

HEXAMETHYLENETETRAMINE

1228

March 2002

CAS No: 100-97-0
 RTECS No: MN4725000
 UN No: 1328
 EC No: 612-101-00-2

1,3,5,7-Tetraazaadamantane
 Methenamine
 Hexamine
 1,3,5,7-Tetraazatricyclo(3.3.1.1(3,7))decane
 $C_6H_{12}N_4$
 Molecular mass: 140.2

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.	Foam, water spray, powder.
EXPLOSION	Finely dispersed particles form explosive mixtures in air.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	

EXPOSURE		PREVENT DISPERSION OF DUST!	
Inhalation	Cough.	Local exhaust or breathing protection.	Fresh air, rest. Refer for medical attention.
Skin	Redness. Pain.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.
Eyes	Redness. Pain.	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. Nausea. Vomiting.	Do not eat, drink, or smoke during work.	Rinse mouth. Give a slurry of activated charcoal in water to drink. Refer for medical attention.

SPILLAGE DISPOSAL	PACKAGING & LABELLING
Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Wash away remainder with plenty of water. Personal protection: A/P2 filter respirator for organic vapour and harmful dust.	F Symbol Xn Symbol R: 11-42/43 S: (2-)16-22-24-37 UN Hazard Class: 4.1 UN Pack Group: III

EMERGENCY RESPONSE	SAFE STORAGE
Transport Emergency Card: TEC (R)-41S1328	Separated from strong acids and strong oxidants. Dry.

IMPORTANT DATA

Physical State; Appearance

HYGROSCOPIC, COLOURLESS CRYSTALS OR WHITE CRYSTALLINE POWDER

Physical dangers

Dust explosion possible if in powder or granular form, mixed with air.

Chemical dangers

The substance decomposes on heating or on burning producing toxic and corrosive gases including formaldehyde, ammonia, hydrogen cyanide and nitrogen oxides. The solution in water is a weak base. Reacts with strong oxidants and strong acids producing toxic and corrosive gases. Attacks aluminium and zinc.

Occupational exposure limits

TLV not established.

MAK: IIb (not established but data is available); sensitization of skin (Sh); (DFG 2004).

Routes of exposure

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

Inhalation risk

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

Effects of short-term exposure

The substance is mildly irritating to the eyes and the skin.

Effects of long-term or repeated exposure

Repeated or prolonged contact may cause skin sensitization. Repeated or prolonged inhalation exposure may cause asthma.

PHYSICAL PROPERTIES

Sublimation point: about 260°C
Density: 1.33 g/cm³
Solubility in water: good
Relative vapour density (air = 1): 4.9

Flash point: 250°C c.c.
Auto-ignition temperature: 390°C
Octanol/water partition coefficient as log Pow: -2.84

ENVIRONMENTAL DATA

NOTES

The substance may release formaldehyde.
See ICSC 0695 Formaldehyde.

Anyone who has shown symptoms of asthma due to this substance should avoid all further contact. 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.
Card has been partly updated in April 2005. See section Occupational Exposure Limits.

ADDITIONAL INFORMATION

LEGAL NOTICE

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