

TETRAHYDROFURAN

0578

October 1997

CAS No: 109-99-9
RTECS No: LU5950000
UN No: 2056
EC No: 603-025-00-0

Tetramethylene oxide
 Diethylene oxide
 1,4-Epoxybutane
 Oxacyclopentane
 $C_4H_8O / (CH_2)_3CH_2O$
 Molecular mass: 72.1

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/SYMPTOMS	PREVENTION	FIRST AID/FIRE FIGHTING
FIRE	Highly flammable.	NO open flames, NO sparks, and NO smoking.	Powder, alcohol-resistant foam, water in large amounts, carbon dioxide.
EXPLOSION	Vapour/air mixtures are explosive.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling.	In case of fire: keep drums, etc., cool by spraying with water.

EXPOSURE		PREVENT GENERATION OF MISTS!	
Inhalation	Cough. Dizziness. Headache. Nausea. Sore throat. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
Skin	Dry skin. Redness. Pain.	Protective gloves.	Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention.
Eyes	Redness. Pain.	Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
Ingestion	(See Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Refer for medical attention.

SPILLAGE DISPOSAL	PACKAGING & LABELLING
Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Personal protection: filter respirator for organic gases and vapours.	F Symbol Xi Symbol R: 11-19-36/37 S: (2-)16-29-33 UN Hazard Class: 3 UN Pack Group: II Airtight.

EMERGENCY RESPONSE	SAFE STORAGE
Transport Emergency Card: TEC (R)-30S2056 or 30GF1-I+II NFPA Code: H2; F3; R1	Fireproof. See Chemical Dangers. Store only if stabilized.

IMPORTANT DATA

Physical State; Appearance

COLOURLESS LIQUID, WITH CHARACTERISTIC ODOUR.

Physical dangers

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

Chemical dangers

The substance can form explosive peroxides. Reacts violently with strong oxidants, strong bases and some metal halides, causing fire and explosion hazard. Attacks some forms of plastic rubber and coatings.

Occupational exposure limits

TLV: 50 ppm as TWA, 100 ppm as STEL; (skin); A3 (confirmed animal carcinogen with unknown relevance to humans); (ACGIH 2005).

MAK: 50 ppm, 150 mg/m³; Peak limitation category: I(2); skin absorption (H); Carcinogen category: 4; Pregnancy risk group: C; (DFG 2005).

Routes of exposure

The substance can be absorbed into the body by inhalation of its vapour and by ingestion.

Inhalation risk

A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20/C.

Effects of short-term exposure

The substance or the vapour is irritating to the eyes, the skin and the respiratory tract. The substance may cause effects on the central nervous system at high level, resulting in narcosis.

Effects of long-term or repeated exposure

Repeated or prolonged contact with skin may cause dermatitis.

PHYSICAL PROPERTIES

Boiling point: 66/C

Melting point: -108.5/C

Relative density (water = 1): 0.89

Solubility in water: miscible

Vapour pressure, kPa at 20/C: 19.3

Relative vapour density (air = 1): 2.5

Relative density of the vapour/air-mixture at 20/C (air = 1): 1.28

Flash point: -14.5/C c.c.

Auto-ignition temperature: 321/C

Explosive limits, vol% in air: 2-11.8

ENVIRONMENTAL DATA

NOTES

p-Cresol or hydroquinone are commonly used stabilizers.

Use of alcoholic beverages enhances the harmful effect.

An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert.

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

Check for peroxides prior to distillation; eliminate if found.

Card has been partly updated in October 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 for the use which might be made of this information