

POLYONE CORPORATION

*PolyOne*

## MATERIAL SAFETY DATA SHEET

**ISO 3000Y**

Version Number 1.0

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Revision Date 07/12/2002

Print Date 2/14/2003

**1. PRODUCT AND COMPANY IDENTIFICATION****POLYONE CORPORATION**

2700 Papin Street, St. Louis, MO 63103

NON-EMERGENCY : Product Stewardship, (314) 771-1800  
TELEPHONE  
Emergency telephone : CHEMTREC 1-800-424-9300 (24hrs for spill, leak, fire, exposure  
number or accident).

Product name : ISO 3000Y  
Product code : FO00002845PA  
Chemical Name : Mixture  
CAS-No. : Mixture  
Product Use : Industrial Applications

**2. COMPOSITION/INFORMATION ON HAZARDOUS INGREDIENTS**

Components	CAS-No.	Weight %
Methylenediphenyl diisocyanate	26447-40-5	5 - 10
Polymethylene polyphenylene isocyanate	9016-87-9	30 - 60
4,4'-Methylenediphenyl diisocyanate (MDI)	101-68-8	30 - 60

**3. HAZARDS IDENTIFICATION****EMERGENCY OVERVIEW**

This product is a mixture of polymeric isocyanate and monomeric isocyanates. The health effects of polymeric isocyanates have not been fully investigated. Isocyanates in general are irritating to eyes, skin, and respiratory system. Exposure to moderate levels of isocyanates can result in respiratory or skin sensitization, especially in predisposed persons such as those with respiratory problems, recurrent skin eczema, or skin allergies. Polymeric isocyanates normally have low volatility, but heating, spraying, or other processing, especially in poorly ventilated areas, can increase exposure risk. Sensitized persons should not be exposed to any material containing unreacted isocyanates.

**POTENTIAL HEALTH EFFECTS**

Routes of Exposure: : Inhalation, Skin contact, Ingestion

**Acute exposure**

Inhalation : Isocyanates may cause acute irritation and/or sensitisation of the respiratory system leading to tightness of the chest, wheeziness and an asthmatic condition. Besides resulting in respiratory sensitization, exposure to isocyanate vapors or mists can also cause skin sensitization. Many isocyanates are low vapor pressure posing minimal airborne exposure risk unless heated or sprayed. Refer to Section 11 of this MSDS for information on the components of this

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- Ingestion : particular product.  
: May be harmful if swallowed. Can result in irritation and corrosive action in the mouth, stomach tissue, and digestive tract. Symptoms can include sore throat, abdominal pain, nausea, vomiting, and diarrhea.
- Eyes : Liquid, aerosol, or vapors of this product are irritating and may cause tearing, reddening, and swelling accompanied by a stinging sensation and/or a feeling like that of fine dust in the eyes.
- Skin : Prolonged contact can result in reddening, swelling, rash, scaling, blistering, and occasionally skin sensitization. Individuals prone to skin sensitization can develop these symptoms from contact with product liquid or vapors. Animal studies have shown that respiratory sensitization can result from skin contact with product.

Chronic exposure : Refer to Section 11 for Toxicological Information.

Medical Conditions : Individuals with chronic respiratory disorders (i.e. asthma, chronic  
Aggravated by Exposure: bronchitis, etc.) may be adversely affected by any airborne contaminant.

**4. FIRST AID MEASURES**

- Inhalation : Move to fresh air in case of accidental inhalation of fumes from overheating or combustion. When symptoms persist, or in all cases of doubt, seek medical advice.
- Ingestion : Do not induce vomiting without medical advice. Seek medical attention if necessary.
- Eyes : Rinse immediately with plenty of water for at least 15 minutes. If eye irritation persists, seek medical attention.
- Skin : Wash off with soap and plenty of water. Take off all contaminated clothing immediately. Wash contaminated clothing before re-use. If skin irritation persists seek medical attention.

**5. FIRE-FIGHTING MEASURES**

- Flash point : Greater than 300 °F
- Flammable Limits
- Upper explosion limit : No data available.
  - Lower explosion limit : No data available.
  - Autoignition temperature : No data available.
  - Suitable extinguishing media : Carbon dioxide blanket, dry powder, foam, Water spray.
- Special Fire Fighting Procedures : Fullface self-contained breathing apparatus (SCBA) used in positive pressure mode should be worn to prevent inhalation of airborne contaminants.
- Unusual Fire/Explosion Hazards : None

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## 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions : Ensure response personnel are properly protected (see section 8 for respiratory or other protection guidelines.) Use caution as floors may be slippery. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Remove all sources of ignition.
- Environmental precautions : Should not be released into the environment. The product should not be allowed to enter drains, water courses or the soil.
- Methods for cleaning up : Minor spills can be absorbed with sawdust or other absorbents and shoveled into unsealed containers for neutralization. Neutralizing can be performed with a solution of 0.2% to 0.5% liquid detergent and 3% to 8% concentrated ammonium hydroxide in water (5% to 10% sodium carbonate may be substituted.) Use 10 parts neutralizing solution to each part isocyanate. Allow to react for 10 to 15 minutes in a well ventilated area as carbon dioxide will be generated. Containers should be uncovered for 48 hours to allow CO<sub>2</sub> to escape. Decontaminate floors and other surfaces with neutralizing solution.

## 7. HANDLING AND STORAGE

- Handling : Heat only in areas with appropriate exhaust ventilation. Ensure all equipment is electrically grounded before beginning transfer operations. Ensure employees are properly trained before allowing to handle. Use only with adequate ventilation. Avoid skin contact with product. Do not breathe vapors or mists. If sensitization to this material occurs, all future exposure should be prevented.
- Storage : Store in a cool dry place. Keep containers dry and tightly closed to avoid moisture absorption and contamination. Do not reseal containers if moisture contamination is suspected as moisture contamination may result in CO<sub>2</sub> generation and increased pressure inside the container. Keep from freezing. Keep away from feed or food products.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

- Respiratory protection : Heating or spraying or using the product with inadequate ventilation may result in an airborne exposure potential. Appropriate respiratory protection protection such as a supplied air respirator in positive pressure or continuous flow mode must be worn. Isocyanates have poor warning properties as the odor threshold is much higher than the permissible exposure limit. Refer to OSHA 29 CFR 1910.134 for respiratory use regulations.
- Eye/Face Protection : Safety glasses with side-shields. Wear goggles or face shield during operations that present a splash potential.

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- Hand protection** : Wear protective gloves when product contact is a possibility. Ensure gloves are resistant to isocyanates. Test gloves or contact glove vendor prior to use. Some gloves that have been found to work include neoprene, nitrile rubber, butyl rubber, and PVA. Note that PVA degrades in water. Use of thin disposable latex gloves should be avoided.
- Skin and body protection** : Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Additional Protective Measures** : Safety shoes.
- General Hygiene Considerations** : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
- Engineering measures** : Provide appropriate exhaust ventilation at machinery. Adequate ventilation and/or appropriate respiratory protection may also be necessary to minimize employee exposure to processing vapors.

Exposure limit(s)

Components	Value	Exposure time	Exposure type	List:
4,4'-Methylenediphenyl diisocyanate (MDI)	0.005 ppm	Time Weighted Average (TWA):	as MDI	ACGIH
4,4'-Methylenediphenyl diisocyanate (MDI)	0.02 ppm 0.2 mg/m3	Ceiling Limit Value:	as MDI	OSHA Z1

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Form	: Liquid	Evaporation rate	: Not established
Appearance	: Liquid	Specific Gravity	: Not determined
Color	: NO PIGMENT	Bulk density	: Not applicable.
Odor	: Very faint	Vapor pressure	: Not determined
Melting point/range	: Typically 58 °F to 68 °F	Vapor density	: Not determined
Boiling Point:	: No data available.	pH	: Not applicable.
Water solubility	: Immiscible		

**10. STABILITY AND REACTIVITY**

- Stability** : Stable.
- Hazardous Polymerization** : Will not occur.
- Conditions to avoid** : Keep from freezing. Avoid moisture. Keep away from oxidizing agents and open flame.
- Incompatible Materials** : Isocyanates will react with materials containing active hydrogen such

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as water, alcohols, ammonia, amines, alkalis, and acids. The reaction with water (including humid conditions) is accelerated in the presence of alkalis, tertiary amines, and metal compounds. Some reactions can be violent. Iron, zinc, aluminium and their compounds will catalyze product decomposition.

Hazardous decomposition products : Carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), other hazardous materials, and smoke are all possible.

**11. TOXICOLOGICAL INFORMATION**

This mixture has not been evaluated as a whole for health effects. Exposure effects listed are based on existing health data for the individual components which comprise the mixture.

Toxicity Overview

This product contains the following components which in their pure form have the following characteristics:

CAS-No.	Chemical Name	Effect	Target Organ
26447-40-5	Methylenediphenyl diisocyanate	Irritant	Eyes, Skin, Respiratory system.
		sensitizer	Respiratory system, Skin.
9016-87-9	Polymethylene polyphenylene isocyanate	Irritant	Eyes, Skin, Respiratory system.
		sensitizer	Skin, Respiratory system.
		toxic	Refer to LC50 / LD50 Data on MSDS..
101-68-8	4,4'-Methylenediphenyl diisocyanate (MDI)	Systemic effects	Eyes, Respiratory system.
		Irritant	Eyes, Skin, Respiratory system.
		sensitizer	Skin, Respiratory system.
		toxic	Refer to LC50 / LD50 Data on MSDS..

LC50 / LD50

This product contains the following components which in their pure form have the following toxicity data:

CAS-No.	Chemical Name	Route	Value	Species
9016-87-9	Polymethylene polyphenylene isocyanate	LC50	490 mg/m <sup>3</sup>	rat
		Oral LD50	49 gm/kg	rat
		Dermal LD50	> 9,400 mg/kg	rabbit
101-68-8	4,4'-Methylenediphenyl diisocyanate (MDI)	LC50	178 mg/m <sup>3</sup>	rat
		Oral LD50	9,200 mg/kg	rat

Additional Health Hazard Information:

Methylenediphenyl diisocyanate 26447-40-5 Isocyanates in general are irritants to the skin, eyes, and respiratory system. Isocyanates are skin and respiratory sensitizers. Exposure can result in an asthma-like condition or skin rashes. Sensitized individuals should be kept from exposure to unreacted isocyanates.

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**Additional Health Hazard Information:**

4,4'-Methylenediphenyl diisocyanate (MDI) 101-68-8 Isocyanates in general are irritants to the skin, eyes, and respiratory system. Isocyanates are skin and respiratory sensitizers. Exposure can result in an asthma-like condition or skin rashes. Sensitized individuals should be kept from exposure to unreacted isocyanates.

**12. ECOLOGICAL INFORMATION**

- Persistence and degradability : Not readily biodegradable.
- Environmental Toxicity : Adverse ecological impact is not known or expected under normal use.
- Bioaccumulation Potential : No data available.
- Additional advice : No data available.

**13. DISPOSAL CONSIDERATIONS**

- Product : The generator of waste material has the responsibility for proper waste classification, transportation and disposal in accordance with applicable federal, state/provincial and local regulations.
- Contaminated packaging : Drums or other used isocyanate containers must be decontaminated before disposal. Ensure disposal personnel are properly protected from exposure. Spray neutralizing solution into the used container at a 10:1 solution:waste ratio. Allow container to stand unsealed for 48 hours in a well ventilated area. Pour out the solution, triple rinse the container, and puncture or otherwise destroy the rinsed container prior to disposal. The generator of waste material has the responsibility for proper waste classification, transportation and disposal in accordance with applicable federal, state/provincial and local regulations.

**14. TRANSPORT INFORMATION**

- U.S. DOT / CA TDG Classification : Not regulated for transportation.
- ICAO/IATA : Not regulated for transportation.
- IMO / IMDG : Not regulated for transportation.

**15. REGULATORY INFORMATION****US Regulations:**

- OSHA Status : Classified as hazardous based on components.

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TSCA Status : All components of this product are listed on the TSCA inventory or are exempt.

## US. EPA CERCLA Hazardous Substances (40 CFR 302)

Chemical Name	CAS-No.	% in Product	RQ for component	RQ for Mixture/Product
4,4'-Methylenediphenyl diisocyanate (MDI)	101-68-8	45.00	5,000 lbs	11,111 LB

California Proposition 65 : This product does not contain a substance listed by California Prop 65.

## SARA Title III Section 313 Toxic Chemicals:

Chemical Name	CAS-No.	Weight %
METHYLENEBIS(PHENYLISOCYANATE) (MDI)	101-68-8	45.00
POLYMERIC DIPHENYLMETHANE DIISOCYANATE	9016-87-9	55.00

## Canadian Regulations:

WHMIS Classification : DIA

## WHMIS Ingredient Disclosure List

CAS-No.
101-68-8

DSL : Listed.

## National Inventories:

Australia AICS : Listed.

China IECS : Listed.

Europe EINECS : Not determined.

Japan ENCS : Listed.

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Korea KECI : Listed.

Philippines PICCS : Listed.

## 16. OTHER INFORMATION

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.