

Safety data sheet Ethylene Oxide

Creation date : 28.01.2005
Revision date : 05.01.2011

Version : 2.0

DE / E

SDS No. : 056
page 1 / 3

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

Product name

Ethylene Oxide
EC No (from EINECS): 200-849-9
CAS No: 75-21-8
Index-Nr. 603-023-00-X

Chemical formula C₂H₄O

REACH Registration number:

Not available.

Known uses

Not known.

Company identification

Linde AG, Linde Gas Division, Seitnerstraße 70, D-82049 Pullach

E-Mail Address Info@de.linde-gas.com

Emergency phone numbers (24h): 089-7446-0

2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

Classification acc. to Regulation (EC) No 1272/2008/EC (CLP/GHS)

Press. Gas (Liquefied gas) - Contains gas under pressure; may explode if heated.

Flam. Gas 1 - Extremely flammable gas.

Carc. 1B - May cause cancer.

Muta. 1B - May cause genetic defects.

Acute Tox. 3 - Toxic if inhaled.

Eye Irrit. 2 - Causes serious eye irritation.

STOT SE 3 - May cause respiratory irritation.

Skin Irrit. 2 - Causes skin irritation.

- Explosive with or without contact with air.

Classification acc. to Directive 67/548/EEC & 1999/45/EC

Carc. Cat.2; R45 | Mut. Cat.2; R46 | T; R23 | Xi; R36/37/38 | F+; R12 | R6

May cause cancer.

May cause heritable genetic damage

Explosive with or without contact with air.

Extremely flammable.

Toxic by inhalation.

Irritating to eyes, respiratory system and skin.

Risk advice to man and the environment

Liquefied gas.

Contact with liquid may cause cold burns/frost bite.

Label Elements

- Labelling Pictograms



- Signal word

Danger

- Hazard Statements

H280	Contains gas under pressure; may explode if heated.
H220	Extremely flammable gas.
H350	May cause cancer.
H340	May cause genetic defects.

H331	Toxic if inhaled.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H315	Causes skin irritation.
EUH006	Explosive with or without contact with air.

- Precautionary Statements

Precautionary Statement Prevention

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260	Do not breathe gas, vapours.
P202	Do not handle until all safety precautions have been read and understood.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statement Reaction

P304+P340+P315	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice/attention.
P305+P351+P338+P315	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381	Eliminate all ignition sources if safe to do so.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P332 + P313	If skin irritation occurs: Get medical advice/attention.

Precautionary Statement Storage

P403	Store in a well-ventilated place.
P405	Store locked up.

Precautionary Statement Disposal

None.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Preparation: Substance.

Components/Impurities

Ethylene Oxide

CAS No: 75-21-8

Index-Nr.: 603-023-00-X

EC No (from EINECS): 200-849-9

REACH Registration number:

Not available.

Contains no other components or impurities which will influence the classification of the product.

4 FIRST AID MEASURES

Inhalation

Toxic by inhalation. In low concentrations may cause narcotic effects. Symptoms may include dizziness, headache, nausea and loss of co-ordination. Remove victim to uncontaminated area

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page 2 / 3

wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

Skin/eye contact

May cause chemical burns to skin and cornea (with temporary disturbance to vision) Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Immediately flush eyes thoroughly with water for at least 15 minutes. Obtain medical assistance.

Ingestion

Ingestion is not considered a potential route of exposure.

5 FIRE FIGHTING MEASURES**Specific hazards**

Exposure to fire may cause containers to rupture/explode.

Hazardous combustion products

Incomplete combustion may form carbon monoxide.

Suitable extinguishing media

All known extinguishants can be used.

Specific methods

If possible, stop flow of product. Continue water spray from protected position until container stays cool. Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire. Move container away or cool with water from a protected position.

Special protective equipment for fire fighters

Use self-contained breathing apparatus and chemically protective clothing.

6 ACCIDENTAL RELEASE MEASURES**Personal precautions**

Evacuate area. Eliminate ignition sources. Ensure adequate air ventilation. Use self-contained breathing apparatus and chemically protective clothing.

Environmental precautions

Try to stop release. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

Clean up methods

Ventilate area. Keep area evacuated and free from ignition sources until any spilled liquid has evaporated. (Ground free from frost).

7 HANDLING AND STORAGE**Handling**

Ensure equipment is adequately earthed. Suck back of water into the container must be prevented. Purge air from system before introducing gas. Do not allow backfeed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Keep away from ignition sources (including static discharges). Refer to supplier's handling instructions.

Storage

Secure cylinders to prevent them falling. Segregate from oxidant gases and other oxidants in store. Keep container below 50°C in a well ventilated place. Observe "Technische Regeln Druckgase (TRG) 280 Ziffer 5"

8 EXPOSURE CONTROLS/PERSONAL PROTECTION**Exposure limit value**

Value type	value	Note
TLV (ACGIH)	1 ppm	ACGIH 1995 - 1996
Germany - TRK	1 ppm	TRGS 900

Personal protection

Ensure adequate ventilation. Protect eyes, face and skin from liquid splashes. Do not smoke while handling product. Keep self contained breathing apparatus readily available for emergency use. Carry working gloves and protection shoes while handling gas cylinders.

9 PHYSICAL AND CHEMICAL PROPERTIES**General information**

Appearance/Colour: Colourless gas.

Odour: Ethereal Poor warning properties at low concentrations.

Important information on environment, health and safety

Molecular weight: 44 g/mol

Melting point: -112 °C

Boiling point: 10,4 °C

Critical temperature: 196 °C

Autoignition temperature: 440 °C

Flammability range: 3 %(V) - 100 %(V)

Relative density, gas: 1,5

Relative density, liquid: 0,89

Vapour Pressure 20 °C: 1,4 bar

Solubility mg/l water: No reliable data available.

Other data

Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

10 STABILITY AND REACTIVITY**Stability and reactivity**

May decompose violently at high temperature and/or pressure or in the presence of a catalyst May react violently with oxidants. Can form explosive mixture with air. May polymerise. Inhibitor usually added.

11 TOXICOLOGICAL INFORMATION**Acute toxicity**

May cause irritation to the respiratory tract.

LC50/1h (ppm) 2900 ppm

Carcinogenic, mutagenic and teratogenic effects

May cause cancer.

May cause heritable genetic damage

12 ECOLOGICAL INFORMATION**General**

No known ecological damage caused by this product.

13 DISPOSAL CONSIDERATIONS**General**

Avoid discharge to atmosphere. Do not discharge into any place where its accumulation could be dangerous. Toxic and corrosive gases formed during combustion should be scrubbed before discharge to atmosphere. Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor. Contact supplier if guidance is required.

EWC Nr. 16 05 04*

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SDS No. : 056
page 3 / 3

14 TRANSPORT INFORMATION

ADR/RID

Class 2 Classification Code 2TF

UN number and proper shipping name

UN 1040 Ethylene Oxide

UN 1040 Ethylene Oxide

Labels 2.3, Hazard number 263
2.1

Packing Instruction P200

IMDG

Class 2.3

UN number and proper shipping name

UN 1040 Ethylene Oxide

Labels 2.3,
2.1

Packing Instruction P200

EmS FD,SU

IATA

Class 2.3

UN number and proper shipping name

UN 1040 Ethylene Oxide

Labels 2.3,
2.1

Packing Instruction P200

Other transport information

Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers ensure that they are firmly secured. Ensure that the cylinder valve is closed and not leaking. Ensure that the valve outlet cap nut or plug (where provided) is correctly fitted. Ensure that the valve protection device (where provided) is correctly fitted. Ensure adequate ventilation. Ensure compliance with applicable regulations.

15 REGULATORY INFORMATION

Further national regulations

Pressure Vessel Regulation

Gefahrstoffverordnung (GefStoffV)

Technische Regeln für Gefahrstoffe (TRGS)

Regulations for the prevention of industrial accidents

Water pollution class

according to §19 WGH Annex 1 : WGK 2 (water endangering)

16 OTHER INFORMATION

Ensure all national/local regulations are observed. Ensure operators understand the flammability hazard. Ensure operators understand the toxicity hazard. Users of breathing apparatus must be trained. Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

Advice

Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted. Details given in this document are believed to be correct at the time of going to press.

Further information

Hommel: Handbook of dangerous goods

Kühn-Birett: Merkblätter gefährliche Arbeitsstoffe

Linde safety advice

End of document