

# MATERIAL SAFETY DATA SHEET

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AVENUEI 48192  
44ERGENCY TELEPHONE: (800) 424-9300 CHEMTREC  
(800) 832-HELP (BASF Hotline)

TH NUMBERS ARE AVAILABLE DAYS, NIGHTS, WEEKENDS, &amp; HOLIDAYS.

## SECTION 1 - PRODUCT INFORMATION

OCYANATE

NPU 548292

cal Name:

HYLENE POLYPHENYLISOCYANATE

IC MDI

rmula:

ily: Aromatic Isocyanates

.: NOT ESTABLISHED

## SECTION 2 - INGREDIENTS

Component	CAS	Amount	%
LMETHANE DIISOCYANATE	101-68-8	26.0	%
PLV TWA	0.005 PPM		
PEL CEIL	0.02 PPM		
ER	9048-58-2	< 75.0	%
ESTABLISHED			
OMERS	26447-40-5	< 1.0	%
ESTABLISHED			

## SECTION 3 - HAZARDS IDENTIFICATION

erview

Light Yellow

ice:

Liquid/Bulk

Aromatic

EMENT:

IPHENYLMETHANE DIISOCYANATE (CAS NO. 101-68-8).

OF MDI MISTS OR VAPORS MAY CAUSE RESPIRATORY IRRITATION,  
NESS, CHEST DISCOMFORT AND REDUCED PULMONARY FUNCTION.RE WELL ABOVE THE PEL MAY RESULT IN BRONCHITIS, BRONCHIAL  
PULMONARY EDEMA. LONG-TERM EXPOSURE TO ISOCYANATES HAS

ED TO CAUSE LUNG DAMAGE, INCLUDING REDUCED LUNG FUNCTION

BE PERMANENT. ACUTE OR CHRONIC OVEREXPOSURE TO ISOCYANATES

SENSITIZATION IN SOME INDIVIDUALS, RESULTING IN ALLERGIC

**SECTION 3 - HAZARDS IDENTIFICATION (cont)**

RESPIRATORY REACTIONS INCLUDING WHEEZING, SHORTNESS OF BREATH AND DIFFICULTY BREATHING.

**Potential Health Effects****Primary Routes of Exposure:**

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

**Acute Overexposure Effects:**

Eye contact with isocyanates may result in conjunctival irritation and mild corneal opacity. Skin contact may result in dermatitis, either irritative or allergic.

Inhalation of MDI vapors may cause irritation of the mucous membranes of the nose, throat or trachea, breathlessness, chest discomfort, difficult breathing and reduced pulmonary function. Airborne overexposure well above the PEL may result additionally in eye irritation, headache, chemical bronchitis, asthma-like findings or pulmonary edema. Isocyanates have also been reported to cause hypersensitivity pneumonitis, which is characterized by flu-like symptoms the onset of which may be delayed. Gastrointestinal symptoms include nausea, vomiting and abdominal pain.

**Chronic Overexposure Effects:**

Results from a lifetime inhalation study in rats indicate that MDI aerosol was carcinogenic at 6 mg/m<sup>3</sup>, the highest dose tested. This is well above the recommended TLV of 5 ppb (0.05 mg/m<sup>3</sup>). Only irritation was noted at the lower concentration of 0.2 and 1 mg/m<sup>3</sup>. No birth defects or teratogenic effects were reported in a teratology study with rats exposed to 1, 4, and 12 mg/m<sup>3</sup> polymeric MDI for 6 hr/day on days 6-15 of gestation. Embryotoxicity and fetotoxicity was reported at the top dose in the presence of maternal toxicity.

As a result of previous repeated overexposures or a single large dose, certain individuals will develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the PEL/TLV. These symptoms, which include chest tightness, wheezing, cough, shortness of breath, or asthmatic attack, could be immediate or delayed up to several hours after exposure. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air, or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Chronic overexposure to isocyanates has also been reported to cause lung damage, including a decrease in lung function, which may be permanent. Sensitization may be either temporary or permanent. Prolonged contact can cause reddening, swelling, rash, scaling, or blistering. In those who have developed a skin sensitization, these symptoms can develop as a result of contact with very small amounts of liquid material, or even as a result of vapor-only exposure.

**First Aid Procedures - Aggravated Medical Conditions:**

Individuals who are sensitized to isocyanates and those with pre-

### SECTION 3 – HAZARDS IDENTIFICATION (cont)

existing lung diseases or conditions, including non-specific bronchial hyperreactivity or asthma, must avoid all exposure to isocyanates.

### SECTION 4 – FIRST AID MEASURES

#### First Aid Procedures – Skin:

Wash affected areas with soap and water. Remove and launder contaminated clothing before reuse. Get immediate medical attention.

#### First Aid Procedures – Eyes:

Immediately rinse eyes with running water for 15 minutes. Get immediate medical attention.

#### First Aid Procedures – Ingestion:

If swallowed, dilute with water. DO NOT INDUCE VOMITING. Never give fluids or induce vomiting if the victim is unconscious or having convulsions. Get immediate medical attention.

#### First Aid Procedures – Inhalation:

Move to fresh air. Aid in breathing, if necessary, and get immediate medical attention.

#### First Aid Procedures – Notes to Physicians:

There is no specific antidote to counteract the effects of MDI. Care should be supportive and treatment should be based on the judgement of the physician in response to the reaction of the patient.

Pulmonary disorders.

#### First Aid Procedures – Aggravated Medical Conditions:

Individuals who are sensitized to isocyanates and those with pre-existing lung diseases or conditions, including non-specific bronchial hyperreactivity or asthma, must avoid all exposure to isocyanates.

#### First Aid Procedures – Special Precautions:

None

#### Other First Aid Procedures:

Medical supervision of all employees who handle or come into contact with MDI is recommended. Preemployment and periodic medical examinations with respiratory function tests (FEV, FVC as a minimum are suggested). Persons with asthmatic conditions chronic bronchitis, other chronic respiratory diseases, recurrent eczema or pulmonary sensitization should be excluded from working with MDI. Once a person is diagnosed as having pulmonary sensitization (allergic asthma) to MDI, further exposure is not permissible.

### SECTION 5 – FIRE FIGHTING MEASURES

	Typical	Low/High	Deg.	Method
Flash Point:	200			C CLEVELAND OPEN CUP
Autoignition:	NOT AVAILABLE			
Extinguishing Media:				

Use water, dry extinguishing media, carbon dioxide (CO<sub>2</sub>) or foam.

#### Fire Fighting Procedures:

Personnel engaged in fighting isocyanate fires must be protected against nitrogen dioxide fumes as well as isocyanate vapors.

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**SECTION 5 – FIRE FIGHTING MEASURES (cont)**

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Firefighters must wear self-contained breathing apparatus and turnout gear.

**Unusual Hazards:**

Reacts exothermically with water to form carbon dioxide gas, may create excessive pressure in closed containers. Reacts exothermically with polyol and alcohols. Reacts exothermically possibly violently with acids, amines and alkaline solutions.

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**SECTION 6 – ACCIDENTAL RELEASE MEASURES**

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**General:****General:**

Evacuate and ventilate spill area, dike spill to prevent entry into water system, wear full protective equipment including respiratory equipment during clean up.

**MAJOR SPILL:**

Call BASF Corporation @ 1-800-832-4357. If transportation spill is involved, call CHEMTREC @ 1-800-424-9300. If temporary control of isocyanate vapor is required a blanket of protein foam or other suitable foam (available at most fire departments), may be placed over the spill. Transfer as much liquid as possible via pump or vacuum device into closed but not sealed containers for disposal.

**MINOR SPILL:**

Absorb the isocyanate with an acceptable absorbent, see 40 CFR sections 260, 264, and 265 for further information. Shovel into sealed containers. Do not make pressure tight. Move to a well ventilated area (outside) and neutralize with a mixture of 90% water, 3% ammonia and 2-7% detergent. Add at 10 to 1 ratio. Let stand for 24 hours letting evolved CO<sub>2</sub> escape. Proceed with final clean up of spill area.

**CLEAN UP:**

Decontaminate spill area using neutralizing solution and let stand for at least 10 minutes.

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**SECTION 7 – STORAGE AND HANDLING**

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**General:**

Liquids must be stored at 40-50 C under nitrogen pad to avoid polymerization. Solid product in drums must be stored below 5C. Solid product can be melted by rotating drum in hot air cabinet at 80-100 C. Liquid should not be heated above 70 C to avoid dimer formation. Outage of containers should be replaced with nitrogen or dry nitrogen to avoid water reaction with MDI. Contamination with moisture or other compounds can cause dangerous pressure buildup of CO<sub>2</sub> in closed containers.

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**SECTION 8 – PERSONAL PROTECTION**

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**Clothing:**

Rubber gloves, coveralls, hard hat, boots and rubber apron to prevent skin contact. Contaminated equipment or clothing should be cleaned after each use or disposed of.

**Eyes:**

Wear fitted chemical goggles or face shield and safety glasses.

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## SECTION 8 – PERSONAL PROTECTION (cont)

### Respiration:

For situations where the airborne concentrations may exceed those for which an air purifying respirator is effective, or where levels are unknown or Immediately Dangerous to Life or Health, select and use an appropriate positive pressure air supply respirator (airline or self-contained breathing apparatus). If atmospheric levels may exceed the occupational exposure limit (or TLV) approved air-purifying respirators equipped with a vapor sorbent and particulate filter can be used as long as appropriate precautions and change out schedules are in place.

### Ventilation:

Use local exhaust as necessary to maintain P.E.L.

### Explosion Proofing:

None required.

### Other Personal Protection Data:

Eyewash fountains and safety showers must be easily accessible. Maintain work area below P.E.L.

## SECTION 9 – PHYSICAL PROPERTIES

Color:	Light Yellow			
Form/Appearance:	Liquid/Bulk			
	XXXXXXXXXXXXXXXXXXXXSolid/Drums			
Odor:	Aromatic			
Odor Intensity:	Slight			
	Typical	Low/High		U.O.M.
Specific Gravity:	NOT AVAILABLE			
Bulk Density:	9.49			LB/GAL
Viscosity:	3360			CYCL
DEG.				
pH:	NOT AVAILABLE			
	Typical	Low/High	Deg.	@
Boiling Pt:	200		C	5
Freezing Pt:	NOT AVAILABLE			
Decomp. Tmp:	230		C	1
Solubility in Water Description:	Water reactive			
VAPOR PRESSURE:	0.00003 mmHg @ 25 deg C			
NCO	33.5% wt.			

## SECTION 10 – STABILITY AND REACTIVITY

### Stability Data:

Stable

### Incompatibility:

Water, alcohols and strong bases.

### Conditions/Hazards to Avoid:

Reaction with moisture may form CO<sub>2</sub>.

### Hazardous Decomposition/Polymerization:

Hazardous decomposition products: CO, NO<sub>x</sub>, HCN and MDI vapors

Polymerization: May occur.

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## SECTION 10 - STABILITY AND REACTIVITY (cont)

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### Corrosive Properties:

Not corrosive.

### Oxidizer Properties:

Not an oxidizer

### Other Reactivity Data:

Hazardous polymerization may occur. Avoid contamination with moisture and other products that react with isocyanates. Contact with certain rubbers and plastics can cause embrittlement of the material with subsequent loss in strength.

## SECTION 11 - TOXICOLOGICAL INFORMATION

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### Toxicology Test Data:

Rat, Inhalation LC50 - 178 UG/L

Highly Toxic

Rat, 4 hr Inhalation LC50 - 380 MG/CU. M

Highly Toxic

Rat, 4 hr Inhalation LC50 - 369 MG/CU. M

Highly Toxic

Rat, Oral LD50 - > 10,000 MG/KG

Practically Nontoxic

Mouse, Acute Intraperitoneal LD50 - 100 MG/KG

Toxic

## SECTION 12 - ECOLOGICAL INFORMATION

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### Environmental Toxicity Test Data:

Daphnia Magna, 24 hr EC/LC50 - > 500 MG/L

Practically Nontoxic

Zebra Fish, Static 24 hr LC50 - > 500 MG/L

Practically Nontoxic

## SECTION 13 - DISPOSAL CONSIDERATION

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### Waste Disposal:

Incinerate or landfill in a licensed facility. Do not discharge into waterways or sewer systems.

### Container Disposal:

Steel drums must be emptied (as defined by RCRA, Section 261 state regulations that may be more stringent) and can be sent to a licensed drum reconditioner for reuse, a scrap metal dealer, or approved landfill. Check with reconditioner to determine if they require them to be decontaminated. Drums destined for a scrap metal dealer or landfill must be decontaminated and punctured or crushed to prevent reuse.

## SECTION 14 - TRANSPORTATION INFORMATION

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### DOT Proper Shipping Name:

SEE BELOW

### DOT Technical Name:

SEE BELOW

### DOT Primary Hazard Class:

SEE BELOW

## SECTION 14 - TRANSPORTATION INFORMATION (cont)

DOT Secondary Hazard Class:

SEE BELOW

DOT Label Required:

SEE BELOW

DOT Placard Required:

SEE BELOW

DOT Poison Constituent:

SEE BELOW

BASF Commodity Codes:

UN/NA Code:

E/R Guide:

Bill of Lading Description:

< 793 GALLONS NOT REGULATED BY THE DEPARTMENT OF TRANSPORTATION  
 > 793 GALLONS RQ, OTHER REGULATED SUBSTANCES LIQUID, NOS, (MDI), 9,  
 NA3082, PG III

## SECTION 15 - REGULATORY INFORMATION

TSCA Inventory Status

Listed on Inventory: YES

SARA - 313 Listed Chemicals:

CAS:	28	AMOUNT:	100.0	%
NAME:	DIOSCYANATES			

RCRA Haz. Waste No.: NO

CERCLA: YES Reportable Qty.: (If YES)

XXXXXX	XXXXXXXXXXXXXX	5000	LBS
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## SECTION 16 - OTHER INFORMATION

Hazard Ratings:

BASF currently uses the National Paint & Coating Association (NPCA) rating system. The use of an asterisk (\*) in the HMIS rating indicates the potential for chronic health effects.

	Health:	Fire:	Reactivity:	Special:
HMIS	2	1	1	NA

FDA Approved: NO Use:

This product is hazardous or contains components which are hazardous according to the OSHA Hazard Communication Standard.

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## SECTION 16 – OTHER INFORMATION (cont)

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