

Material Safety Data Sheet

Printing date 11/24/2009

Version 5

Reviewed on 11/24/2009

1 Identification of substance

· Product details

- Trade name: Methyl Bromide
- Article number: 071-01-0007BOC
- Creation date: 11/10/2006

· Manufacturer/Supplier:

Linde Canada Limited	Linde	.
5860 Chedworth Way	575 Mountain Avenue	.
Mississauga, Ontario L5R 0A2	Murray Hill, NJ 07974	.
Telephone (905) 501-1700	Telephone (908) 464-8100	.
24-HOUR EMERGENCY TELEPHONE NUMBER: (905) 501-0802	24-HOUR EMERGENCY TELEPHONE NUMBER: CHEMTREC (800) 424-9300 OR Linde National Operations Center (800) 232-4726	.

Pse ensure that this MSDS is received by the appropriate person.

- Information department: Customer Service Centre: 1-866-385-5349

2 Composition/Data on components

- Chemical characterization:
- CAS No. Description
74-83-9 bromomethane
- Identification number(s)
- EINECS Number: 200-813-2
- Index number: 602-002-00-2

3 Hazards identification

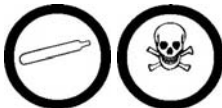
· Hazard description:



Muta. Cat. 3
Very toxic
Dangerous for the environment

· WHMIS-symbols:

A - Compressed gas
D1A - Very toxic material causing immediate and serious toxic effects



· HMIS-ratings (scale 0 - 4)

HEALTH	4	Health = *4
FIRE	1	Fire = 1
REACTIVITY	0	Reactivity = 0

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· **NFPA ratings (scale 0 - 4)**

Health = 4
Fire = 1
Reactivity = 0

· **Information pertaining to particular dangers for man and environment:**

Toxic if swallowed.

Irritating to eyes, respiratory system and skin.

Very toxic: danger of very serious irreversible effects through inhalation.

Harmful: danger of serious damage to health by prolonged exposure through inhalation.

Possible risk of irreversible effects.

Very toxic to aquatic organisms.

Dangerous for the ozone layer.

· **Classification system:**

The classification is in line with internationally approved calculation standards. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

· **GHS label elements****Danger**

3.1/2 - Fatal if swallowed.

3.2/2 - Causes skin irritation.

3.3/2A - Causes serious eye irritation.

**Danger**

3.8/1 - Causes damage to organs.

3.5/2 - Suspected of causing genetic defects.

3.9/2 - May cause damage to organs through prolonged or repeated exposure.

**Warning**

2.5/L - Contains gas under pressure; may explode if heated.

**Warning**

4.1/1 - Very toxic to aquatic life.

· **Prevention:**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Avoid release to the environment.

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

Use personal protective equipment as required.

· **Response:**

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

IF ON SKIN: Wash with plenty of soap and water.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

IF exposed: Call a POISON CENTER or doctor/physician.

IF exposed or concerned: Get medical advice/attention.

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Get medical advice/attention if you feel unwell.
 Specific treatment (see on this label).
 Rinse mouth.
 If skin irritation occurs: Get medical advice/attention.
 If eye irritation persists: Get medical advice/attention.
 Take off contaminated clothing and wash before reuse.
 Collect spillage.

· **Storage:**

Store locked up.
 Protect from sunlight. Store in a well-ventilated place.

· **Disposal:**

Dispose of contents/container in accordance with local/regional/national/international regulations.

4 First aid measures

· **General information:**

Immediately remove any clothing soiled by the product.
 In case of irregular breathing or respiratory arrest provide artificial respiration.

- **After inhalation:** In case of unconsciousness place patient stably on the body side position.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly for at least 15 minutes.
- **After eye contact:** Rinse opened eye for at least 15 minutes under running water. Then consult a doctor.
- **After swallowing:** Do not induce vomiting; immediately call for medical help.

5 Fire fighting measures

· **Suitable extinguishing agents:**

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

- **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

· **Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.
 Ensure adequate ventilation.
 Stop leak - ONLY if possible to do so without risk.

- **Measures for environmental protection:** Prevent seepage into sewage system, workpits and/or cellars.

· **Measures for cleaning/collecting:**

Dispose contaminated material as waste according to item 13.
 Ensure adequate ventilation.

7 Handling and storage

· **Handling:**

· **Information for safe handling:**

Handle with care. Avoid jolting, friction, and impact.
 Use only in well ventilated areas.

Store container in a secured area. Limit access to authorized personnel only. Report any incidents involving thefts, misuse, or inventory shortages to law enforcement and the supplier. Security shall be provided in accordance with all local, state (provincial) and federal regulations.

· **Information about protection against explosions and fires:**

Keep ignition sources away - Do not smoke.

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Protect from heat.

Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use.

- **Storage:**

- **Requirements to be met by storerooms and receptacles:**

Do not expose cylinder to temperatures higher than 50°C (122 °F)

- **Information about storage in one common storage facility:**

Sources of ignition should be removed from storage area.

- **Further information about storage conditions:**

Keep cylinder valve tightly closed.

Protect from heat and direct sunlight.

Store cylinder in a well ventilated area.

Store in accordance with local fire code and/or building code or any pertaining regulations.

8 Exposure controls and personal protection

- **Additional information about design of technical systems:**

Adequate local ventilation.

Safety showers and eyewash stations should be nearby.

- **Components with limit values that require monitoring at the workplace:**

74-83-9 bromomethane (23 - 100%)

EL 1 ppm

Skin

EV 1 ppm

Skin

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

- **Personal protective equipment:**

- **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.

Protective clothing and PPE should be kept free of oil and grease, generally in clean condition

PPE should be inspected and maintained regularly to retain effectiveness.

- **Breathing equipment:**

Use atmosphere-supplying respirators (e.g. supplied-air: demand, pressure-demand, or continuous-flow or self-contained breathing apparatus: demand or pressure-demand or combination supplied-air with auxiliary self-contained air supply atmosphere-supplying respirator) in case of insufficient ventilation.

- **Protection of hands:**



Protective gloves.

- **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.

- **Eye protection:** Safety glasses

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* **9 Physical and chemical properties**· **General Information**

Form:	Gaseous.
Color:	Colorless
Odor:	Like chlorine

· **Change in condition**

Melting point/Melting range:	-94°C
Boiling point/Boiling range:	4°C

Flash point:	> 100°C
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Ignition temperature:	538°C
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Danger of explosion:	Product does not present an explosion hazard.
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· **Explosion limits:**

Lower:	8.6 Vol %
Upper:	20 Vol %

· **Solubility in / Miscibility with**

Water at 20°C:	17.5 g/l
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10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Dangerous reactions** No dangerous reactions known.
- **Dangerous products of decomposition:** No dangerous decomposition products known.

* **11 Toxicological information**· **Acute toxicity:**· **LD/LC50 values that are relevant for classification:****74-83-9 bromomethane**

Oral	LD50	214 mg/kg (rat)
Inhalative	LC50/4hr	850 ppm (rat)

· **Primary irritant effect:**

- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.

12 Ecological information· **Ecotoxicological effects:**

- **Remark:** Very toxic for fish

· **General notes:**

Do not allow product to reach ground water, water course or sewage system, even in small quantities.
 Danger to drinking water if even extremely small quantities leak into the ground.
 Also poisonous for fish and plankton in water bodies.

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Very toxic for aquatic organisms

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13 Disposal considerations

- **Product:**
- **Recommendation:** Unused product should be returned to vendor.
- **Uncleaned packagings:**
- **Recommendation:**
Cylinder and unused product should be returned to vendor. Disposable cylinder must be disposed of in accordance with local regulations.
- **Recommended cleansing agent:** None applicable.

14 Transport information

· TDG and DOT regulations:



- **Hazard class:** 2
- **Identification number:** UN1062
- **Packing group:** -
- **Proper shipping name (technical name):** METHYL BROMIDE
- **Label:** 2.3
- **Packaging group:** -
- **Special marking:** Symbol (fish and tree)

· Maritime transport IMDG:



- **IMDG Class:** 2.3
- **UN Number:** 1062
- **Label:** 2.3
- **Packaging group:** -
- **EMS Number:** F-C,S-U
- **Marine pollutant:** No
- **Proper shipping name:** METHYL BROMIDE

· Air transport ICAO-TI and IATA-DGR:



- **ICAO/IATA Class:** 2
- **UN/ID Number:** 1062
- **Label:** 2.3
- **Special marking:** Symbol (fish and tree)
- **Packaging group:** -
- **Propper shipping name:** METHYL BROMIDE

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· UN "Model Regulation": UN1062, METHYL BROMIDE, 2.3

15 Regulations

· Sara

· Section 355 (extremely hazardous substances):

Substance is listed.

· Section 313 (Specific toxic chemical listings):

Substance is listed.

· TSCA (Toxic Substances Control Act):

Substance is listed.

· Proposition 65

· Chemicals known to cause cancer:

Substance is not listed.

· Chemicals known to cause reproductive toxicity for females:

Substance is not listed.

· Chemicals known to cause reproductive toxicity for males:

Substance is not listed.

· Chemicals known to cause developmental toxicity:

Substance is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

74-83-9 bromomethane

· IARC (International Agency for Research on Cancer)

Group 2B: The agent (mixture) is possibly carcinogenic to humans. The exposure circumstance entails exposures that are possibly carcinogenic to humans.

· NTP (National Toxicology Program)

Substance is not listed.

· TLV (Threshold Limit Value established by ACGIH)

74-83-9 bromomethane

A4

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

Substance is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

Substance is not listed.

· Canadian substance listings:

· Canadian Domestic Substances List (DSL)

Substance is listed.

· Canadian Ingredient Disclosure list (limit 0.1%)

Substance is not listed.

· Canadian Ingredient Disclosure list (limit 1%)

Substance is not listed.

· Product related hazard informations:

The product was classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

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· **Hazard symbols:**

Muta. Cat. 3
Very toxic
Dangerous for the environment

· **Risk phrases:**

Toxic if swallowed.
Irritating to eyes, respiratory system and skin.
Very toxic: danger of very serious irreversible effects through inhalation.
Harmful: danger of serious damage to health by prolonged exposure through inhalation.
Possible risk of irreversible effects.
Very toxic to aquatic organisms.
Dangerous for the ozone layer.

· **Safety phrases:**

Keep away from heat.
Take off immediately all contaminated clothing.
Wear suitable protective clothing and eye/face protection.
In case of insufficient ventilation, wear suitable respiratory equipment.
In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
Refer to manufacturer/supplier for information on recovery/recycling.

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.

Please refer to the section 3 for NFPA and HMIS Hazard Codes.

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GENERAL DISCLAIMER

For terms and conditions, including limitation of liability, please refer to the purchase agreement in effect between Linde Inc. (or any of its affiliates and subsidiaries) and the purchaser.

· **Department issuing MSDS:** Customer Service Centre: 1-866-385-5349

· **Abbreviations and Acronyms:**

ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstract Service (Division of the American Chemical Society)
DOT: US Department of Transportation
EINECS: European Inventory of Existing Commercial Chemical Substances
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
HMIS: Hazardous Material Identification System
IATA: International Air Transportation Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transportation Association"
ICAO: International Civil Aviation Association
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization (ICAO)"
IMDG: International Marine Code for Dangerous Goods
WHIMS: Workplace Hazardous Material Information System
LC50: Lethal Concentration, 50 Percent
LD50: Lethal Dose, 50 Percent
N/A: Not Applicable