Right to Know Hazardous Substance Fact Sheet

Emergency Responders Quick Reference

Common Name: **HEXAMETHYLENE DIISOCYANATE**

Synonyms: HDI; 1,6-Diisocyanatohexane
CAS No: 822-06-0
Molecular Formula: $C_8H_{12}N_2O_2$
RTK Substance No: 0995
Description: Clear, colorless to yellow liquid with a sharp, irritating odor

HAZARD DATA

Hazard Rating	Firefighting	Reactivity
2 - Health **1 - Fire** **1 - Reactivity** **DOT#:** UN 2281 **ERG Guide #:** 156 **Hazard Class:** 6.1 (Poison)	**Hexamethylene Diisocyanate** is a COMBUSTIBLE LIQUID. Use dry chemical, CO_2, water spray or foam as extinguishing agents. POISONOUS GASES ARE PRODUCED IN FIRE, including *Nitrogen Oxides* and *Hydrogen Cyanide*. Use water spray to keep fire-exposed containers cool. Hazardous polymerization (self reaction) occurs at temperatures above 392°F (200°C).	**Hexamethylene Diisocyanate** may react violently with ALCOHOLS; AMINES; STRONG BASES (such as SODIUM HYDROXIDE and POTASSIUM HYDROXIDE); ORGANOTIN; OXIDIZING AGENTS (such as PERCHLORATES, PEROXIDES, PERMANGANATES, CHLORATES, NITRATES, CHLORINE, BROMINE and FLUORINE); STRONG ACIDS (such as HYDROCHLORIC, SULFURIC and NITRIC); and CARBOXYLIC ACIDS. **Hexamethylene Diisocyanate** reacts with WATER to form *Carbon Dioxide* and decomposes in WATER to form *Amine* and *Polyureas*.

SPILL/LEAKS

Isolation Distance:

Small Spill: 60 meters (200 feet)

Large Spill: 270 meters (900 feet)

Fire: 800 meters (1/2 mile)

Absorb liquids in vermiculite, dry sand, earth, or a similar material and deposit in sealed containers.

Rapidly degrades in water.

PHYSICAL PROPERTIES

Odor Threshold:	0.001 ppm
Flash Point:	284°F (140°C)
LEL:	0.9%
UEL:	9.5%
Auto Ignition:	849°F (454°C)
Vapor Density:	5.81 (air = 1)
Vapor Pressure:	0.05 mm Hg at 77°F (25°C)
Specific Gravity:	1.04 (water = 1)
Water Solubility:	Reacts/Decomposes
Boiling Point:	415°F (213°C)
Molecular Weight:	168.2

EXPOSURE LIMITS

NIOSH: 0.005 ppm, 10-hr TWA; 0.02 ppm, 10-min Ceiling

ACGIH: 0.005 ppm, 8-hr TWA

IDLH: None

The Protective Action Criteria values are:

PAC-1 = 0.015 ppm PAC-2 = 0.2 ppm PAC-3 = 3.5 ppm

PROTECTIVE EQUIPMENT

Gloves: Butyl, Viton/Butyl and Silver Shield®/4H® (>8-hr breakthrough)

Coveralls: Tychem® fabrics and Zytron® 400 (>8-hr breakthrough)

Respirator: SCBA

HEALTH EFFECTS

Eyes: Severe irritation

Skin: Severe irritation and burns, redness, eczema-like rash

Inhalation: Nose, throat and lung irritation with coughing and shortness of breath

Headache, dizziness, nausea and vomiting

FIRST AID AND DECONTAMINATION

Remove the person from exposure.

Flush eyes with large amounts of water for at least 15 minutes. Remove contact lenses if worn. Seek medical attention immediately.

Quickly remove contaminated clothing. Immediately wash contaminated skin with large amounts of soap and water.

Begin artificial respiration if breathing has stopped and CPR if necessary.

Transfer to a medical facility.

Medical observation is recommended as symptoms may be delayed.