SECTION 1: Identification

1.1. Identification

Product name: LITHIUM (TRIMETHYLSILYL)ACETYLIDE, 0.5M in tetrahydrofuran
Product code: SIL6470.0
Product form: Mixture
Physical state: Liquid
Formula: C5H9LiSi
Synonyms: LITHIUM ETHYNYLTRIMETHYLSILANE in TETRAHYDROFURAN
Chemical family: ORGANOSILANE IN SOLVENT

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 liquids Category 2 H225 - Highly flammable liquid and vapor
Skin corrosion/irritation Category 1B H314 - Causes severe skin burns and eye damage
Serious eye damage/eye irritation Category 1 H318 - Causes serious eye damage
Carcinogenicity Category 2 H351 - Suspected of causing cancer
Specific target organ toxicity (single exposure) Category 3 H335 - May cause respiratory irritation

Full text of H statements: see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Signal word (GHS US): Danger
Hazard statements (GHS US): H225 - Highly flammable liquid and vapor
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H351 - Suspected of causing cancer
H335 - May cause respiratory irritation

Precautionary statements (GHS US): P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P210 - Keep away from heat, open flames, sparks. - No smoking.
P240 - Ground/Bond container and receiving equipment
P241 - Use explosion-proof electrical equipment
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P260 - Do not breathe vapors.
P264 - Wash hands thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
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 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
LITHIUM (TRIMETHYLSILYL)ACETYLIDE, 0.5M in tetrahydrofuran
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P310 - Immediately call a POISON CENTER
P321 - Specific treatment (see first aid instructions on this label)
P363 - Wash contaminated clothing before reuse.
P370+P378 - In case of fire: Use foam, carbon dioxide, dry chemical to extinguish.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P403+P235 - Keep in a cool place
P405 - Store locked up.
P501 - Dispose of contents/container to licensed waste disposal facility.

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
Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Acute Tox. 4 (Oral), H302</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2A, H319</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Carc. 2, H351</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3, H335</td>
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<tr>
<td>Lithium (trimethylsilyl)acetylide</td>
<td>(CAS-No.) 54655-07-1</td>
<td>10 - 15</td>
<td>Flam. Sol. 2, H228</td>
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<td></td>
<td></td>
<td></td>
<td>Skin Cor. 1B, H314</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Dam. 1, H318</td>
</tr>
<tr>
<td>Inhibitors (hindered phenol and/or hydroquinone derivatives)</td>
<td>&lt; 0.05</td>
<td>Not classified</td>
<td></td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements : see section 16

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 immediate 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 immediate medical advice/attention.

First-aid measures after ingestion : Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

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

Symptoms/effects : Causes severe skin burns and eye damage. Suspected of causing cancer.

Symptoms/effects after inhalation : May cause respiratory irritation. Inhalation will cause sneezing, irritation and burns.

Symptoms/effects after skin contact : Causes (severe) skin burns. Worker will notice a slippery feeling on washing.

Symptoms/effects after eye contact : Causes serious eye damage.

Symptoms/effects after ingestion : May be harmful if swallowed.

Chronic symptoms : TETRAHYDROFURAN: Mildly toxic by inhalation. Mutagenic data has been reported. Reported as causing injury to liver and kidneys.

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


Unsuitable extinguishing media : Avoid water spray as flammable gases will be generated.

5.2. Specific hazards arising from the chemical

Fire hazard : Highly flammable liquid and vapor. Irritating fumes and caustic vapors may develop when material is exposed to elevated temperatures or open flame.

Explosion hazard : May form flammable/explosive vapor-air mixture.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Exercise caution when fighting any chemical fire.
LITHIUM (TRIMETHYLSILYL)ACETYLIDE, 0.5M in tetrahydrofuran
Safety Data Sheet

Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapor and mist.

Other information: Lithium trimethylsilylacetylide is a flammable solid.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Eliminate every possible source of ignition. Use special care to avoid static electric charges.

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: 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: Ventilate area.

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

For containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

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. Use only non-sparking tools.

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 vapors are flammable. Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Precautions for safe handling: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid all eye and skin contact and do not breathe vapor and mist. Ground/bond container and receiving equipment. Take precautionary measures against static discharge. Use only outdoors or in a well-ventilated area. Use only non-sparking tools.

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. Store under dry nitrogen or argon in sealed containers below 25°C. Keep in a cool place. Store locked up.


Storage area: Store in a well-ventilated place. Store away from heat.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Tetrahydrofuran (109-99-9)</th>
<th>ACGIH</th>
<th>ACGIH TWA (ppm)</th>
<th>50 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>ACGIH STEL (ppm)</td>
<td>100 ppm</td>
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<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>590 mg/m³</td>
<td></td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (ppm)</td>
<td>200 ppm</td>
<td></td>
</tr>
<tr>
<td>IDLH</td>
<td>US IDLH (ppm)</td>
<td>2000 ppm (10% LEL)</td>
<td></td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (TWA) (mg/m³)</td>
<td>590 mg/m³</td>
<td></td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (TWA) (ppm)</td>
<td>200 ppm</td>
<td></td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (STEL) (mg/m³)</td>
<td>735 mg/m³</td>
<td></td>
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<tr>
<td>NIOSH</td>
<td>NIOSH REL (STEL) (ppm)</td>
<td>250 ppm</td>
<td></td>
</tr>
</tbody>
</table>

Print date: 04/10/2019  EN (English US)  SDS ID: SIL6470.0  3/8
LITHIUM (TRIMETHYLSILYL)ACETYLIDE, 0.5M in tetrahydrofuran
Safety Data Sheet

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

Hand protection:
Neoprene or nitrile rubber gloves

Eye protection:
Chemical goggles or face shield. Contact lenses should not be worn

Skin and body protection:
Wear suitable protective clothing. Long-sleeved fire-resistant lab uniform or coverall is recommended.

Respiratory protection:
Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified combination organic vapor - gas (yellow cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
Physical state: Liquid
Appearance: Liquid.
Molecular mass: 104.15 g/mol
Color: Clear to hazy.
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: < 0 °C
Boiling point: > 66 °C initial (THF)
Flash point: -14 °C
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Flammability (solid, gas): Highly flammable liquid and vapor
Vapor pressure: 144 mm Hg @ 15°C (THF)
Relative vapor density at 20 °C: 2.5 (THF)
Relative density: 0.829
% Volatiles: > 85 %
Solubility: Soluble in water. Reacts rapidly 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: 1.8 - 11.6 vol % (lower; upper: THF)

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 under nitrogen or argon in sealed containers.

Print date: 04/10/2019 EN (English US) SDS ID: SIL6470.0
10.3. Possibility of hazardous reactions
Material decomposes slowly in contact with moist air and rapidly in contact with water, possibly igniting.

10.4. Conditions to avoid
Heat. Open flame. Sparks.

10.5. Incompatible materials

10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity
- Not classified

<table>
<thead>
<tr>
<th>Tetrahydrofuran (109-99-9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
<tr>
<td>LC50 inhalation rat (ppm)</td>
</tr>
<tr>
<td>ATE US (oral)</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
- Causes severe skin burns and eye damage.

Serious eye damage/irritation
- Causes serious eye damage.

Respiratory or skin sensitization
- Not classified

Germ cell mutagenicity
- Not classified

Carcinogenicity
- Suspected of causing cancer.

Tetrahydrofuran (109-99-9)
National Toxicology Program (NTP) Status
- 1 - Evidence of Carcinogenicity

Reproductive toxicity
- Not classified

Specific target organ toxicity – single exposure
- May cause respiratory irritation.

Specific target organ toxicity – repeated exposure
- Not classified

Aspiration hazard
- Not classified

Symptoms/effects after inhalation
- May cause respiratory irritation. Inhalation will cause sneezing, irritation and burns.

Symptoms/effects after skin contact
- Causes (severe) skin burns. Worker will notice a slippery feeling on washing.

Symptoms/effects after eye contact
- Causes serious eye damage.

Symptoms/effects after ingestion
- May be harmful if swallowed.

Chronic symptoms
- TETRAHYDROFURAN: Mildly toxic by inhalation. Mutagenic data has been reported. Reported as causing injury to liver and kidneys.

Reason for classification
- Expert judgment

SECTION 12: Ecological information

12.1. Toxicity
Ecology - water
- Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

<table>
<thead>
<tr>
<th>Tetrahydrofuran (109-99-9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
</tr>
<tr>
<td>LC50 fish 2</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Tetrahydrofuran (109-99-9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCF fish 1</td>
</tr>
<tr>
<td>Log Pow</td>
</tr>
</tbody>
</table>

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
SECTION 13: Disposal considerations

13.1. Disposal methods

Sewage disposal recommendations: Do not dispose of waste into sewer.

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 vapors are flammable.

Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number

UN-No.(DOT) : 2924
DOT NA no. : UN2924

14.2. UN proper shipping name

Transport document description: UN2924 Flammable liquids, corrosive, n.o.s. (LITHIUM (TRIMETHYLSILYL)ACETYLIDE, 0.5M in tetrahydrofuran), 3 (8), II

Proper Shipping Name (DOT): Flammable liquids, corrosive, n.o.s. (LITHIUM (TRIMETHYLSILYL)ACETYLIDE, 0.5M in tetrahydrofuran)

Class (DOT): 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120

Packing group (DOT): II - Medium Danger

Hazard labels (DOT): 3 - Flammable liquid
8 - Corrosive

DOT Packaging Non Bulk (49 CFR 173.xxx): 202
DOT Packaging Bulk (49 CFR 173.xxx): 243
DOT Packaging Exceptions (49 CFR 173.xxx): 150

DOT Symbols: G - Identifies PSN requiring a technical name

14.3. Additional information

Emergency Response Guide (ERG) Number: 132

Other information: No supplementary information available.

Transport by sea

DOT Vessel Stowage Location: B - (i) The material may be stowed “on deck” or “under deck” 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; and (ii) “On deck only” on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

DOT Vessel Stowage Other: 40 - Stow “clear of living quarters”

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27): 1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75): 5 L

SECTION 15: Regulatory information

15.1. US Federal regulations

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.

Tetrahydrofuran (109-99-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

EPA TSCA Regulatory Flag: T - T - indicates a substance that is the subject of a final TSCA section 4 test rule.
LITHIUM (TRIMETHYLSILYL)ACETYLIDE, 0.5M in tetrahydrofuran

Safety Data Sheet

Lithium (trimethylsilyl)acetylide (54655-07-1)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA
Tetrahydrofuran (109-99-9)
Listed on the Canadian DSL (Domestic Substances List)
WHMIS Classification
Class B Division 2 - Flammable Liquid
Class D Division 2 Subdivision B - Toxic material causing other toxic effects

EU-Regulations
Tetrahydrofuran (109-99-9)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations
Tetrahydrofuran (109-99-9)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Canadian IDL (Ingredient Disclosure List)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on CICR (Turkish Inventory and Control of Chemicals)

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

Tetrahydrofuran (109-99-9)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennslyvania - RTK (Right to Know) List

SECTION 16: Other information

Full text of H-phrases:

| H225 | Highly flammable liquid and vapor |
| H228 | Flammable solid |
| H302 | Harmful if swallowed |
| H314 | Causes severe skin burns and eye damage |
| H318 | Causes serious eye damage |
| H319 | Causes serious eye irritation |
| H335 | May cause respiratory irritation |
| H351 | Suspected of causing cancer |

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)
LITHIUM (TRIMETHYLSILYL)ACETYLIDE, 0.5M in tetrahydrofuran
Safety Data Sheet

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: 02/17/2016 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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