas under pressure; may explode if heated

Precautionary statements (GHS US) : P210 - Keep away from heat, open flames, sparks. - No smoking.
 P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
 P381 - Eliminate all ignition sources if safe to do so.
 P410+P403 - Protect from sunlight. Store in a well-ventilated place.

2.3. Hazards not otherwise classified (HNOC)

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients**3.1. Substances**

Substance type : Mono-constituent
 Name : ETHYLSILANE
 CAS-No. : 2814-79-1

Name	Product identifier	%	GHS-US classification
Ethylsilane	(CAS-No.) 2814-79-1	97 - 100	Flam. Gas 1, H220 Press. Gas (Liq.), H280

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Full text of hazard classes and 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 victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice. |
| First-aid measures after skin contact | : Wash with plenty of soap and water. Get medical advice/attention. |
| First-aid measures after eye contact | : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention. |
| First-aid measures after ingestion | : Never give anything by mouth to an unconscious person. Get medical advice/attention. |

4.2. Most important symptoms and effects (acute and delayed)

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| Symptoms/effects after inhalation | : May cause irritation to the respiratory tract. |
| Symptoms/effects after skin contact | : May cause skin irritation. |
| Symptoms/effects after eye contact | : May cause eye irritation. |
| Symptoms/effects after ingestion | : No information available. |

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

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| Suitable extinguishing media | : Alcohol-resistant foam. Carbon dioxide. Dry chemical. Use of high expansion foam (100:1) is recommended to cover flames. |
| Unsuitable extinguishing media | : Water. |

5.2. Specific hazards arising from the chemical

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| Fire hazard | : Extremely flammable gas. Irritating fumes and organic acid vapors may develop when material is exposed to water or open flame. |
| Explosion hazard | : May form flammable/explosive vapor-air mixture. |

5.3. Special protective equipment and precautions for fire-fighters

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|--------------------------------|---|
| Firefighting instructions | : Exercise caution when fighting any chemical fire. Eliminate all ignition sources if safe to do so. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Use only dry media to extinguish flames. |
| 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. Avoid contact with skin and eyes. Do not breathe gas. |

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

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| General measures | : Eliminate every possible source of ignition. Use special care to avoid static electric charges. |
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6.1.1. For non-emergency personnel

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

6.1.2. For emergency responders

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|----------------------|--|
| Protective equipment | : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection". |
| Emergency procedures | : Evacuate area. Ventilate area. |

6.2. Environmental precautions

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

6.3. Methods and material for containment and cleaning up

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|-------------------------|--|
| Methods for cleaning up | : The potential exists for spontaneous ignition and explosion. Allow vapors to disperse. Ventilate area. |
|-------------------------|--|

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : Extremely flammable gas. Handle empty containers with care because residual vapors are flammable. Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- Precautions for safe handling : Avoid contact with skin and eyes. Do not breathe gas. Ground/bond container and receiving equipment. Handle only in sealed purged systems.
- Hygiene measures : Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof electrical equipment.
- Storage conditions : Keep container tightly closed. Protect from sunlight. Store in sealed cylinders in isolated area.
- Incompatible materials : Acids. Alcohols. Oxidizing agent.
- Storage area : Store in a well-ventilated place. Store away from heat.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Ethylsilane (2814-79-1)		
ACGIH	ACGIH TWA (ppm)	5 ppm for silane

8.2. Appropriate engineering controls

- Appropriate engineering controls : Provide local exhaust or general room ventilation.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

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

Hand protection:

Neoprene or nitrile rubber gloves

Eye protection:

Chemical goggles. Contact lenses should not be worn

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Gas
- Appearance : Colorless gas.
- Molecular mass : 60.17 g/mol
- Color : No data available
- Odor : No data available
- Odor threshold : No data available
- Refractive index : No data available
- pH : No data available
- Relative evaporation rate (butyl acetate=1) : No data available
- Melting point : No data available
- Freezing point : -180 °C
- Boiling point : -14 °C
- Flash point : < -40 °C
- Auto-ignition temperature : No data available
- Decomposition temperature : No data available
- Flammability (solid, gas) : Extremely flammable gas
- Vapor pressure : No data available

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Relative vapor density at 20 °C	: 1.6
Relative density	: 0.6396
% Volatiles	: 100 %
Solubility	: Reacts with water.
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
Oxidizing properties	: No data available
Explosion limits	: No data available

9.2. Other information

Gas group	: Press. Gas (Liq.)
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SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable in sealed cylinders stored under a dry inert atmosphere.

10.3. Possibility of hazardous reactions

Reacts slowly in pure state with oxygen in air, may ignite spontaneously at temperatures above 100°C. Mixtures with mercury explode when shaken in the presence of air. Platinum, platinum and iron salts and other Lewis acids can cause generation of flammable hydrogen gas in the presence of moisture.

10.4. Conditions to avoid

Heat. Sparks. Open flame.

10.5. Incompatible materials

Acids. Alcohols. Oxidizing agent.

10.6. Hazardous decomposition products

Organic acid vapors. Silicon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: Not classified
Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.
Reproductive toxicity	: Not classified
Specific target organ toxicity – single exposure	: Not classified
Specific target organ toxicity – repeated exposure	: Not classified
Aspiration hazard	: Not classified
Symptoms/effects after inhalation	: May cause irritation to the respiratory tract.
Symptoms/effects after skin contact	: May cause skin irritation.
Symptoms/effects after eye contact	: May cause eye irritation.
Symptoms/effects after ingestion	: No information available.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

No additional information available

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12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other adverse effects : This substance may be hazardous to the environment.
Effect on the ozone layer : No additional information available
Effect on global warming : No known effects from this product.
GWPmix comment : No known effects from this product.

SECTION 13: Disposal considerations

13.1. Disposal methods

Sewage disposal recommendations : Do not dispose of waste into sewer.
Product/Packaging disposal recommendations : Incinerate. Dispose in a safe manner in accordance with local/national regulations.
Additional information : Handle empty containers with care because residual vapors are flammable.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number

UN-No.(DOT) : 3161
DOT NA no. UN3161

14.2. UN proper shipping name

Transport document description : UN3161 Liquefied gas, flammable, n.o.s. (ETHYLSILANE), 2.1
Proper Shipping Name (DOT) : Liquefied gas, flammable, n.o.s.
(ETHYLSILANE)
Class (DOT) : 2.1 - Class 2.1 - Flammable gas 49 CFR 173.115
Hazard labels (DOT) : 2.1 - Flammable gas



DOT Packaging Non Bulk (49 CFR 173.xxx) : 304
DOT Packaging Bulk (49 CFR 173.xxx) : 314;315
DOT Packaging Exceptions (49 CFR 173.xxx) : 306
DOT Symbols : G - Identifies PSN requiring a technical name

14.3. Additional information

Emergency Response Guide (ERG) Number : 115
Other information : No supplementary information available.

Transport by sea

DOT Vessel Stowage Location : D - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each 3 m of overall vessel length, but the material is prohibited on passenger vessels in which the limiting number of passengers is exceeded.
DOT Vessel Stowage Other : 40 - Stow "clear of living quarters"

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : Forbidden
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 150 kg

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SECTION 15: Regulatory information

15.1. US Federal regulations

ETHYLSILANE (2814-79-1)

TSCA Exemption/Exclusion

CAUTION: This material is supplied for research and development purposes subject to the R&D exemption under TSCA, 40 CFR 720.36, and must meet the requirements of the exemption, including supervision by a "technically qualified individual" as defined by 40 CFR 720.3(ee). The use of this material for "commercial purposes" as defined by 40 CFR 720.3(r) is not permitted in the United States.

Ethylsilane (2814-79-1)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

Full text of H-phrases::

H220

Extremely flammable gas

H280

Contains gas under pressure; may explode if heated

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.

Hazard Rating

Health

: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability

: 4 Severe Hazard - Flammable gases, or very volatile flammable liquids with flash points below 73 F, and boiling points below 100 F. Materials may ignite spontaneously with air. (Class IA)

Physical

: 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Prepared by safety and environmental affairs.

Date of issue: 11/18/2015

Version: 1.0

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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