

TRIETHYLENETETRAMINE

1123
October 1999

CAS No: 112-24-3
RTECS No: YE6650000
UN No: 2259
EC No: 612-059-00-5

N,N'-Bis(2-aminoethyl)ethylenediamine
3,6-Diazaoctane-1,8-diamine
1,4,7,10-Tetraazadecane
Trientine
 $C_6H_{18}N_4 / (NH_2CH_2CH_2NHCH_2)_2$
Molecular mass: 146.3

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/SYMPTOMS	PREVENTION	FIRST AID/FIRE FIGHTING
FIRE	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames. NO contact with oxidants.	Powder, alcohol-resistant foam, water spray, carbon dioxide.
EXPLOSION	Risk of fire and explosion on contact with oxidants.		In case of fire: keep cylinder cool by spraying with water.

EXPOSURE		PREVENT GENERATION OF MISTS! AVOID ALL CONTACT!	IN ALL CASES CONSULT A DOCTOR!
Inhalation	Burning sensation. Cough. Laboured breathing. Shortness of breath. Sore throat. Symptoms may be delayed (see Notes).	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer for medical attention.
Skin	Redness. Skin burns. Pain. Blisters.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.
Eyes	Redness. Pain. Loss of vision. Severe deep burns.	Face shield or 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	Abdominal pain. Burning sensation. Shock or collapse.	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention. See Notes.

SPILLAGE DISPOSAL	PACKAGING & LABELLING
Collect leaking and spilled liquid in sealable containers as far as possible. Wash away remainder with plenty of water. Chemical protection suit including self-contained breathing apparatus.	C Symbol R: 21-34-43-52/53 S: (1/2-)26-36/37/39-45-61 UN Hazard Class: 8 UN Pack Group: II Do not transport with food and feedstuffs.

EMERGENCY RESPONSE	SAFE STORAGE
Transport Emergency Card: TEC (R)-80S2259 or 80GC7-II+III NFPA Code: H3; F1; R0	Separated from food and feedstuffs. See Chemical Dangers. Cool. Well closed. Keep in a well-ventilated room.

IMPORTANT DATA

Physical State; Appearance

COLOURLESS TO YELLOW VISCOUS LIQUID, WITH CHARACTERISTIC ODOUR.

Chemical dangers

The substance decomposes on burning producing toxic fumes including nitrogen oxides. The substance is a strong base, it reacts violently with acid and is corrosive. Reacts violently with strong oxidants. Reacts with ketones, halogenated hydrocarbons, cyanides, nitriles and epoxides. Attacks metals such as aluminium, zinc, copper and its alloys.

Occupational exposure limits

TLV not established.

MAK: sensitization of skin (Sh); (DFG 2004).

Routes of exposure

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

Inhalation risk

No indication can be given about the rate in which a harmful concentration in the air is reached on evaporation of this substance at 20/C.

Effects of short-term exposure

The substance is corrosive to the eyes, the skin and the respiratory tract. Corrosive on ingestion. Inhalation of vapour may cause lung oedema (see Notes). The effects may be delayed. Medical observation is indicated.

Effects of long-term or repeated exposure

Repeated or prolonged contact may cause skin sensitization. Repeated or prolonged inhalation exposure may cause asthma. (See Notes).

PHYSICAL PROPERTIES

Boiling point: 266-267/C

Melting point: 12/C

Relative density (water = 1): 0.98

Solubility in water: very good

Vapour pressure, Pa at 20/C: <1.3

Relative vapour density (air = 1): 5.04

Flash point: 135/C c.c.

Auto-ignition temperature: 338/C

Explosive limits, vol% in air: 1.1 - >6.4

Octanol/water partition coefficient as log Pow: -1.4 - -1.66

ENVIRONMENTAL DATA

NOTES

Depending on the degree of exposure, periodic medical examination is suggested.

The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation is therefore essential.

Immediate administration of an appropriate inhalation therapy by a doctor or a person authorized by him/her, should be considered.

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.

Anyone who has shown symptoms of asthma due to this substance should never again come into contact with this substance.

Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available.

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