

ETHYLENE OXIDE

0155
October 2001

CAS No: 75-21-8
RTECS No: KX2450000
UN No: 1040
EC No: 603-023-00-X

1,2-Epoxyethane
Oxirane
Dimethylene oxide
(cylinder)
C₂H₄O
Molecular mass: 44.1

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/SYMPTOMS	PREVENTION	FIRST AID/FIRE FIGHTING
FIRE	Extremely flammable.	NO open flames, NO sparks, and NO smoking.	Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out; in other cases extinguish with powder, alcohol-resistant foam, water spray, carbon dioxide.
EXPLOSION	Gas/air mixtures are explosive. Risk of fire and explosion as a result of violent decomposition when heated.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Use non-sparking handtools.	In case of fire: keep cylinder cool by spraying with water. Combat fire from a sheltered position.

EXPOSURE		STRICT HYGIENE! AVOID ALL CONTACT!	IN ALL CASES CONSULT A DOCTOR!
Inhalation	Cough. Drowsiness. Headache. Nausea. Sore throat. Vomiting. Weakness.	Closed system and ventilation.	Fresh air, rest. Refer for medical attention.
Skin	ON CONTACT WITH LIQUID: FROSTBITE. Dry skin. Redness. Pain.	Protective gloves. Cold-insulating gloves. Protective clothing.	Remove contaminated clothes. ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Rinse skin with plenty of water or shower. Refer for medical attention.
Eyes	Redness. Pain. Blurred vision.	Eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
Ingestion		Do not eat, drink, or smoke during work. Wash hands before eating.	

SPILLAGE DISPOSAL	PACKAGING & LABELLING
Evacuate danger area! Consult an expert! Ventilation. NEVER direct water jet on liquid. Remove gas with fine water spray. Do NOT wash away into sewer. Gas-tight chemical protection suit including self-contained breathing apparatus.	F+ Symbol T Symbol R: 45-46-12-23-36/37/38 S: 53-45 Note: E UN Hazard Class: 2.3 UN Subsidiary Risks: 2.1

EMERGENCY RESPONSE	SAFE STORAGE
Transport Emergency Card: TEC (R)-20S1040 or 20GTF NFPA Code: H2; F4; R3	Fireproof. Cool.

IMPORTANT DATA

Physical State; Appearance

COLOURLESS COMPRESSED LIQUEFIED GAS, WITH CHARACTERISTIC ODOUR.

Physical dangers

The gas is heavier than air and may travel along the ground; distant ignition possible.

Chemical dangers

The substance may polymerize due to heating, under the influence of acid(s), base(s), metal chlorides and metal oxides with fire or explosion hazard. The substance decomposes in the absence of air on heating above 560/C, causing fire and explosion hazard. Reacts violently with many compounds.

Occupational exposure limits

TLV: 1 ppm as TWA; A2 (suspected human carcinogen); (ACGIH 2004).

MAK: skin absorption (H); Carcinogen category: 2; Germ cell mutagen group: 2; (DFG 2004).

Routes of exposure

The substance can be absorbed into the body by inhalation and through the skin in water solution.

Inhalation risk

A harmful concentration of this gas in the air will be reached very quickly on loss of containment.

Effects of short-term exposure

The vapour is irritating to the eyes, the skin and the respiratory tract. Water solution may cause skin blisters. Rapid evaporation of the liquid may cause frostbite.

Effects of long-term or repeated exposure

Repeated or prolonged contact may cause skin sensitization. Repeated or prolonged inhalation exposure may cause asthma. The substance may have effects on the nervous system. This substance is carcinogenic to humans. May cause heritable genetic damage to human germ cells.

PHYSICAL PROPERTIES

Boiling point: 11/C

Melting point: -111/C

Relative density (water = 1): 0.9

Solubility in water: miscible

Vapour pressure, kPa at 20/C: 146

Relative vapour density (air = 1): 1.5

Flash point: Flammable Gas

Auto-ignition temperature: 429/C

Explosive limits, vol% in air: 3-100

Octanol/water partition coefficient as log Pow: -0.3

ENVIRONMENTAL DATA

The substance is harmful to aquatic organisms.

NOTES

Turn leaking cylinder with the leak up to prevent escape of gas in liquid state.

Anyone who has shown symptoms of asthma due to this substance should avoid all further contact with this substance.

The symptoms of asthma often do not become manifest until a few hours have passed and they are aggravated by physical effort.

Rest and medical observation are therefore essential.

The odour warning when the exposure limit value is exceeded is insufficient.

Card has been partly updated in April 2005. See sections Occupational Exposure Limits, Emergency Response.

ADDITIONAL INFORMATION

LEGAL NOTICE

Neither the EC nor the IPCS nor any person acting on behalf of the EC or the IPCS is responsible