

1 Identification

Product identifier

Product name: Methylithium, 1-2M in ether

Stock number: 42992

CAS Number:

917-54-4

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

Identified use: SU24 Scientific research and development

Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Alfa Aesar

Thermo Fisher Scientific Chemicals, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Tel: 800-343-0660

Fax: 800-322-4757

Email: tech@alfa.com

www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency telephone number:

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

2 Hazard(s) identification

Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)


 GHS02 Flame

Flam. Liq. 1 H224 Extremely flammable liquid and vapour.

Pyr. Liq. 1 H250 Catches fire spontaneously if exposed to air.

Self-heat. 2 H252 Self-heating in large quantities; may catch fire.

Water-react. 1 H260 In contact with water releases flammable gases which may ignite spontaneously.

 GHS05 Corrosion

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

Eye Dam. 1 H318 Causes serious eye damage.

 GHS07

Acute Tox. 4 H302 Harmful if swallowed.

STOT SE 3 H336 May cause drowsiness or dizziness.

Hazards not otherwise classified No information known.

Label elements

GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

Hazard pictograms



GHS02 GHS05 GHS07

Signal word

Danger

Hazard statements

H224 Extremely flammable liquid and vapour.

H250 Catches fire spontaneously if exposed to air.

H252 Self-heating in large quantities; may catch fire.

H260 In contact with water releases flammable gases which may ignite spontaneously.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H336 May cause drowsiness or dizziness.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P309 IF exposed or if you feel unwell:

P310 Immediately call a POISON CENTER/doctor/...

P402+P404 Store in a dry place. Store in a closed container.

WHMIS classification

B2 - Flammable liquid

B6 - Reactive flammable material

D2B - Toxic material causing other toxic effects

E - Corrosive material



Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH 3 Health (acute effects) = 3

FIRE 4 Flammability = 4

REACTIVITY 3 Physical Hazard = 3

Product name: Methyllithium, 1-2M in ether	
Other hazards Results of PBT and vPvB assessment PBT: Not applicable. vPvB: Not applicable.	(Contd. of page 1)
3 Composition/information on ingredients Chemical characterization: Substances CAS# Description: 917-54-4 Methyllithium, 1-2M in ether	
4 First-aid measures Description of first aid measures General information Immediately remove any clothing soiled by the product. After inhalation Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice. After skin contact Immediately wash with water and soap and rinse thoroughly. Seek immediate medical advice. After eye contact Rinse opened eye for several minutes under running water. Then consult a doctor. After swallowing Seek medical treatment. Information for doctor Most important symptoms and effects, both acute and delayed Causes severe skin burns. Causes serious eye damage. Indication of any immediate medical attention and special treatment needed No further relevant information available.	
5 Fire-fighting measures Extinguishing media Suitable extinguishing agents Dry sand Extinguishing powder. Do not use water. In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water. For safety reasons unsuitable extinguishing agents Carbon dioxide Water Special hazards arising from the substance or mixture Reacts violently with water Spontaneously flammable in air. If this product is involved in a fire, the following can be released: Carbon monoxide and carbon dioxide Lithium oxide Advice for firefighters Protective equipment: Wear self-contained respirator. Wear fully protective impervious suit.	
6 Accidental release measures Personal precautions, protective equipment and emergency procedures Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation Keep away from ignition sources Environmental precautions: Do not allow material to be released to the environment without proper governmental permits. Methods and material for containment and cleaning up: Keep away from ignition sources. Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Use neutralizing agent. Dispose of contaminated material as waste according to section 13. Ensure adequate ventilation. Do not flush with water or aqueous cleansing agents Prevention of secondary hazards: Keep away from ignition sources. 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.	
7 Handling and storage Handling Precautions for safe handling Handle under dry protective gas. Handle under dry argon. Keep container tightly sealed. Store in cool, dry place in tightly closed containers. Keep away from heat and direct sunlight. Ensure good ventilation at the workplace. Open and handle container with care. Information about protection against explosions and fires: Protect against electrostatic charges. Fumes can combine with air to form an explosive mixture. Substance/product is self ignitable. Keep ignition sources away. 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: Store away from oxidizing agents. Store away from air. Store away from water/moisture. Further information about storage conditions: Store under dry inert gas.	(Contd. on page 3)

Product name: Methyllithium, 1-2M in ether

This product is moisture sensitive.
This product is air sensitive.
Store under dry argon.
Protect from humidity and water.
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
Protect from heat and direct sunlight.
Specific end use(s) No further relevant information available.

(Contd. of page 2)

8 Exposure controls/personal protection

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
Control parameters
Components with limit values that require monitoring at the workplace:

Diethyl ether
ppm
ACGIH TLV 400; 500-STEL
Austria MAK 400
Belgium TWA 400; 500-STEL
Denmark TWA 400
Finland TWA 400; 500-STEL
France VME 400; 500-VLE
Germany MAK 400
Hungary TWA 300; 600-STEL (skin)
Ireland TWA 400; 500-STEL
Japan OEL 400
Korea TLV 400; 500-STEL
Netherlands MAC-TGG 400
Norway TWA 200
Poland TWA 300; 1500-STEL
Russia TWA 400; 300-STEL
Sweden TWA 400; 500-STEL
Switzerland MAK-W 400; 800-KZG-W
United Kingdom TWA 400; 500-STEL
USA PEL 400
Additional information: No data

Exposure controls
Personal protective equipment
General protective and hygienic measures
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Maintain an ergonomically appropriate working environment.
Breathing equipment: Use suitable respirator when high concentrations are present.
Protection of hands:
Impervious gloves
Check protective gloves prior to each use for their proper condition.
The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.
Eye protection:
Tightly sealed goggles
Full face protection
Body protection: Protective work clothing.

9 Physical and chemical properties

Information on basic physical and chemical properties
General Information

Appearance:
Form: Liquid
Color: Yellow
Odor: Ether-like
Odor threshold: Not determined.
pH-value: Not determined.

Change in condition
Melting point/Melting range: Not determined
Boiling point/Boiling range: Not determined
Sublimation temperature / start: Not determined

Flash point: -17 °C (1 °F)
Flammability (solid, gaseous) Not determined.
Ignition temperature: Not determined
Decomposition temperature: Not determined
Auto igniting: Spontaneously flammable in air.

Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures is possible.
Explosion limits:
Lower: Not determined
Upper: Not determined
Vapor pressure: Not determined
Density at 20 °C (68 °F): 0.732 g/cm³ (6.109 lbs/gal)
Relative density Not determined.
Vapor density Not determined.
Evaporation rate Not determined.
Solubility in / Miscibility with
Water: Reacts violently
Contact with water releases flammable gases
Partition coefficient (n-octanol/water): Not determined.
Viscosity:
dynamic: Not determined.

(Contd. on page 4)
USA

Product name: **Methylithium, 1-2M in ether**

(Contd. of page 3)

kinematic: Not determined.
Other information No further relevant information available.

10 Stability and reactivity

Reactivity
Reacts violently with water.
In contact with water releases flammable gases which may ignite spontaneously.
Catches fire spontaneously if exposed to air.
Chemical stability Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided: Decomposition will not occur if used and stored according to specifications.
Possibility of hazardous reactions
Forms explosive gas mixture with air
Spontaneously flammable in air.
Contact with water releases flammable gases
Reacts violently with water
Conditions to avoid No further relevant information available.
Incompatible materials:
Oxidizing agents
Air
Water/moisture
Hazardous decomposition products:
Methane
Carbon monoxide and carbon dioxide
Lithium oxide

11 Toxicological information

Information on toxicological effects
Acute toxicity:
Harmful if swallowed.
Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.
LD/LC50 values that are relevant for classification: No data
Skin irritation or corrosion:
Causes severe skin burns.
Repeated exposure may cause skin dryness or cracking.
Eye irritation or corrosion: Causes serious eye damage.
Sensitization: No sensitizing effects known.
Germ cell mutagenicity: No effects known.
Carcinogenicity: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.
Reproductive toxicity: No effects known.
Specific target organ system toxicity - repeated exposure: No effects known.
Specific target organ system toxicity - single exposure:
May cause drowsiness or dizziness.
May cause respiratory irritation.
Aspiration hazard: No effects known.
Subacute to chronic toxicity:
Diethyl ether is a depressant of the central nervous system and is capable of causing intoxication, drowsiness, stupor and unconsciousness. Severe exposure may cause respiratory failure and death. On contact it may irritate the eyes.
Large amounts of lithium compounds may cause vomiting, diarrhea, ataxia, intestinal irritation, kidney injury, central nervous system depression and a drop in blood pressure. Central nervous system effects may include slurred speech, blurred vision, dizziness, sensory loss, convulsions and stupor. Chronic intake may cause neuromuscular effects such as tremor, ataxia, weakness, clonus and hyperactive reflexes. Lithium can cause kidney damage, gastrointestinal disturbances, fatigue, dehydration, weight loss, dermatological effects and thyroid damage. Lithium ion has shown teratogenic effects in rats and mice.
Subacute to chronic toxicity: No effects known.
Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

12 Ecological information

Toxicity
Aquatic toxicity: No further relevant information available.
Persistence and degradability No further relevant information available.
Bioaccumulative potential No further relevant information available.
Mobility in soil No further relevant information available.
Additional ecological information:
General notes:
Do not allow material to be released to the environment without proper governmental permits.
Do not allow undiluted product or large quantities to reach ground water, water course or sewage system.
Avoid transfer into the environment.
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 Consult state, local or national regulations to ensure proper disposal.
Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

14 Transport information

UN-Number DOT, IMDG, IATA	UN3394
UN proper shipping name DOT IMDG, IATA	Organometallic substance, liquid, pyrophoric, water-reactive ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER- REACTIVE

(Contd. on page 5)
USA

Product name: Methyllithium, 1-2M in ether

(Contd. of page 4)

Transport hazard class(es)

DOT



Class

Label

Class

Label

IMDG, IATA



Class

Label

4.2 Substances liable to spontaneous combustion.

4.2+4.3

4.2 (SW) Substances liable to spontaneous combustion

4.2+4.3

4.2 Substances liable to spontaneous combustion.

4.2+4.3

Packing group
DOT, IMDG, IATA

I

Environmental hazards:

Not applicable.

Special precautions for user

Warning: Substances liable to spontaneous combustion

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

Transport/Additional information:

DOT

Marine Pollutant (DOT):

No

UN "Model Regulation":

UN3394, Organometallic substance, liquid, pyrophoric, water-reactive, 4.2 (4.3), I

15 Regulatory information

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

GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

Hazard pictograms



GHS02 GHS05 GHS07

Signal word Danger

Hazard statements

H224 Extremely flammable liquid and vapour.

H250 Catches fire spontaneously if exposed to air.

H252 Self-heating in large quantities; may catch fire.

H260 In contact with water releases flammable gases which may ignite spontaneously.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H336 May cause drowsiness or dizziness.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P309 IF exposed or if you feel unwell:

P310 Immediately call a POISON CENTER/doctor/...

P402+P404 Store in a dry place. Store in a closed container.

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

SARA Section 313 (specific toxic chemical listings) Substance is not listed.

California Proposition 65

Prop 65 - Chemicals known to cause cancer Substance is not listed.

Prop 65 - Developmental toxicity Substance is not listed.

Prop 65 - Developmental toxicity, female Substance is not listed.

Prop 65 - Developmental toxicity, male Substance is not listed.

Information about limitation of use: For use only by technically qualified individuals.

Other regulations, limitations and prohibitive regulations

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.

The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.

Substance is not listed.

Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing SDS: Global Marketing Department

Date of preparation / last revision 11/23/2015 / -

Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

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

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

(Contd. on page 6)
USA

Product name: **Methylithium, 1-2M in ether**

vPvB: very Persistent and very Bioaccumulative
ACGIH: American Conference of Governmental Industrial Hygienists (USA)
OSHA: Occupational Safety and Health Administration (USA)
NTP: National Toxicology Program (USA)
IARC: International Agency for Research on Cancer
EPA: Environmental Protection Agency (USA)

(Contd. of page 5)