

Material Safety Data Sheet

Printing date 11/04/2011

Version 9

Reviewed on 11/04/2011

1 Identification of substance

· **Product details**

· **Trade name:** Trimethylamine

· **Article number:** 093-01-0016

· **Creation date:** 04/11/2007

· **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**

75-50-3 methylamine (tri-)

· **Identification number(s)**

· **EINECS Number:** 200-875-0

· **Index number:** 612-001-00-9

3 Hazards identification

· **Hazard description:**

D2B - Toxic material causing other toxic effects



Harmful
Extremely flammable

· **WHMIS-symbols:**

A - Compressed gas

B2 - Flammable liquid

D2B - Toxic material causing other toxic effects



· **HMIS-ratings (scale 0 - 4)**

HEALTH	2
FIRE	4
REACTIVITY	0

Health = 2

Fire = 4

Reactivity = 0

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· NFPA ratings (scale 0 - 4)


Health = 2
Fire = 4
Reactivity = 0

· Information pertaining to particular dangers for man and environment:

Extremely flammable.
Harmful by inhalation.
Irritating to respiratory system and skin.
Risk of serious damage to eyes.

· 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

3.2/1C - Causes severe skin burns and eye damage.


Warning

3.1/4 - Harmful if inhaled.
3.8/3 - May cause respiratory irritation.

· 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.
Immediately call a POISON CENTER or doctor/physician.

· Storage:

Store locked up.

· Disposal:

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

4 First aid measures

· General information:

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

· After inhalation:

Supply fresh air. If required, provide artificial respiration and consult doctor. Keep patient warm. Consult doctor if symptoms persist.

In case of unconsciousness place patient stably on the body side position.

· After skin contact: Remove contaminated clothing. Rinse skin with 1-2% acetic acid solution and plenty of water.

· After eye contact:

Rinse thoroughly with water or saline, holding eyelids wide open. Continue for 30-60minutes. Contact lenses must be removed before rinsing. Seek evaluation by ophthalmologist.

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- **After swallowing:** Drink large quantities of 1-2% citric acid solution or lemonade.

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.
Eliminate ignition sources
Stop leak - ONLY if possible to do so without risk.
- **Measures for environmental protection:**
Inform respective authorities in case of seepage into water course or sewage system.
In case of gas release or seepage into the ground inform responsible authorities.
Do not allow to enter sewers/ surface or ground water.
- **Measures for cleaning/collecting:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.

* 7 Handling and storage

- **Handling:** Do not mix with air or oxygen above atmospheric pressure.
- **Information for safe handling:**
Ensure good ventilation/exhaustion at the workplace.
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 against electrostatic charges.
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:**
Do not store together with oxidizing and acidic materials.
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.

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Protect from heat and direct sunlight.

* **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:****75-50-3 methylamine (tri-) (23 - 100%)**

EL Short-term value: 15 ppm

Long-term value: 5 ppm

EV Short-term value: 15 ppm

Long-term value: 5 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.

Avoid contact with the skin.

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:** Splash resistant safety goggles and face shield.* **9 Physical and chemical properties**· **General Information**

Form:	Liquid
Color:	Colorless
Odor:	Ammonia-like

· **Change in condition****Melting point/Melting range:** -117°C**Boiling point/Boiling range:** 2°C· **Flash point:** < 0°C· **Ignition temperature:** 190°C

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· **Danger of explosion:** In use, may form flammable/explosive vapour-air mixture.

· **Explosion limits:**

Lower: 2 Vol %

Upper: 11.6 Vol %

· **Solubility in / Miscibility with**

Water: Fully miscible.

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Materials to be avoided:**
- **Dangerous reactions**
 - May form explosive gas mixture with air.
 - May react with oxidizing agents.
 - Self-reactive.
 - May cause an explosive reaction with bromine + heat, ethylene oxide, triethynylaluminum.
- **Dangerous products of decomposition:** Thermal decomposition emits toxic fumes of NO_x.

11 Toxicological information

· **Acute toxicity:**

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

75-50-3 methylamine (tri-)

Oral	LD50	500 mg/kg (rat)
Inhalative	LC50/4hr	7000 ppm (mouse)

· **Primary irritant effect:**

- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Strong irritant with the danger of severe eye injury.
- **Sensitization:** No sensitizing effects known.

12 Ecological information

· **Additional ecological information:**

· **General notes:**

Generally not hazardous for water

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.

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.

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· Recommended cleansing agent: None applicable.

* 14 Transport information

· TDG and DOT regulations:



· Hazard class: 3
 · Identification number: UN1083
 · Packing group: I
 · Proper shipping name (technical name): TRIMETHYLAMINE, ANHYDROUS
 · Label: 2.1
 · Packaging group: I

· Maritime transport IMDG:



· IMDG Class: 3
 · UN Number: 1083
 · Label: 2.1
 · Packaging group: I
 · EMS Number: F-E,S-C
 · Marine pollutant: No
 · Proper shipping name: TRIMETHYLAMINE, ANHYDROUS

· Air transport ICAO-TI and IATA-DGR:



· ICAO/IATA Class: 3
 · UN/ID Number: 1083
 · Label: 2.1
 · Packaging group: I
 · Proper shipping name: TRIMETHYLAMINE, ANHYDROUS

· UN "Model Regulation": UN1083, TRIMETHYLAMINE, ANHYDROUS, 3 (8), I

* 15 Regulations

· Sara

· Section 355 (extremely hazardous substances):

Substance is not listed.

· Section 313 (Specific toxic chemical listings):

Substance is not listed.

· TSCA (Toxic Substances Control Act):

Substance is listed.

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· **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 not listed.

· **Carcinogenicity categories**· **EPA (Environmental Protection Agency)**

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

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

Substance is not 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 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:**

Harmful

Extremely flammable

· **Risk phrases:**

Extremely flammable.

Harmful by inhalation.

Irritating to respiratory system and skin.

Risk of serious damage to eyes.

· **Safety phrases:**

Keep away from oxidising agents and acidic substances.

Keep away from sources of ignition - No smoking.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Wear eye/face protection.

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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

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