



Material Safety Data Sheet

BL -80 Series ISO

Original Date: 12/15/2005
Revision Date: 08/05/2010

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1. Substance/preparation and company identification

Company

Burtin Polymer Laboratories
100 Enterprise Drive
Cartersville, Ga 30120
770-607-0755

24 Hour Emergency Response Information

CHEMTREC: (800) 424-9300

Product Name:	BL- 80 Series ISO
Common Chemical Name:	1,6-Hexamethylene Diisocyanate Based Polyisocyanate
Chemical Family:	Aliphatic Polyisocyanate

2. Hazards Identification

Emergency Overview

CAUTION: SENSITIZER.
Inhalation may cause lung damage.
CAUSES EYE, SKIN AND RESPIRATORY TRACT IRRITATION.
MAY CAUSE DIFFICULTY BREATHING.
MAY CAUSE ALLERGIC RESPIRATORY REACTION.
MAY CAUSE ALLERGIC SKIN REACTION.

Warning Statement

CAUTION:
CONTACT WITH THE EYES AND SKIN MAY CAUSE IRRITATION. INHALATION MAY RESULT IN IRRITATION.

Potential Health Effects

Primary Route 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 liquefied gases.

Acute Overexposure Effects:

Information on: Diisocyanates Inhalation of isocyanate vapors may cause irritation of the mucous membranes of the nose and throat or trachea, breathlessness, chest discomfort, difficult breathing and reduced pulmonary function. Airborne overexposure well above recommended limits (5 ppb) 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:

Information on: Isocyanates 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.

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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. Information on: Diisocyanates Acute or chronic overexposure to isocyanates may cause sensitization in some individuals, resulting in allergic symptoms of the lower respiratory tract (asthma-like), including wheezing, shortness of breath and difficulty breathing. Subsequent reactions may occur at or substantially below the PEL and TLV. Asthma caused by isocyanates may persist in some individuals after removal from exposure. Some isocyanate sensitized persons may experience asthma reactions upon exposure to non-isocyanate containing dusts or irritants. Cross sensitization to different isocyanates may occur.

First Aid Procedures – Aggravated Medical Conditions:

The isocyanate component is a respiratory sensitizer. It may cause allergic reaction leading to asthma-like spasms of the bronchial tubes and difficulty in breathing. Medical supervision of all employees who handle or come into contact with isocyanates is recommended. Contact may aggravate pulmonary disorders. Persons with history of respiratory disease or hypersensitivity should not be exposed to this product. Preemployment and periodic medical examinations with respiratory function tests (FEV, FVC as a minimum) are suggested. An animal study indicated that MDI may induce respiratory hypersensitivity following dermal exposure. Persons with asthmatic conditions, chronic bronchitis, other chronic respiratory diseases, recurrent eczema or pulmonary sensitization should be excluded from working with isocyanates. Once a person is diagnosed as having pulmonary sensitization (allergic asthma) to isocyanates, further exposure is not recommended.

3. Ingredients

<u>Chemical Name</u>	<u>CAS</u>	<u>Amount</u>
Homopolymer of Hexamethylene Diisocyanate	28182-81-2	> 79.0 %
Hexamethylene-1,6-Diisocyanate	822-06-0	< 0.1-0.3%

4. First Aid Measures

Skin:

Wash affected areas with soap and water. Remove and launder contaminated clothing before reuse. Use lukewarm water if possible. For severe exposure, immediately get under safety shower and begin rinsing. Get immediate medical attention if irritation develops and persists.

Eyes:

Immediately rinse eyes with running water for 15 minutes. Use lukewarm water if possible. Use fingers to ensure eyelids are separated and that the eye is being irrigated. Then remove contact lenses, if easily removable, and continue eye irrigation for not less than 15 minutes. Get immediate medical attention if irritation develops.

Ingestion:

DO NOT induce vomiting. Wash mouth out with water. Do not give anything by mouth to an unconscious person. Get medical attention.

Inhalation:

Move to fresh air. Aid in breathing, if necessary, and get immediate medical attention. Asthmatic symptoms may develop and may be immediate or delayed up to several hours. Extreme asthmatic reactions can be life threatening.

Notes to Physicians:

Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision. Skin: This compound is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn. Ingestion: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the compound. Inhalation: Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

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5. Fire Fighting Measures

Extinguishing Media:

Dry chemical, Carbon dioxide (CO₂), Foam, water spray for large fires.

Fire Fighting Procedures:

Firefighters should wear NFPA compliant structural firefighting protective equipment, including self-contained breathing apparatus and NFPA compliant helmet, hood, boots, and gloves. Avoid contact with product. Decontaminate equipment and protective clothing prior to reuse. During a fire, isocyanate vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. Exposure to heated diisocyanate can be extremely dangerous.

Unusual Hazards:

Closed container may forcibly rupture under extreme heat or when contents are contaminated with water (CO₂ formed). Use cold-water spray to cool fire-exposed containers to minimize the risk of rupture. Large fires can be extinguished with large volumes of water applied from a safe distance, since reaction between water and hot diisocyanate can be vigorous.

6. Accidental Release Measures

Personal precautions:

Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

Environmental precautions:

Do not discharge into drains/surface waters/groundwater.

Cleanup:

Dike spillage.

For small amounts: Absorb isocyanate with suitable absorbent material (see § 40 CFR, sections 260, 264 and 265 for further information). Shovel into open container. Do not make container pressure tight. Move container to a well-ventilated area (outside). Spill area can be decontaminated with the following recommended decontamination solution: Mixture of 90 % water, 8 % concentrated ammonia, 2 % detergent. Add at a 10 to 1 ratio. Allow to stand for at least 48 hours to allow escape of evolved carbon dioxide. For large amounts: If temporary control of isocyanate vapor is required, a blanket of protein foam or other suitable foam (available from 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. For residues: The following measures should be taken for final cleanup: Wash down spill area with decontamination solution. Allow solution to stand for at least 10 minutes.

7. Storage and Handling

Storage temperature:

Minimum: -34 °C (-29.2 °F)

Maximum: 50 °C (122 °F)

Storage period:

6 months @ 25 °C (77 °F): after receipt of material by customer

Handling/Storage Precautions

Do not breathe vapors, mists, or dusts. Use adequate ventilation to keep airborne isocyanate levels below the exposure limits. Wear respiratory protections if material is heated, sprayed, used in a confined space, or if the exposure limit is exceeded. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposure to lower concentrations. Individuals with lung or breathing problems or prior allergic reactions to isocyanates must not be exposed to vapor or spray mist. Avoid contact with skin and eyes. Do not breathe smoke and gases created by overheating or burning this material. Decomposition products can be highly toxic and irritating. Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected.

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8. Personal Protection

Components with workplace control parameters

3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate ACGIH TWA value 0.005 ppm ;

Advice on system design:

Provide local exhaust ventilation to maintain recommended P.E.L.

Personal protective equipment

Respiratory protection:

For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions. When atmospheric levels may exceed the occupational exposure limit (PEL or TLV) NIOSH-certified air-purifying respirators equipped with an organic vapor sorbent and particulate filter can be used as long as appropriate precautions and change out schedules are in place.

Hand protection:

Chemical resistant protective gloves, Suitable materials, chloroprene rubber (Neoprene), chlorinated polyethylene, polyvinylchloride (Pylox), butyl rubber, fluoroelastomer (Viton)

Eye protection:

Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:

Suitable materials, saran-coated material

General safety and hygiene measures:

Wear protective clothing as necessary to prevent contact. Eye wash fountains and safety showers must be easily accessible. Observe the appropriate PEL value. Wash soiled clothing immediately. Contaminated equipment or clothing should be cleaned after each use or disposed of.

9. Physical Properties

Color:	Colorless to light yellow
Form/Appearance:	Liquid
Odor:	Slight inherent odour
pH:	Not Applicable
Boiling point/boiling range:	ca. 285 °C (545 °F) @ 1,013 hPa (DIN 53171)
Flash point:	ca. 203 °C (397.4 °F) (DIN EN 22719)
Lower explosion limit:	Not Established
Upper explosion limit:	Not Established
Vapour pressure:	HDI Polyisocyanate: 5.2 X 10 ⁻⁹ @ 68 F (20 C) mmHg
Density:	ca. 1.15 g/cm ³ @ 20
Specific Gravity:	Approximately 1.15 @ 20 °C (68 °F)
Solubility in Water:	Insoluble-React slowly with water to liberate CO ₂ gas
Autoignition temperature:	ca. 435 °C (815 °F) (DIN 51794)
Viscosity, dynamic:	ca. 700mPa.s @ 23°C (73.4 °F) (DIN EN ISO 3219/A.3)
Bulk Density:	Approximately 1,150.33 kg/m ³
Molecular Weight:	500 Approximate Value, For the polyisocyanate
Pour point:	ca. -36 °C (-32.8 °F)(ISO 3016)

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10. Stability and Reactivity

Hazardous Reactions:

Contact with moisture, other materials that react with isocyanates, or temperatures above 350 F (177 C), may cause polymerization.

Stability Data:

Stable under normal conditions of use and storage

Materials to Avoid:

Water, Amines, Strong bases, Alcohols, Copper alloys

Conditions to Avoid:

None known

Hazardous Decomposition/Polymerization:

By Fire and High Heat: Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke., Hydrogen cyanide, Isocyanate, Isocyanic Acid, Other undetermined compounds.

11. Toxicological Information

Skin irritation:

May cause severe irritation to the skin.

Sensitization:

Can sensitize the skin and/or respiratory tract of allergic persons.

12. Ecological Information

No applicable data for this section.

13. Disposal Consideration

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 261.7 or state regulations that may be more stringent) and can be sent to a licensed drum reconditioner for reuse, a scrap metal dealer, or an approved landfill. Drums destined for a scrap dealer or landfill must be punctured or crushed to prevent reuse.

14. Transportation Information

Proper Shipping Name:

Other regulated substances, liquid, n.o.s. (contains Hexamethylene-1,6-Diisocyanate)

Hazard Class or Division:

9

UN/NA Number:

NA3082

Packaging Group:

III

Hazard Label(s):

Class 9

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RSPA/DOT Regulated Components:

Hexamethylene-1,6-Diisocyanate

Reportable Quantity: 15,119

Sea transport (IMDG)

Non-Regulated

Air transport (ICAO/IATA)

Non-Regulated

Additional Transportation Information

When in individual containers of less than the Product RQ, this material ships as non-regulated.

15. Regulatory Information

United States Federal Regulations

OSHA Hazcom Standard Rating: Hazardous

TSCA Inventory Status

Listed on Inventory: Yes

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

Components

None

SARA Section 33/312 Hazard Categories:

Acute Health Hazard, Chronic Health Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):

Components

None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) – Supplier Notification Required:

Components

None

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):

Under RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste.

State Right-to-Know Information

The following chemicals are specifically listed by individual states: other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

<u>Weight percent</u>	<u>Components</u>	<u>CAS-No.</u>
0.1 – 0.3%	Hexamethylene-1,6, Diisocyanate	822-06-0
<=0.3%	Isopropanol	67-63-0
<=0.1%	p-Toluenesulfonic Acid	104-15-4

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California Prop. 65:

To the best of our knowledge, this product does not contain any of the listed chemical, which the state of California has found to cause cancer, birth defects or other reproductive harm.

16. Other Information

Hazard Ratings:

	<u>Health:</u>	<u>Fire:</u>	<u>Reactivity:</u>	<u>Special:</u>
HMIS	2*	1	1	NA

HMIS uses a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates high hazard.

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