



## MATERIAL SAFETY DATA SHEETS

229

Diphenyl methane di-isocyanate (MDI)

### 1. CHEMICAL IDENTITY

**Chemical Name :** Diphenyl methane di-isocyanate (MDI)

**Chemical Classification:** Toxic

**Trade Name :**

**Synonyms:** Methylene bisphenyl diisocyanate, 4,4-Diisocyanodiphenylmethane, Methylene bis(4-phenyl isocyanate),

**Formula :** C<sub>15</sub>H<sub>10</sub>N<sub>2</sub>O<sub>2</sub>

**CAS No:** 101-68-8

**UN No:**

### Regulated Identification

**Shipping Name :** Diphenylmethane-4,4'-diisocyanate

**Hazchem Code :**

**Codes / Label :** Toxic

**Hazardous Waste ID No :**

HAZARDOUS INGREDIENTS	C.A.S. No.	HAZARDOUS INGREDIENTS	C.A.S. No.
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1	Diphenyl methane di-isocyanate (MDI)	101-68-8	3
2			4

### 2. PHYSICAL / CHEMICAL DATA

**Boiling Pt. °C:** 196 deg C @ 5 mmHg

**Physical State:** Solid

**Appearance:** White to pale yellow solid.

**Melting Pt °C:** 37

**Vapour Pressure @ 35°C mmHg:** 5.0X10-6 mm Hg @ 25 deg C

**Odour:** May have slightly musty odour

**Vapour Density(Air =1):** 8.6

**Solubility in water at 30°C g/100ml:** 0.2 g/100ml (20 deg C)

**Others:** Hydrolyzed by water. Soluble in acetone, benzene, kerosene, and nitrobenzene.

**Specific Gravity (Water =1 ):** 1.197 @ 70 deg C

**pH :**

### 3. FIRE / EXPLOSION HAZARD DATA

**Flammability :**

**LEL:** 0.6

**Flash Point °C in OC:** 154

**TDG Flammability:**

**UEL:**

**Flash Point °C in CC:**

**Autoignition Temperature °C :** 232

**Explosion sensitivity to impact:**

**Explosion sensitivity to static Electricity:**

**Hazardous Combustion Products :** Toxic vapors are generated when heated.

**Hazardous Polymerization :**

**Combustible Liquid:**

**Explosive Material:**

**Corrosive Material**

**Flammable Material:**

**Oxidiser :**

**Others:**

**Pyrophoric Material:**

**Organic Peroxide :**

### 4. REACTIVITY DATA

**Chemical Stability :** Stable under normal temperatures and pressures.

**Incompatibility with other material :** Alcohols, alkalies, acids.

**Reactivity :** Combines vigorously or explosively with water.

**Hazardous Reaction Products** : Nitrogen oxides, carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, cyanide fumes, nitrogen.

## 5. HEALTH HAZARD DATA

**Routes of entry:** Inhalation, Ingestion, Skin and Eyes

### Effects of Exposure / Symptoms:

**Inhalation :** Causes severe irritation of upper respiratory tract with coughing, burns, breathing difficulty, and possible coma. May cause asthmatic attacks due to allergic sensitization of the respiratory tract. **Ingestion :** Causes gastrointestinal tract irritation. **Skin :** Causes skin irritation. **Eye :** Causes eye irritation and possible burns.

### Emergency Treatment :

**Inhalation:** Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

**Skin:** Get medical aid. Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

**Eyes:** Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

**Ingestion:** If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

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<b>LD50 (oral-rat) mg/kg:</b>	<b>STEL:</b>
<b>LC50 (rat) mg/kg:</b>	<b>Odour Threshold:</b>
<b>Permissible Exposure Limit:</b>	0.2 mg/m <sup>3</sup> (0.02 ppm) <b>TLV (ACGIH) :</b>

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<b>NFPA Hazard</b>	<b>Health</b>	<b>Flammability</b>	<b>Reactivity</b>	<b>Special</b>
<b>Signals</b>	3	1	1	

## 6. PREVENTIVE MEASURES

**Personal Protective Equipment :** Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Skin: Wear appropriate gloves to prevent skin exposure. Clothing: Wear appropriate protective clothing to prevent skin exposure.

**Handling :** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well ventilated area. Do not allow water to get into the container because of violent reaction. Avoid contact with skin and eyes. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Avoid contact with heat, sparks and flame. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Keep from contact with moist air and steam.

**Storage :** Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a cool, dry place. Keep container closed when not in use. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substance

**Precautions :**

## 7. EMERGENCY / FIRST AID MEASURES

### FIRE:

**Fire Extinguishing Media :** Use dry sand or earth to smother fire.

**Special Procedure :** Do not use water. Most foams will react with the material and

release corrosive/toxic gases. Wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

**Unusual Hazards** : May ignite or explode on contact with steam or moist air.

**EXPOSURE: First Aid Measures:**

**Inhalation:** Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

**Skin:** Get medical aid. Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

**Eyes:** Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

**Ingestion:** If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

**Antidotes / Dosages:**

**SPILLS :**

**Steps To Be Taken** : Clean up spills immediately with protective equipment. Sweep up or absorb material, then place in a dry closed container for disposal. Avoid generating dusty conditions. Remove all sources of ignition. Use a spark-proof tool. Do not expose spill to water.

**Waste Disposal Method:**

**8. ADDITIONAL INFORMATION / REFERENCES**

**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>

**10. DISCLAIMER**

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*Total No. of Pages: 3*