

Safety Data Sheet
according to OSHA HCS

Printing date 07/19/2021

Reviewed on 07/19/2021

1 Identification

- **Product name**
- **Trade name:** CALLERY™ Lithium hexamethyldisilazane, 24% solution in tetrahydrofuran
- **Item number:** 03-1275
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Strem Chemicals, Inc.
7 Mulliken Way
NEWBURYPORT, MA 01950
USA
info@strem.com
- **Information department:** Technical Department
- **Emergency telephone number:**
EMERGENCY: CHEMTREC: + 1 (800) 424-9300
During normal opening times: +1 (978) 499-1600

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS08 Health hazard

Carc. 2 H351 Suspected of causing cancer.



GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

STOT SE 3 H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS02 GHS05 GHS07 GHS08

- **Signal word** Danger
- **Hazard-determining components of labeling:**
Tetrahydrofuran [109-99-9]

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lithiumbis(trimethylsilyl)amide
1,1,1,3,3,3-hexamethyldisilazane
2-methylbut-2-ene
lithium hydroxide

Hazard statements

H225 *Highly flammable liquid and vapor.*
H302 *Harmful if swallowed.*
H314 *Causes severe skin burns and eye damage.*
H351 *Suspected of causing cancer.*
H335-H336 *May cause respiratory irritation. May cause drowsiness or dizziness.*

Precautionary statements

P210 *Keep away from heat/sparks/open flames/hot surfaces. No smoking.*
P303+P361+P353 *If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.*
P305+P351+P338 *If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.*
P310 *Immediately call a POISON CENTER/doctor.*
P403+P233 *Store in a well-ventilated place. Keep container tightly closed.*
P501 *Dispose of contents/container in accordance with local/regional/national/international regulations.*

Classification system:

NFPA ratings (scale 0 - 4)



Health = 3
Fire = 3
Reactivity = 2

The substance demonstrates unusual reactivity with water.

HMIS-ratings (scale 0 - 4)



Health = *4
Fire = 3
Reactivity = 2

Other hazards

Results of PBT and vPvB assessment

- PBT:** Not applicable.
- vPvB:** Not applicable.

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

109-99-9	Tetrahydrofuran [109-99-9]	73.0%
4039-32-1	<i>lithiumbis(trimethylsilyl)amide</i>	23.0%
513-35-9	<i>2-methylbut-2-ene</i>	2.01%
999-97-3	<i>1,1,1,3,3,3-hexamethyldisilazane</i>	1.8%

US

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4 First-aid measures

· **Description of first aid measures**

· **General information:**

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.

· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

· **After swallowing:**

Immediately call a doctor.

Drink copious amounts of water and provide fresh air. Immediately call a doctor.

· **Information for doctor:**

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

· **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**

· **Suitable extinguishing agents:**

CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· **For safety reasons unsuitable extinguishing agents:** Water with full jet

· **Special hazards arising from the substance or mixture** No further relevant information available.

· **Advice for firefighters**

· **Protective equipment:** No special measures required.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

· **Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

· **Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· **Protective Action Criteria for Chemicals**

· **PAC-1:**

109-99-9	Tetrahydrofuran [109-99-9]	100 ppm
513-35-9	2-methylbut-2-ene	4.2 ppm
999-97-3	1,1,1,3,3,3-hexamethyldisilazane	2.5 mg/m ³
1310-65-2	lithium hydroxide	0.091 mg/m ³
78-79-5	isoprene (stabilized)	5 ppm

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· PAC-2:		
109-99-9	Tetrahydrofuran [109-99-9]	500 ppm
513-35-9	2-methylbut-2-ene	46 ppm
999-97-3	1,1,1,3,3,3-hexamethyldisilazane	28 mg/m ³
1310-65-2	lithium hydroxide	1 mg/m ³
78-79-5	isoprene (stabilized)	1,000 ppm
· PAC-3:		
109-99-9	Tetrahydrofuran [109-99-9]	5000* ppm
513-35-9	2-methylbut-2-ene	280 ppm
999-97-3	1,1,1,3,3,3-hexamethyldisilazane	170 mg/m ³
1310-65-2	lithium hydroxide	42 mg/m ³
78-79-5	isoprene (stabilized)	4000* ppm

7 Handling and storage

- **Handling:**
- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
At this time, the other constituents have no known exposure limits.

109-99-9 Tetrahydrofuran [109-99-9]	
PEL	Long-term value: 590 mg/m ³ , 200 ppm
REL	Short-term value: 735 mg/m ³ , 250 ppm Long-term value: 590 mg/m ³ , 200 ppm
TLV	Short-term value: 295 mg/m ³ , 100 ppm Long-term value: 147 mg/m ³ , 50 ppm
	Skin

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· Ingredients with biological limit values:

109-99-9 Tetrahydrofuran [109-99-9]

BEI	2 mg/L
	Medium: urine
	Time: end of shift
	Parameter: Tetrahydrofuran

· Additional information: The lists that were valid during the creation were used as basis.

· Exposure controls

· Personal protective equipment: Wear protective clothing

· General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

· Breathing equipment: Not required.

· Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form: Liquid

Color: Various colors

· Odor: Characteristic

· Odor threshold: Not determined.

· pH-value: Not determined.

· Change in condition

Melting point/Melting range: Undetermined.

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Boiling point/Boiling range:	65 °C (149 °F)
· Flash point:	-21.2 °C (-6 °F)
· Flammability (solid, gaseous):	Not determined.
· Ignition temperature:	230 °C (446 °F)
· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· Explosion limits:	
Lower:	1.5 Vol %
Upper:	12.0 Vol %
· Vapor pressure at 20 °C (68 °F):	200 hPa (150 mm Hg)
· Density:	Not determined.
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water:	Not miscible or difficult to mix.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	73.0 %
VOC content:	73.0 %
	730.0 g/l / 6.09 lb/gl
Solids content:	23.1 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

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11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

109-99-9 Tetrahydrofuran [109-99-9]

Oral	LD50	2500 mg/kg (rat)
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- **Primary irritant effect:**

- **on the skin:** Caustic effect on skin and mucous membranes.

- **on the eye:** Strong caustic effect.

- **Sensitization:** No sensitizing effects known.

- **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful

Corrosive

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

78-79-5	isoprene (stabilized)	2B
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- **NTP (National Toxicology Program)**

78-79-5	isoprene (stabilized)	R
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- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

12 Ecological information

- **Toxicity**

- **Aquatic toxicity:** No further relevant information available.

- **Persistence and degradability** No further relevant information available.

- **Behavior in environmental systems:**

- **Bioaccumulative potential** No further relevant information available.

- **Mobility in soil** No further relevant information available.

- **Additional ecological information:**

- **General notes:**

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**

- **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

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- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· UN-Number · DOT, IMDG, IATA	UN2924
· UN proper shipping name · DOT · IMDG, IATA	Flammable liquids, corrosive, n.o.s. (Tetrahydrofuran, lithiumbis(trimethylsilyl)amide) FLAMMABLE LIQUID, CORROSIVE, N.O.S. (TETRAHYDROFURAN, lithiumbis(trimethylsilyl)amide)
· Transport hazard class(es) · DOT	
 	
· Class · Label	3 Flammable liquids 3, 8
· IMDG	
 	
· Class · Label	3 Flammable liquids 3/8
· IATA	
 	
· Class · Label	3 Flammable liquids 3 (8)
· Packing group · DOT, IMDG, IATA	II
· Environmental hazards:	Not applicable.
· Special precautions for user · Danger code (Kemler): · EMS Number: · Stowage Category · Stowage Code	Warning: Flammable liquids 339 F-E,S-C B SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

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· Transport/Additional information:

· DOT

· Quantity limitations

On passenger aircraft/rail: 1 L

On cargo aircraft only: 5 L

· IMDG

· Limited quantities (LQ)

1L

· Excepted quantities (EQ)

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

· UN "Model Regulation":

UN 2924 FLAMMABLE LIQUIDS, CORROSIVE, N.O.S.
(TETRAHYDROFURAN, LITHIUMBIS(TRIMETHYLSILYL)
AMIDE), 3 (8), II

15 Regulatory information

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

· Sara

· Section 355 (extremely hazardous substances):

None of the ingredients is listed.

· Section 313 (Specific toxic chemical listings):

78-79-5 isoprene (stabilized)

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· Proposition 65

· Chemicals known to cause cancer:

78-79-5 isoprene (stabilized)

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Carcinogenic categories

· EPA (Environmental Protection Agency)

109-99-9 Tetrahydrofuran [109-99-9]

SC

· TLV (Threshold Limit Value established by ACGIH)

109-99-9 Tetrahydrofuran [109-99-9]

A3

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

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· **Hazard pictograms**



GHS02 GHS05 GHS07 GHS08

· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

*Tetrahydrofuran [109-99-9]
lithiumbis(trimethylsilyl)amide
1,1,1,3,3,3-hexamethyldisilazane
2-methylbut-2-ene
lithium hydroxide*

· **Hazard statements**

*H225 Highly flammable liquid and vapor.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H351 Suspected of causing cancer.
H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.*

· **Precautionary statements**

*P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **National regulations:**

- **Water hazard class:** *Water hazard class 1 (Self-assessment): slightly hazardous for water.*
- **Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** *Technical Department.*

· **Contact:** *Technical Director*

· **Date of preparation / last revision** 07/19/2021 / -

· **Abbreviations and acronyms:**

*ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)*

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LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

BEI: Biological Exposure Limit

Flam. Liq. 2: Flammable liquids – Category 2

Acute Tox. 4: Acute toxicity – Category 4

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Carc. 2: Carcinogenicity – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

US