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# MATERIAL SAFETY DATA SHEETS

## MP 5434 RESIN PART A

<b>HMIS;</b>	<b>HEALTH</b>	<b>3</b>	<b>FLAMMABILITY</b>	<b>1</b>	<b>REACTIVITY</b>	<b>1</b>
<b>NFPA</b>	<b>HEALTH</b>	<b>3</b>	<b>FIRE HAZARD</b>	<b>1</b>	<b>REACTIVITY</b>	<b>1</b>

### 1. GENERAL INFORMATION

PRODUCT NAME:  
CHEMICAL FAMILY:

MP 5434 - RESIN PART A  
Aromatic Isocyanate

### 2. COMPOSITION

INGREDIENT:	CAS#	%	Exposure Limits	
			ACGIH	OSHA
Isocyanate Mixture	Proprietary	65	TLV-TWA	PEL
4,4 Diphenylmethane Diisocyanate(MDI)	101-68-8	35	N.E.	N.E.
			0.005ppm	N.E.

### 3. HEALTH HAZARDS IDENTIFICATION

Primary Routes of Exposure:  
Eye Contact:  
Skin Contact:

Inhalation:

Ingestion:

Eyes: Yes      Skin: Yes      Inhalation: Yes  
May cause irritation and corneal damage.  
May cause irritation. May cause sensitization, including respiratory sensitization, upon chronic exposure.  
May cause irritation. May cause temporary or permanent sensitization upon chronic exposure.  
May cause irritation and corrosive action in the mouth, stomach tissue, and digestive tract.

### 4. FIRST AID MEASURES

Eyes:

Skin:

Inhalation:

Ingestion:

Flush eyes thoroughly with water, for at least 15 minutes, while holding eyelids open. Seek medical attention  
Remove contaminated clothing, wipe excess from skin, and flush the affected area with water. Use soap or follow by washing with soap and water. Obtain medical attention if symptoms persist  
Remove to fresh air, and provide oxygen or artificial respiration if needed. Obtain medical attention.  
Do NOT induce vomiting. Give 1 to 2 cups of milk or water unless the victim is drowsy, convulsing, or unconscious. Obtain medical attention.

### 5. FIRE FIGHTING MEASURES

#### FLAMMABLE PROPERTIES:

Flash Point:  
Explosive Limits:  
Auto - Ignition Temperature:  
Hazardous Decomposition Products:

370 deg F  
Not determined  
Not determined  
Carbon monoxide, nitrogen oxides, and traces of other toxic gases

#### EXTINGUISHING MEDIA and FIRE FIGHTING INSTRUCTIONS:

When sufficiently large quantities are present, firefighters should be equipped with full bunker gear, including a positive pressure, NIOSH approved, self-contained breathing apparatus. Fire-exposed containers may be cooled with water; explosive rupture is possible.

Extinguishing Media:

Use water, carbon dioxide, dry chemical, or an appropriate foam.



# MATERIAL SAFETY DATA SHEETS

## MP 5434 RESIN PART A



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### 6. ACCIDENTAL RELEASE MEASURES

Shut off the source of the leak if it is safe to do so. Remove all ignition sources. Dike and contain large spills. Absorb with a suitable material, such as sawdust, and shovel into containers. Treat with a neutralizing solution (e.g. a mixture of 80% water & 20% non-ionic surfactant Tergitol TMN-10; or a mixture of 90% water, 8% concentrated ammonia, and 2% detergent) such that 10 parts of neutralizer are used per one part isocyanate. Allow to stand uncovered for 48 hours to let CO<sub>2</sub> escape, and dispose of properly. Clean-up personnel should use adequate protective equipment.

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### 7. HANDLING AND STORAGE

Store in a cool, dry place. Keep away from moisture, ignition sources, and high temperatures. Avoid contact with incompatible materials. **Wear protective eyewear, chemical-resistant gloves, and other protective clothing as appropriate.**

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### 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

**Engineering / Ventilation Controls:**

General ventilation may be acceptable under most conditions, although local ventilation is required to control exposure whenever vapors, mists, or dusts are generated. Eye wash stations should be readily available.

**Respiratory Protection:**

When local ventilation is unavailable and airborne limits are exceeded, a NIOSH-approved respirator, a supplied-air respirator, or a self-contained breathing apparatus is required. Impervious gloves and protective clothing should be worn as necessary.

**Skin Protection:**

Impervious gloves and protective clothing should be worn as necessary.

**Eye Protection:**

Chemical splash goggles or safety glasses with side shields should be worn as appropriate.

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### 9. STABILITY AND REACTIVITY

**Chemical Stability:**

Stable under normal conditions and use.

**Conditions and Materials to Avoid:**

Keep away from moisture, ignition sources, and high temperatures. Reacts with water, amines, strong bases, and alcohols. Will corrode copper alloys and aluminum.

**Hazardous Decomposition Products:**

Carbon monoxide, nitrogen oxides, and traces of other toxic gases.

**Hazardous Polymerization:**

May occur.

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### 10. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:**

Light yellow liquid

**Boiling Point:**

Not determined

**Vapor Pressure (mmHg):**

<10-5 mmHg at 77 deg F, for MDI

**Vapor Density (air=1):**

8.5, for MDI

**Evaporation Rate:**

Not determined

**Solubility in Water:**

Reacts slowly to liberate carbon dioxide gas

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### 11. TOXICOLOGICAL INFORMATION

This section provides toxicological information with regard to the pure form of the component indicated. It is suggested that this information be interpreted by persons trained in its evaluation.

Diphenylmethane Diisocyanate (monomeric and polymeric)

Acute Oral LD50:

>15,800 mg/kg, rat

Acute Dermal LD50:

>7900 mg/kg, rabbit

Acute Inhalation LC50:

Approx. 370-490 mg/m<sup>3</sup> (four-hour), rat, for an aerosol of polymeric MDI; >400 mg/m<sup>3</sup> (two-hour), rat, for a dust of monomeric MDI

A maximum primary eye irritation score of 12.0/110 (twenty-four-hour) was obtained for a polymeric MDI. This score is fairly typical for a number of MDI products. Primary dermal irritation scores are typically below 3.4/8.0 (Draize).



# MATERIAL SAFETY DATA SHEETS

## MP 5434 RESIN PART A



MDI has been shown to produce dermal sensitization in several species: guinea pigs, rabbits, mice, and dogs. Intradermal or topical application followed by inhalation challenge have resulted in a respiratory sensitization response in guinea pigs. In addition, there is some evidence to suggest that cross-sensitization between different types of diisocyanates may occur.

This product does not contain, in a concentration greater than or equal to 0.1%, any carcinogenic material according to the National Toxicology Program, IARC *Monographs*, or OSHA.

### 12. DISPOSAL CONSIDERATIONS

Keep out of surface waters, sewers, and waterways entering or leading to surface waters. Notify authorities if any exposure to the environment occurs or is likely to occur. Utilize an appropriate disposal facility, in compliance with applicable federal, state, and local environmental control regulations.

### 13. TRANSPORTATION INFORMATION

Not regulated by IATA. Not regulated by DOT unless in a single package containing 5000 pounds or greater.

**DOT Proper Shipping Name:** Other Regulated Substances, Liquid, N.O.S. (Methylene Diphenyl Diisocyanate)

**DOT Label:** CLASS 9

**Hazard Class:** 9

**ID:** NA3082

**Packing Group:** III

### 14. REGULATORY INFORMATION

#### TSCA

The chemical components of this product are included in the TSCA Chemical Substance Inventory, as required.

#### SARA TITLE III

##### Section 313 - Toxic Chemicals

Pursuant to Section 313, this product contains a chemical in a concentration equal to or greater than the *de minimis* level: 4,4'-Diphenylmethane Diisocyanate (MDI), 101-68-8, 35%

##### Section 311/312 - Hazard Categories

Fire Hazard:	No
Reactivity Hazard:	Yes
Sudden Release of Pressure Hazard:	No
Immediate (Acute) Health Hazard:	Yes
Delayed (Chronic) Health Hazard:	Yes

## **Engineering Excellence**

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# MATERIAL SAFETY DATA SHEETS

## MP 5434 HARDENER PART B

<b>HMIS;</b>	<b>HEALTH</b>	<b>1</b>	<b>FLAMMABILITY</b>	<b>1</b>	<b>REACTIVITY</b>	<b>0</b>
<b>NFPA</b>	<b>HEALTH</b>	<b>1</b>	<b>FIRE HAZARD</b>	<b>1</b>	<b>REACTIVITY</b>	<b>0</b>

### 1. GENERAL INFORMATION

PRODUCT NAME:

MP 5434 - RESIN PART B

### 2. COMPOSITION

INGREDIENT:	CAS#	%	Exposure Limits	
			ACGIH TLV-TWA	OSHA PEL
This product contains no known physical or health hazards which comprise 1% or greater of the composition. It contains no known carcinogens which comprise 0.1% or greater of the composition.				

### 3. HEALTH HAZARDS IDENTIFICATION

Primary Routes of Exposure:	Eyes: Yes	Skin: Yes	Inhalation: Yes
Eye Contact:	May cause slight irritation.		
Skin Contact:	May cause slight irritation.		
Inhalation:	Effects are not known.		
Ingestion:	Discomfort, if large quantities are swallowed.		

### 4. FIRST AID MEASURES

Eyes:	Flush eyes thoroughly with water, for at least 15 minutes, while holding eyelids open.
Skin:	Remove contaminated clothing, wipe excess from skin, and flush the affected area with water, as a matter of good industrial practice.
Inhalation:	Remove to fresh air, as a matter of good industrial practice.
Ingestion:	Do not induce vomiting.

### 5. FIRE FIGHTING MEASURES

<b>FLAMMABLE PROPERTIES:</b>	
Flash Point:	370 deg F
Explosive Limits:	Not determined
Auto - Ignition Temperature:	Not determined
Hazardous Decomposition Products:	Carbon monoxide, nitrogen oxides, and traces of other toxic gases

#### EXTINGUISHING MEDIA and FIRE FIGHTING INSTRUCTIONS:

When sufficiently large quantities are present, firefighters should be equipped with full bunker gear, including a positive pressure, NIOSH approved, self-contained breathing apparatus. Fire-exposed containers may be cooled with water; explosive rupture is possible.

**Extinguishing Media:** Use water, carbon dioxide, dry chemical, or an appropriate foam.



# MATERIAL SAFETY DATA SHEETS

## MP 5434 HARDENER PART B



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### 6. ACCIDENTAL RELEASE MEASURES

Shut off the source of the leak if it is safe to do so. Remove all ignition sources. Dike and contain large spills. Absorb with a suitable material, and dispose of properly. Clean-up personnel should use adequate protective equipment.

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### 7. HANDLING AND STORAGE

Store in a cool, dry place. Keep away from moisture, ignition sources, and high temperatures. Avoid contact with incompatible materials. **Wear protective eyewear, chemical-resistant gloves, and other protective clothing as appropriate.**

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### 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

**Engineering / Ventilation Controls:**

General ventilation may be acceptable under most conditions, although local ventilation is required to control exposure whenever vapors, mists, or dusts are generated. Eye wash stations should be readily available.

**Respiratory Protection:**

When local ventilation is unavailable and airborne limits are exceeded, a NIOSH-approved respirator, a supplied-air respirator, or a self-contained breathing apparatus is required.

**Skin Protection:**

Impervious gloves and protective clothing should be worn as necessary.

**Eye Protection:**

Chemical splash goggles or safety glasses with side shields should be worn as appropriate.

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### 9. STABILITY AND REACTIVITY

**Chemical Stability:**

Stable under normal conditions and use.

**Conditions and Materials to Avoid:**

Keep away from moisture, ignition sources, and high temperatures. Reacts with water, amines, strong bases, and alcohols. Will corrode copper alloys and aluminum.

**Hazardous Decomposition Products:**

Carbon monoxide, nitrogen oxides, and traces of other toxic gases.

**Hazardous Polymerization:**

May occur.

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### 10. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:**

Light-colored liquid

**Boiling Point:**

Not determined

**Vapor Pressure (mmHg):**

Not determined

**Vapor Density (air=1):**

Not determined

**Evaporation Rate:**

Not determined

**Solubility in Water:**

Slight

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### 11. TOXICOLOGICAL INFORMATION

This product contains trace amounts of an odorous material identified as 4-vinylcyclohexene (VCH). Under aggressive conditions of physical handling or with heating, there is a potential for release of VCH at concentrations near the ACGIH TLV-TWA of 0.1 ppm. In Russian workers exposed to high VCH concentrations (271-677 ppm), eye and nose irritation, headache, some white blood cell reductions, and impaired carbohydrate metabolism were reported. Repeated administration of VCH to rats and mice by inhalation (four-month) was reported to produce some white blood cell reductions and blood circulation effects. Repeated oral dosing (three-month) of rats and mice produced kidney toxicity in male rats and ovarian effects in female mice at a dose that caused many animal deaths.



# MATERIAL SAFETY DATA SHEETS

## MP 5434 HARDENER PART B



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### 12. DISPOSAL CONSIDERATIONS

Keep out of surface waters, sewers, and waterways entering or leading to surface waters. Notify authorities if any exposure to the environment occurs or is likely to occur. Utilize an appropriate disposal facility, in compliance with applicable federal, state, and local environmental control regulations.

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### 13. TRANSPORTATION INFORMATION

DOT/IATA Proper Shipping Name: Not regulated

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### 14. REGULATORY INFORMATION

#### TSCA

The chemical components of this product are included in the TSCA Chemical Substance Inventory, as required.

#### SARA TITLE III

##### Section 313 - Toxic Chemicals

Pursuant to Section 313, this product contains a chemical in a concentration equal to or greater than the *de minimis* level:

##### Section 311/312 - Hazard Categories

Fire Hazard:	No
Reactivity Hazard:	No
Sudden Release of Pressure Hazard:	No
Immediate (Acute) Health Hazard:	Yes
Delayed (Chronic) Health Hazard:	No

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