TRIMETHYLSILYLMETHYLLITHIUM, 1M in hexane

Safety Data Sheet SIT8593.5

Date of issue: 09/01/2015 Version: 1.0

SECTION 1: Identification

1.1. Identification

Product name	:	TRIMETHYLSILYLMETHYLLITHIUM, 1M in hexane
Product code	:	SIT8593.5
Product form	:	Mixture
Physical state	:	Liquid
Formula	:	C4H11LiSi
Synonyms	:	LITHIUM, [(TRIMETHYLSILYL)METHYL]-
Chemical family	:	ORGANOSILANE

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
Substances and mixtures which in contact with water emit flammable gases Category 1	H260 In contact with water releases flammable gases which may ignite spontaneously
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
Reproductive toxicity Category 2	H361 Suspected of damaging fertility or the unborn child
Specific target organ toxicity (repeated exposure) Category 2	H373 May cause damage to organs through prolonged or repeated exposure
Hazardous to the aquatic environment - Acute Hazard Category 3	H402 Harmful to aquatic life

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) :
H225 - Highly flammable liquid and vapor
H260 - In contact with water releases flammable gases which may ignite spontaneously
H314 - Causes severe skin burns and eye damage
H361 - Suspected of damaging fertility or the unborn child
H373 - May cause damage to organs through prolonged or repeated exposure
H402 - Harmful to aquatic life

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.
P210 - Keep away from heat, open flames, sparks. - No smoking.
P223 - Do not allow contact with water.
P231+P232 - Handle under inert gas. Protect from moisture
P233 - Keep container tightly closed.
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.
P273 - Avoid release to the environment.
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
P308+P313 - If exposed or concerned: Get medical advice/attention.
P310 - Immediately call a doctor
P321 - Specific treatment (see first aid instructions on this label)
P335+P334 - Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.
P363 - Wash contaminated clothing before reuse.
P370+P378 - In case of fire: Use water spray, foam, carbon dioxide, dry chemical to extinguish.
P402+P404 - Store in a dry place. Store in a closed container.
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

Name	Product identifier	%	GHS-US classification
Trimethylsilylmethyl lithium	(CAS-No.) 1822-00-0	85 - 90	Water-react. 1, H260 Skin Corr. 1B, H314 Eye Dam. 1, H318
Hexane	(CAS-No.) 110-54-3	10 - 15	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Repr. 2, H361 STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Acute 2, H401

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. IF exposed or concerned: Get medical advice/attention.

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 immediate medical advice/attention.

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

Symptoms/effects : Suspected of damaging fertility. Suspected of damaging the unborn child. Causes damage to organs through prolonged or repeated exposure.

Symptoms/effects after inhalation : May cause irritation to the respiratory tract. Overexposure may cause: Coughing. Headache. Nausea.

Symptoms/effects after skin contact : Causes (severe) skin burns.

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

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

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

Suitable extinguishing media : Water spray. Foam. Carbon dioxide. Dry chemical.

Unsuitable extinguishing media : Water.

5.2. Specific hazards arising from the chemical

Fire hazard : Highly flammable liquid and vapor. In contact with water releases flammable gases which may ignite spontaneously. Irritating fumes and organic acid vapors may develop when material is exposed to water or open flame.

Explosion hazard : Container may explode during fire conditions. May form flammable/explosive vapor-air mixture.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray to cool exposed surfaces. Exercise caution when fighting any chemical fire.

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.

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".

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 : Easily ignited by sparks. Handle empty containers with care because residual vapors are flammable. Keep away from any possible contact with water, because of violent reaction and possible flash fire. 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. Provide good ventilation in process area to prevent accumulation of vapors. Use only outdoors or in a well-ventilated area. Do not allow contact with water. Handle under inert gas. Protect from moisture. Use only non-sparking tools.

Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse.

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. Keep in a cool place. Store locked up. Store in a closed container. Store in a dry place.

Incompatible materials : Oxidizing agent. Water.

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

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Hexane (110-54-3)		
ACGIH	ACGIH TWA (ppm)	50 ppm
OSHA	OSHA PEL (TWA) (mg/m³)	1800 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	500 ppm
IDLH	US IDLH (ppm)	1100 ppm (10% LEL)
NIOSH	NIOSH REL (TWA) (mg/m³)	180 mg/m³

Hexane (110-54-3)		
NIOSH	NIOSH REL (TWA) (ppm)	50 ppm

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

Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified combination organic vapor/acid 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	:	94.16 g/mol
Color	:	Straw. Amber.
Odor	:	Mild.
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	:	< 20 °C
Boiling point	:	68 °C initial (Hexane)
Flash point	:	-23 °C
Auto-ignition temperature	:	224 °C (hexane)
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	Highly flammable liquid and vapor
Vapor pressure	:	No data available
Relative vapor density at 20 °C	:	> 1
Relative density	:	0.66
% Volatiles	:	> 75 %
Solubility	:	Reacts violently 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	:	1.2 - 1.7 vol % (lower; upper: hexane)

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.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Heat. Open flame. Sparks.

10.5. Incompatible materials

Oxidizing agent. Water.

10.6. Hazardous decomposition products

Hydrogen. Organic acid vapors. Tetramethylsilane.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Hexane (110-54-3)	
LD50 oral rat	25 g/kg
LD50 dermal rabbit	3000 mg/kg
LC50 inhalation rat (ppm)	48000 ppm/4h
ATE US (oral)	25000 mg/kg body weight
ATE US (dermal)	3000 mg/kg body weight
ATE US (gases)	48000 ppmV/4h

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 : Not classified

Reproductive toxicity : Suspected of damaging fertility or the unborn child.
Hexane is mildly toxic by inhalation and is reported as an experimental teratogen.

Specific target organ toxicity – single exposure : Not classified

Specific target organ toxicity – repeated exposure : May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : Impairment of coordination, distorted perception and CNS disturbances have been reported to Hexane.

Symptoms/effects after inhalation : May cause irritation to the respiratory tract. Overexposure may cause: Coughing. Headache. Nausea.

Symptoms/effects after skin contact : Causes (severe) skin burns.

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

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

Reason for classification : Expert judgment

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Harmful to aquatic life.

Hexane (110-54-3)	
LC50 fish 1	2.1 - 2.98 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])

12.2. Persistence and degradability

No additional information available

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

SECTION 13: Disposal considerations

13.1. Disposal methods

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

Product/Packaging disposal recommendations : May be incinerated. 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) : 3399

DOT NA no. UN3399

14.2. UN proper shipping name

Transport document description : UN3399 Organometallic substance, liquid, water-reactive, flammable (TRIMETHYLSILYLMETHYLLITHIUM, 1M in hexane), 4.3 (3), I

Proper Shipping Name (DOT) : Organometallic substance, liquid, water-reactive, flammable (TRIMETHYLSILYLMETHYLLITHIUM, 1M in hexane)

Class (DOT) : 4.3 - Class 4.3 - Dangerous when wet material 49 CFR 173.124

Packing group (DOT) : I - Great Danger

Hazard labels (DOT) : 4.3 - Dangerous when wet
3 - Flammable liquid

DOT Packaging Non Bulk (49 CFR 173.xxx) : 201

DOT Packaging Bulk (49 CFR 173.xxx) : 244

DOT Packaging Exceptions (49 CFR 173.xxx) : None

DOT Symbols : G - Identifies PSN requiring a technical name

14.3. Additional information

Emergency Response Guide (ERG) Number : 138

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 : 13 - Keep as dry as reasonably practicable,40 - Stow ‘‘clear of living quarters’’,52 - Stow ‘‘separated from’’ acids,148 - In addition: from flammable gases and flammable liquids when stowed on deck of a containership a minimum distance of two container spaces athwartship shall be maintained, when stowed on ro-ro ships a distance of 6 m athwartship shall be maintained.

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : Forbidden

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 1 L

SECTION 15: Regulatory information

15.1. US Federal regulations

TRIMETHYLSILYLMETHYLLITHIUM, 1M in hexane	
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.

Hexane (110-54-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
SARA Section 313 - Emission Reporting	1 %

Trimethylsilylmethyl lithium (1822-00-0)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

Hexane (110-54-3)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects

EU-Regulations

Hexane (110-54-3)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Hexane (110-54-3)
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) Japanese Pollutant Release and Transfer Register Law (PRTR Law) 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)

Trimethylsilylmethyl lithium (1822-00-0)
Listed on the Korean ECL (Existing Chemicals List) Listed on NZIoC (New Zealand Inventory 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

Hexane (110-54-3)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Full text of H-phrases::

H225	Highly flammable liquid and vapor
H260	In contact with water releases flammable gases which may ignite spontaneously
H304	May be fatal if swallowed and enters airways
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H318	Causes serious eye damage
H319	Causes serious eye irritation
H336	May cause drowsiness or dizziness

H361	Suspected of damaging fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H401	Toxic to aquatic life
H402	Harmful to aquatic life

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.: Chemcial 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 : 4 Severe Hazard - Life-threatening, major or permanent damage may result from single or repeated overexposures

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: 09/01/2015 Version: 1.0

SDS US (GHS HazCom 2012) - Custom

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