

MATERIAL SAFETY DATA SHEET

Date Printed: 10/30/2009

Date Updated: 04/03/2009

Version 1.13

Section 1 - Product and Company Information

Product Name METHYLLITHIUM, 1.6M SOLUTION IN DIETHYL
ETHER
Product Number 197343
Brand ALDRICH

Company Sigma-Aldrich
Address 3050 Spruce Street
SAINT LOUIS MO 63103 US

Technical Phone: 800-325-5832
Fax: 800-325-5052
Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
METHYLLITHIUM, SOLUTION IN DIETHYL ETHER	None	No

Ingredient Name	CAS #	Percent	SARA 313
DIETHYL ETHER, INHIBITOR FREE	60-29-7	>= 94.5 <= 95.5	No
METHYLLITHIUM	917-54-4	>= 4.5 <= 5.5	

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Flammable (USA) Extremely Flammable (EU). Toxic (USA) Harmful (EU).
Extremely flammable. Contact with water liberates extremely
flammable gases. Spontaneously flammable in air. Harmful if
swallowed. Causes burns. Repeated exposure may cause skin dryness
or cracking. Vapors may cause drowsiness and dizziness.
Target organ(s): Central nervous system. Kidneys.

HMIS RATING

HEALTH: 3*
FLAMMABILITY: 4
REACTIVITY: 3
SPECIAL HAZARD(S): Water reactive

NFPA RATING

HEALTH: 3
FLAMMABILITY: 4
REACTIVITY: 3
SPECIAL HAZARD(S): Water reactive

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLAMMABLE HAZARDS

Flammable Hazards: Yes
Peroxide Former: Yes
Pyrophoric/Autoignition: Yes

EXPLOSION HAZARDS

Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions.

CONDITIONS OF FLAMMABILITY

Reacts with water to liberate flammable and/or explosive gas. Catches fire if exposed to air.

FLASH POINT

1 °F - 17.0 °C Method: closed cup

AUTOIGNITION TEMP

N/A

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: Dry chemical powder.
Unsuitable: Do not use water.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Pyrophoric material. Extremely flammable.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area. Shut off all sources of ignition. Use nonsparking tools.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure. Open carefully.

STORAGE

Suitable: Keep tightly closed. Keep away from heat, sparks, and open flame. Handle and store under nitrogen.

Unsuitable: Readily forms peroxides on contact with air.

Incompatible Materials: Do not allow contact with water

Store at 2-8°C

SPECIAL REQUIREMENTS

Vent periodically. May develop pressure. Open carefully. Do not distill to dryness.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Safety shower and eye bath. Use nonsparking tools. Use only in a chemical fume hood.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

Other: Faceshield (8-inch minimum).

GENERAL HYGIENE MEASURES

Discard contaminated clothing and shoes. Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

Appearance	Physical State: Liquid	
	Color: Faintly yellow	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	N/A	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	0.732 g/cm3	25 °C
Bulk Density	N/A	

Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	1 °F - 17.0 °C	Method: closed cup
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Conditions of Instability: May form peroxides of unknown stability.

Conditions to Avoid: Light. Heat. Air. Catches fire if exposed to air.

Materials to Avoid: Oxygen, Oxidizing agents, Acids, Alcohols

Reacts violently with water.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Lithium oxides.

Hazardous Decomposition Products Formed Upon Contact with Water:

Reacts with water to liberate flammable and/or explosive gas.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: Causes burns.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes burns.

Inhalation: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Ingestion: Harmful if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

Skeletal muscle. G.I. System. Liver. Kidneys. Central nervous system.

SIGNS AND SYMPTOMS OF EXPOSURE

Drowsiness. Dizziness. Exposure can cause: Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis,

shortness of breath, headache, nausea, and vomiting.

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Organometallic substance,
liquid, pyrophoric, water-reactive
UN#: 3394
Class: 4.2
Packing Group: Packing Group I
Hazard Label: Spontaneously combustible
Hazard Label: Dangerous when wet.
PIH: Not PIH

IATA

Proper Shipping Name: Organometallic substance,
liquid, pyrophoric, water-reactive
IATA UN Number: 3394
Hazard Class: 4.2
Packing Group: I
Not Allowed - Aircraft: FORBIDDEN
Not Allowed - Aircraft: FORBIDDEN

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION

Symbol of Danger: F+-C
Indication of Danger: Extremely Flammable. Corrosive.
R: 12-15-17-22-34-66-67
Risk Statements: Extremely flammable. Contact with water liberates extremely flammable gases. Spontaneously flammable in air. Harmful if swallowed. Causes burns. Repeated exposure may cause skin dryness or cracking. Vapors may cause drowsiness and dizziness.
S: 16-26-30-36/37/39-43-45
Safety Statements: Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Never add water to this product. Wear suitable protective clothing, gloves, and eye/face protection. In case of fire, use dry powder. Never use water. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Flammable (USA) Extremely Flammable (EU).
Toxic (USA) Harmful (EU).
Risk Statements: Extremely flammable. Contact with water liberates extremely flammable gases. Spontaneously flammable in air. Harmful if swallowed. Causes burns. Repeated exposure may

cause skin dryness or cracking. Vapors may cause drowsiness and dizziness.

Safety Statements: Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Never add water to this product. Wear suitable protective clothing, gloves, and eye/face protection. In case of fire, use dry powder. Never use water. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US Statements: Target organ(s): Central nervous system. Kidneys.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: No

NDSL: No

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2009 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.