



## MATERIAL SAFETY DATA SHEETS

389

Methyl isocyanate

### 1. CHEMICAL IDENTITY

**Chemical Name :** Methyl isocyanate

**Chemical Classification:** Toxic, Flammable      **Trade Name :**

**Synonyms:** Isocyanatomethane, Isocyanic acid, methyl ester, Methyl ester of isocyanic acid, MIC

**Formula :** C<sub>2</sub>H<sub>3</sub>NO

**CAS No:** 624-83-9

**UN No:** 2480

### Regulated Identification

**Shipping Name :** Methyl isocyanate

**Hazchem Code :** 3WE

**Codes / Label :** Class 6.1, Toxic, Flammable

**Hazardous Waste ID No :** 15

HAZARDOUS INGREDIENTS	C.A.S. No.	HAZARDOUS INGREDIENTS	C.A.S. No.
1 Methyl isocyanate	624-83-9	3	
2		4	

### 2. PHYSICAL / CHEMICAL DATA

**Boiling Pt. °C:** 39.5

**Physical State:** Liquid

**Appearance:** Colourless

**Melting Pt °C:** 45

**Vapour Pressure @ 35°C mmHg:** 348 mm Hg at 20 deg C

**Odour:** Sharp, unpleasant odour

**Vapour Density(Air =1):** 1.42

**Solubility in water at 30°C g/100ml:** 10 g/100 ml at 15 deg C

**Others:**

**Specific Gravity (Water =1 ):** 0.9230 g/cu cm at 27 deg C

**pH :**

### 3. FIRE / EXPLOSION HAZARD DATA

**Flammability :** Yes

**LEL:** 5.3

**Flash Point °C in OC:** <-15

**TDG Flammability:** 3

**UEL:** 26

**Flash Point °C in CC:**

**Autoignition Temperature °C :** 534

**Explosion sensitivity to impact:** Stable

**Explosion sensitivity to static Electricity:** Stable

**Hazardous Combustion Products :** Emits toxic fumes of NO<sub>x</sub>.

**Hazardous Polymerization :** Will not occur normally

**Combustible Liquid:** Yes

**Explosive Material:** No

**Corrosive Material** No

**Flammable Material:** Yes

**Oxidiser :** No

**Others:**

**Pyrophoric Material:** No

**Organic Peroxide :** No

### 4. REACTIVITY DATA

**Chemical Stability :** Stable

**Incompatibility with other material :** Water, acid, alkali, amine, iron, tin, copper and their salts, other catalysts.

**Reactivity :** Exothermic reaction with water. Reacts with oxidisers.

**Hazardous :**

**Reaction Products**

## 5. HEALTH HAZARD DATA

**Routes of entry:** Inhalation, Ingestion, Skin & Eyes.

### Effects of Exposure / Symptoms:

Inhalation & ingestion: Exposure to high concentrations of vapour can cause blindness, lung damage including edema, permanent fibrosis emphysema and bronchitis, gynaecological effects, respiratory paralysis. Eyes : Causes blindness. Skin: Severe irritation leading to dermatitis.

### Emergency Treatment :

**Inhalation:** Move victim to fresh air. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method

**Skin:** Remove and isolate contaminated clothing and shoes. Immediately flush with running water for at least 20 minutes. For minor skin contact, avoid spreading material on unaffected skin.

**Eyes:** Immediately flush with running water for at least 20 minutes.

**Ingestion:** Administer charcoal as a slurry (240 ml water/30 g charcoal). Usual dose: 25 to 100 g in adults/adolescents.

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<b>LD50 (oral-rat) mg/kg:</b>	69 mg/kg	<b>STEL:</b>	
<b>LC50 (rat) mg/kg:</b>	0.012 mg/liter/4 hours	<b>Odour Threshold:</b>	
<b>Permissible Exposure Limit:</b>	0.02 ppm (0.05 mg/m <sup>3</sup> ), skin	<b>TLV (ACGIH) :</b>	0.02 ppm (0.05 mg/m <sup>3</sup> ), skin

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NFPA Hazard	Health	Flammability	Reactivity	Special
Signals	3	4	2	W

## 6. PREVENTIVE MEASURES

**Personal Protective Equipment :** Avoid contact with liquid or vapour. Provide Self-contained breathing apparatus or on air-line mask, side covered safety goggles I face shield, rubber hand gloves, shoes, body overclothing.

**Handling :** All chemicals should be considered hazardous. Avoid direct physical contact. Use appropriate, approved safety equipment. Untrained individuals should not handle this chemical or its container. Handling should occur in a chemical fume hood.

**Storage :** Keep cool, no sparks, flames. Store in areas separated from oxidizers. store in stainless steel receptacles, nickel, or perfectly vitrified materials.

**Precautions :**

## 7. EMERGENCY / FIRST AID MEASURES

### FIRE:

**Fire Extinguishing Media :** Dry chemical powder, CO<sub>2</sub>, foam and water spray.

**Special Procedure :** Keep the containers cool by spraying water if exposed to heat or flame.

**Unusual Hazards :** Poisonous gases are produced in fire

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### EXPOSURE: First Aid Measures:

**Inhalation:** Move victim to fresh air. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method

**Skin:** Remove and isolate contaminated clothing and shoes. Immediately flush with running water for at least 20 minutes. For minor skin contact, avoid spreading material on unaffected skin.

**Eyes:** Immediately flush with running water for at least 20 minutes.

**Ingestion:** Administer charcoal as a slurry (240 ml water/30 g charcoal). Usual dose: 25 to 100 g in adults/adolescents.

**Antidotes / Dosages:**

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**SPILLS :**

**Steps To Be Taken** : Shut off leaks if without risk. Contain the spillage on earth or sand.

**Waste Disposal Method:** Seal all lite waste in vapour tight plastic bags for eventual disposal.

**8. ADDITIONAL INFORMATION / REFERENCES**

A very dangerous fire hazard when exposed to heat, flame or oxidisers. An industrial accident in the Carbaryl manufacturing plant in Bhopal (India) on December 3, 1984 resulted in the emission of MIC in the air, causing many deaths and severely affecting a large number of population.

**9. MANUFACTURERS / SUPPLIERS DATA**

<b>NAME OF FIRM :</b>	<b>Contact person</b>
<b>MAILING ADDRESS :</b>	<b>in Emergency :</b>
<b>TELEPHONE / TELEX NOS :</b>	<b>Local Bodies involved :</b>
<b>TELEGRAPHIC ADDRESS :</b>	<b>Standard Packing :</b>
<b>OTHERS :</b>	<b>Trem Card Details / Ref :</b>

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