

## SAFETY DATA SHEET

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Revision Number 5

### 1. Identification

**Product Name** Methylenedi-p-phenyl diisocyanate

**Cat No. :** AC414280000; AC414281000; AC414285000

**CAS No** 101-68-8  
**Synonyms** MDI

**Recommended Use** Laboratory chemicals.  
**Uses advised against** Food, drug, pesticide or biocidal product use.

#### Details of the supplier of the safety data sheet

##### Company

Fisher Scientific Company  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

Acros Organics  
One Reagent Lane  
Fair Lawn, NJ 07410

**Emergency Telephone Number** For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

### 2. Hazard(s) identification

#### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute Inhalation Toxicity - Dusts and Mists	Category 4
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Respiratory Sensitization	Category 1
Skin Sensitization	Category 1
Carcinogenicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Respiratory system.	

#### Label Elements

**Signal Word**

Danger

**Hazard Statements**

Causes skin irritation

Causes serious eye irritation

May cause an allergic skin reaction

Harmful if inhaled

May cause allergy or asthma symptoms or breathing difficulties if inhaled

May cause respiratory irritation

Suspected of causing cancer

May cause damage to organs through prolonged or repeated exposure

**Precautionary Statements****Prevention**

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood

Use personal protective equipment as required

Use only outdoors or in a well-ventilated area

Wash face, hands and any exposed skin thoroughly after handling

In case of inadequate ventilation wear respiratory protection

Contaminated work clothing should not be allowed out of the workplace

Do not breathe dust/fume/gas/mist/vapors/spray

Wear protective gloves/protective clothing/eye protection/face protection

**Response**

IF exposed or concerned: Get medical attention/advice

**Inhalation**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician

**Skin**

IF ON SKIN: Wash with plenty of soap and water

Take off contaminated clothing and wash before reuse

If skin irritation or rash occurs: Get medical advice/attention

**Eyes**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

If eye irritation persists: Get medical advice/attention

**Storage**

Store locked up

Store in a well-ventilated place. Keep container tightly closed

**Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

Lachrymator (substance which increases the flow of tears)

### 3. Composition/Information on Ingredients

Component	CAS No	Weight %
Methylene bisphenol isocyanate (MDI)	101-68-8	>95
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-	5873-54-1	<2.5

#### 4. First-aid measures

<b>General Advice</b>	If symptoms persist, call a physician.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.
<b>Inhalation</b>	Remove to fresh air. If breathing is difficult, give oxygen. Get medical attention.
<b>Ingestion</b>	Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.
<b>Most important symptoms and effects</b>	May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic skin reaction. . Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing
<b>Notes to Physician</b>	Treat symptomatically

#### 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	Water spray, carbon dioxide (CO <sub>2</sub> ), dry chemical, alcohol-resistant foam.
<b>Unsuitable Extinguishing Media</b>	No information available
<b>Flash Point</b>	202 °C / 395.6 °F
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	600 °C / 1112 °F
<b>Explosion Limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	No information available

#### Specific Hazards Arising from the Chemical

Keep product and empty container away from heat and sources of ignition.

#### Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Nitrogen oxides (NO<sub>x</sub>).

#### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

#### NFPA

**Health**  
2

**Flammability**  
1

**Instability**  
1

**Physical hazards**  
N/A

#### 6. Accidental release measures

<b>Personal Precautions</b>	Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.
<b>Environmental Precautions</b>	Should not be released into the environment. See Section 12 for additional Ecological Information.

**Methods for Containment and Clean Up** Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

## 7. Handling and storage

**Handling** Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Ensure adequate ventilation. Avoid dust formation.

**Storage.** Keep containers tightly closed in a dry, cool and well-ventilated place. To maintain product quality: Keep refrigerated. Incompatible Materials. Strong oxidizing agents. Acids. Bases. Alcohols. Amines. copper. Copper alloys. Water.

## 8. Exposure controls / personal protection

### Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Methylene bisphenol isocyanate (MDI)	TWA: 0.005 ppm	Ceiling: 0.02 ppm Ceiling: 0.2 mg/m <sup>3</sup> (Vacated) Ceiling: 0.02 ppm (Vacated) Ceiling: 0.2 mg/m <sup>3</sup>	IDLH: 75 mg/m <sup>3</sup> TWA: 0.005 ppm TWA: 0.05 mg/m <sup>3</sup> Ceiling: 0.020 ppm Ceiling: 0.2 mg/m <sup>3</sup>	TWA: 0.005 ppm

### Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

**Engineering Measures** Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

### Personal Protective Equipment

**Eye/face Protection** 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. Tight sealing safety goggles.

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure.

**Respiratory Protection** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

Physical State	Solid
Appearance	White
Odor	Slight
Odor Threshold	No information available
pH	No information available
Melting Point/Range	40 °C / 104 °F
Boiling Point/Range	392 °C / 737.6 °F
Flash Point	202 °C / 395.6 °F
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available

<b>Lower</b>	No data available
<b>Vapor Pressure</b>	<0.01 Pa @ 25 °C
<b>Vapor Density</b>	Not applicable
<b>Specific Gravity</b>	1.22
<b>Solubility</b>	Decomposes in contact with water
<b>Partition coefficient; n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	600 °C / 1112 °F
<b>Decomposition Temperature</b>	No information available
<b>Viscosity</b>	Not applicable
<b>Molecular Formula</b>	C15 H10 N2 O2
<b>Molecular Weight</b>	250.26

## 10. Stability and reactivity

<b>Reactive Hazard</b>	None known, based on information available
<b>Stability</b>	Stable under normal conditions. Moisture sensitive.
<b>Conditions to Avoid</b>	Incompatible products. Excess heat. Avoid dust formation. Exposure to moisture.
<b>Incompatible Materials</b>	Strong oxidizing agents, Acids, Bases, Alcohols, Amines, copper, Copper alloys, Water
<b>Hazardous Decomposition Products</b>	Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Nitrogen oxides (NO <sub>x</sub> )
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Hazardous Reactions</b>	None under normal processing.

## 11. Toxicological information

### Acute Toxicity

#### Product Information

##### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methylene bisphenol isocyanate (MDI)	LD50 = 31600 mg/kg ( Rat )	Not listed	490 mg/m <sup>3</sup> /4H (Rat)

**Toxicologically Synergistic** No information available

#### Products

##### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Irritation** Irritating to eyes, respiratory system and skin

**Sensitization** May cause sensitization by skin contact

#### Carcinogenicity

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Methylene bisphenol isocyanate (MDI)	101-68-8	Not listed	Not listed	Not listed	Not listed	Not listed
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-	5873-54-1	Not listed	Not listed	Not listed	Not listed	Not listed

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

<b>STOT - single exposure</b>	Respiratory system
<b>STOT - repeated exposure</b>	Respiratory system
<b>Aspiration hazard</b>	No information available
<b>Symptoms / effects, both acute and delayed</b>	Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing
<b>Endocrine Disruptor Information</b>	No information available
<b>Other Adverse Effects</b>	See actual entry in RTECS for complete information.

## 12. Ecological information

### Ecotoxicity

Do not empty into drains. Reacts with water so no ecotoxicity data for the substance is available.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Methylene bisphenol isocyanate (MDI)	Not listed	LC50 >1000 mg/L/96h (Brachydanio rerio)	Not listed	EC50 >1000 mg/L/24h (Daphnia)

**Persistence and Degradability** based on information available. May persist

**Bioaccumulation/ Accumulation** No information available.

**Mobility** Is not likely mobile in the environment.

Component	log Pow
Methylene bisphenol isocyanate (MDI)	4.5

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## 14. Transport information

<b>DOT</b>	Not regulated
<b>TDG</b>	Not regulated
<b>IATA</b>	Not regulated
<b>IMDG/IMO</b>	Not regulated

## 15. Regulatory information

### United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Methylene bisphenol isocyanate (MDI)	101-68-8	X	ACTIVE	-
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-	5873-54-1	X	ACTIVE	-

### Legend:

**TSCA** US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

**TSCA 12(b)** - Notices of Export Not applicable

**International Inventories**

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Methylene bisphenol isocyanate (MDI)	101-68-8	X	-	202-966-0	X	X	X	X	X	KE-12080
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-	5873-54-1	X	-	227-534-9	X	X	X	X	X	KE-21471

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

**U.S. Federal Regulations****SARA 313**

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Methylene bisphenol isocyanate (MDI)	101-68-8	>95	1.0
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-	5873-54-1	<2.5	1.0

**SARA 311/312 Hazard Categories** See section 2 for more information

**CWA (Clean Water Act)** Not applicable

**Clean Air Act**

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Methylene bisphenol isocyanate (MDI)	X		-

**OSHA - Occupational Safety and Health Administration** Not applicable

**CERCLA** This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Methylene bisphenol isocyanate (MDI)	5000 lb	-

**California Proposition 65** This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Methylene bisphenol isocyanate (MDI)	X	X	X	X	X
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-	-	X	-	-	-

**U.S. Department of Transportation**

Reportable Quantity (RQ): Y  
 DOT Marine Pollutant N  
 DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security** This product does not contain any DHS chemicals.

**Other International Regulations**

Mexico - Grade

Slight risk, Grade 1

## Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Methylene bisphenol isocyanate (MDI)	-	Use restricted. See item 56[a]. (see link for restriction details) Use restricted. See item 75. (see link for restriction details) Use restricted. See item 74. (see link for restriction details)	-
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-	-	Use restricted. See item 56[b]. (see link for restriction details) Use restricted. See item 75. (see link for restriction details) Use restricted. See item 74. (see link for restriction details)	-

<https://echa.europa.eu/substances-restricted-under-reach>

## Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Methylene bisphenol isocyanate (MDI)	101-68-8	Listed	Not applicable	Not applicable	Not applicable
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-	5873-54-1	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Methylene bisphenol isocyanate (MDI)	101-68-8	Not applicable	Not applicable	Not applicable	Not applicable
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-	5873-54-1	Not applicable	Not applicable	Not applicable	Not applicable

## 16. Other information

## Prepared By

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## Revision Summary

This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

## Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information



relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**