

Material Safety Data Sheet

Printing date 10/28/2011

Version 5

Reviewed on 10/28/2011

1 Identification of substance

· **Product details**

· **Trade name:** Ethyl Chloride

· **Article number:** 089-01-0013

· **Creation date:** 03/29/2007

· **Manufacturer/Supplier:**

Linde Canada Limited

5860 Chedworth Way

Mississauga, Ontario L5R 0A2

Telephone (905) 501-1700

24-HOUR EMERGENCY TELEPHONE NUMBER:
 (905) 501-0802

Linde

575 Mountain Avenue

Murray Hill, NJ 07974

Telephone (908) 464-8100

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**

75-00-3 chloroethane

· **Identification number(s)**

· **EINECS Number:** 200-830-5

· **Index number:** 602-009-00-0

3 Hazards identification

· **Hazard description:**



Carc. Cat. 3
 Toxic
 Extremely flammable

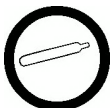
· **WHMIS-symbols:**

A - Compressed gas

B2 - Flammable liquid

D2A - Very toxic material causing other toxic effects

D2B - Toxic material causing other toxic effects



· **HMIS-ratings (scale 0 - 4)**

HEALTH	1
FIRE	4
REACTIVITY	1

Health = *1

Fire = 4

Reactivity = 1

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· NFPA ratings (scale 0 - 4)


Health = 1
Fire = 4
Reactivity = 1

· Information pertaining to particular dangers for man and environment:

May cause cancer.

Heating may cause an explosion.

Extremely flammable.

Irritating to eyes, respiratory system and skin.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

· 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

2.6/1 - Extremely flammable liquid and vapour.


Danger

3.6/1A - May cause cancer.


Warning

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


Warning

3.2/2 - Causes skin irritation.

3.3/2A - Causes serious eye irritation.

3.8/3 - May cause respiratory irritation.

4.1/3 - Harmful to aquatic life.

4.1/3 - Harmful to aquatic life with long lasting effects.

· Prevention:

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

· Response:

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

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

Continue rinsing.

· 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

· **After inhalation:** In case of unconsciousness place patient stably on the body side position.

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- **After skin contact:**
Immediately wash with water thoroughly for at least 15 minutes while removing contaminated clothing and shoes.
Get medical attention immediately
- **After eye contact:** Rinse opened eye for at least 15 minutes under running water. Then consult a doctor.
- **After swallowing:** Drink copious amounts of water and provide fresh air. Immediately call a doctor.

* 5 Fire fighting measures

- **Suitable extinguishing agents:** CO2. Do not use water.
- **For safety reasons unsuitable extinguishing agents:** Water
- **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.
Eliminate ignition sources
Stop leak - ONLY if possible to do so without risk.
- **Measures for environmental protection:**
Do not allow to enter sewers/ surface or ground water.
In case of gas release or seepage into the ground and/or into water course or sewage system inform responsible authorities.
- **Measures for cleaning/collecting:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents

* 7 Handling and storage

- **Handling:** Do not mix with air or oxygen above atmospheric pressure.
- **Information for safe handling:**
Open and handle cylinder with care.
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.
Protect from heat.
Protect against electrostatic charges.
Prevent impact and friction.
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:**
Store in a cool location.
Do not expose cylinder to temperatures higher than 50°C (122 °F)
- **Information about storage in one common storage facility:**
Store away from oxidizing agents.

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Store separately from cylinders containing oxygen or oxidants by a minimum distance of 20' or by a barrier of non-combustible material at least 5' high having a fire resistant rating of at least 30minutes.

Sources of ignition should be removed from storage area.

· **Further information about storage conditions:**

Keep cylinder valve tightly closed.

Store in cool, dry conditions in well sealed receptacles.

Protect from heat and direct sunlight.

8 Exposure controls and personal protection

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

Adequate local ventillation.

Safety showers and eyewash stations should be nearby.

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

75-00-3 chloroethane (23 - 100%)

EL 100 ppm

Skin

EV 100 ppm

· **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.

Store protective clothing separately.

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:**



Tightly sealed goggles

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

Form:	Gaseous.
Color:	Colorless
Odor:	Ether-like

· **Change in condition**

Melting point/Melting range:	-142.5°C
Boiling point/Boiling range:	13°C

Flash point:	< 0°C
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Ignition temperature:	510°C
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Danger of explosion:	Heating may cause an explosion. In use, may form flammable/explosive vapour-air mixture.
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· **Explosion limits:**

Lower:	3.6 Vol %
Upper:	14.8 Vol %

· **Solubility in / Miscibility with**

Water at 20°C:	5.7 g/l Not miscible or difficult to mix.
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* **10 Stability and reactivity**· **Thermal decomposition / conditions to be avoided:**

Thermal decomposition will emit toxic fumes of phosgene and chlorine ions.

· **Thermal decomposition / method:**

Water or steam.

Potassium.

· **Materials to be avoided: -**· **Dangerous reactions**

May form explosive gas mixture with air.

May react with oxidizing agents.

· **Dangerous products of decomposition:** No dangerous decomposition products known.

* **11 Toxicological information**· **Acute toxicity:**· **LD/LC50 values that are relevant for classification:****75-00-3 chloroethane**

Inhalative	LC50/1hr	226 ppm (rat)
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· **Primary irritant effect:**

· **on the skin:** Irritant to skin and mucous membranes.

· **on the eye:** Irritating effect.

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

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* 12 Ecological information

- **Ecotoxical effects:**
- **Remark:** Harmful to fish
- **Additional ecological information:**
- **General notes:**
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
Harmful to aquatic organisms

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:** UN1037
- **Packing group:** -
- **Proper shipping name (technical name):** ETHYL CHLORIDE
- **Label:** 2.1
- **Packaging group:** -

· **Maritime transport IMDG:**

- **IMDG Class:** 2.1
- **UN Number:** 1037
- **Label:** 2.1
- **Packaging group:** -
- **EMS Number:** F-D,S-U
- **Marine pollutant:** No
- **Proper shipping name:** ETHYL CHLORIDE

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· Air transport ICAO-TI and IATA-DGR:



- ICAO/IATA Class: 2
- UN/ID Number: 1037
- Label: 2.1
- Packaging group: -
- Proper shipping name: ETHYL CHLORIDE

· UN "Model Regulation": UN1037, ETHYL CHLORIDE, 2.1

15 Regulations

· Sara

· Section 355 (extremely hazardous substances):

Substance is not 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 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 not listed.

· Carcinogenicity categories

· EPA (Environmental Protection Agency)

Substance is not listed.

· 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)

75-00-3 chloroethane

A3

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

Substance is not listed.

· OSHA-Ca (Occupational Safety & Health Administration)

Substance is not listed.

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· **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 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.

· **Hazard symbols:**

Carc. Cat. 3

Toxic

Extremely flammable

· **Risk phrases:**

May cause cancer.

Heating may cause an explosion.

Extremely flammable.

Irritating to eyes, respiratory system and skin.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

· **Safety phrases:**

Keep container in a well-ventilated place.

Keep away from sources of ignition - No smoking.

After contact with skin, wash immediately with plenty of soap and water.

Take precautionary measures against static discharges.

Wear suitable protective clothing and gloves.

In case of fire, use carbon dioxide. Never use water.

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

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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

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