

Material Safety Data Sheet

Material Name: Millennium PG-1 Pump Grade Adhesive, Part A

ID: ML-022

*** Section 1 - Chemical Product and Company Identification ***

Manufacturer Information

ADCO Products, Inc.
4401 Page Ave., PO Box 457
Michigan Center, MI 49254
Mfg Contact: Phone: 517-764-0334

Phone: CHEMTREC 1-800-424-9300 (US)

Emergency # CHEMTREC International 1-703-527-3887

*** Section 2 - Hazards Identification ***

Emergency Overview

APPEARANCE AND ODOR: Dark brown liquid with faint aromatic odor.

This product is harmful by inhalation, when in contact with the skin and if it is swallowed. This product may cause sensitization by inhalation and skin contact. Repeated inhalation of vapors may cause an allergic respiratory response, the onset of which may be delayed several hours after exposure. Avoid contamination. Water reacts with product liberating CO₂ gas.

Potential Health Effects: Eyes

This product is irritating to the eyes. Symptoms include itching, burning, redness and tearing.

Potential Health Effects: Skin

This product is irritating to the skin. This product may cause an allergic skin reaction.

Potential Health Effects: Ingestion

Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Potential Health Effects: Inhalation

Allergic lung reaction such as asthma, which includes coughing, wheezing, chest pain and tightness, difficulty breathing and shortness of breath; irritation of the upper respiratory tract, which includes burning of mouth, throat, and chest.

HMIS Ratings: Health: 2* Fire: 1 Physical: 1

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

*** Section 3 - Composition / Information on Ingredients ***

CAS #	Component	Percent
101-68-8	Methylene bisphenol isocyanate (MDI)	30-60
9016-87-9	Polymethylene polyphenylene isocyanate	30-60

Component Information/Information on Non-Hazardous Components

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

This material is a controlled product under Canadian WHMIS regulations.

*** Section 4 - First Aid Measures ***

First Aid: Eyes

Immediately flush eyes with water for at least 15 minutes, while holding eyelids open. Seek medical attention at once.

First Aid: Skin

Wash exposed skin with soap and water. If irritation develops or persists, seek medical attention. Contaminated leather articles, including shoes, that cannot be decontaminated should be discarded.

First Aid: Ingestion

If the material is swallowed, get immediate medical attention or advice -- Do not induce vomiting. Never give anything by mouth to a victim who is unconscious or is having convulsions.

First Aid: Inhalation

Move affected individual to an area free of risk from further exposure. Administer oxygen or artificial respiration as needed. Immediate or delayed asthma-like symptoms may develop. Obtain medical attention.

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*** Section 5 - Fire Fighting Measures ***

General Fire Hazards

See Section 9 for Flammability Properties.

Cool containers with water spray. Containers may burst if overheated. This product reacts with water producing CO₂ gas. Do not reseal contaminated containers as a hazardous pressure build up could result in container rupture.

Hazardous Combustion Products

Combustion products may include carbon oxides, nitrogen oxides, hydrocarbons, HCN and isocyanates.

Extinguishing Media

Use methods for the surrounding fire.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self contained breathing apparatus.

NFPA Ratings: Health: 2 Fire: 1 Reactivity: 1

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

*** Section 6 - Accidental Release Measures ***

Containment Procedures

Wear appropriate personal protective equipment. Stop the flow of material, if this is without risk. Do not allow to drain to sewers.

Clean-Up Procedures

Ventilate the contaminated area. Absorb spill with inert material. Shovel material into appropriate container for further neutralization and disposal. Dispose of in accordance with federal, state and local regulations in a permitted waste management facility.

Evacuation Procedures

Evacuate the area promptly. Keep upwind of the spilled material and isolate exposure.

Special Procedures

Avoid inhalation of vapors or mists. Surfaces may become slippery after a spill.

*** Section 7 - Handling and Storage ***

Handling Procedures

Avoid contact with skin and eyes. Do not breathe vapors. Wear proper personal protective equipment. Avoid contact with water. Do not re-seal contaminated product as a hazardous build-up of pressure may result from liberation of CO₂ gas. Avoid contact with metals such as aluminum, brass, copper, galvanized metals, tin and zinc.

Storage Procedures

Keep containers properly sealed in a cool, dry, well-ventilated area between 65-85F (18.3-29.4C). Do not store in open, unlabeled or mislabeled containers. Do not reuse empty container without commercial cleaning or reconditioning.

*** Section 8 - Exposure Controls / Personal Protection ***

A: Component Exposure Limits

Methylene bisphenol isocyanate (MDI) (101-68-8)

ACGIH: 0.005 ppm TWA

OSHA: 0.02 ppm Ceiling; 0.2 mg/m³ Ceiling

NIOSH: 0.005 ppm TWA; 0.05 mg/m³ TWA

0.020 ppm Ceiling (10 min); 0.2 mg/m³ Ceiling (10 min)

Engineering Controls

Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear chemical goggles; add face shield (if splashing is possible).

Personal Protective Equipment: Skin

The use of neoprene, nitrile rubber or butyl rubber gloves is recommended.

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Personal Protective Equipment: Respiratory

Use a NIOSH-approved organic vapor respirator to protect against inhalation of vapors. A respirator should be used if ventilation is unavailable, or is inadequate for keeping vapor levels below the applicable exposure limits.

Personal Protective Equipment: General

Eye wash fountain and emergency showers are recommended.

*** Section 9 - Physical & Chemical Properties ***

Appearance:	Dark brown liquid.	Odor:	Faint, aromatic.
Physical State:	Liquid.	pH:	Not Available.
Vapor Pressure:	Not Available.	Vapor Density:	Not Available.
Boiling Point:	Not Available.	Melting Point:	Not Available.
Solubility (H2O):	Reacts with water.	Specific Gravity:	1.22
Evaporation Rate:	Not Available.	VOC:	Not Available.
Viscosity:	200 cps @ 75°F	Percent Volatile:	<0.15
Octanol/H2O Coeff.:	Not Available.	Flash Point:	>350°F (177°C)
Flash Point Method:	Pensky-Martin Closed Cup	Upper Flammability Limit (UFL):	Not Available.
Lower Flammability Limit (LFL):	Not Available.	Burning Rate:	Not Available.
Auto Ignition:	Not Available.		

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

Stable at room temperature. Reaction with water (moisture) produces CO2 gas. Exothermic reaction with materials containing active hydrogen groups.

Chemical Stability: Conditions to Avoid

Avoid high temperatures. Avoid contact with water. Avoid contamination. Avoid contact with metals such as aluminum, brass, copper, galvanized metals, tin and zinc.

Incompatibility

Water, alcohols, amines, bases and acids.

Hazardous Decomposition

Carbon oxides, nitrogen oxides, hydrocarbons, HCN and isocyanates.

Possibility of Hazardous Reactions

Polymerization will occur at elevated temperatures in the presence of alkalies, tertiary amines and metal compounds.

*** Section 11 - Toxicological Information ***

Acute Dose Effects

A: General Product Information

This product is harmful by inhalation, when in contact with the skin and if it is swallowed. This product may cause sensitization by inhalation and skin contact. Repeated inhalation of vapors may cause an allergic respiratory response, the onset of which may be delayed several hours after exposure. This product is irritating to the eyes. Symptoms include itching, burning, redness and tearing. Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea.

B: Component Analysis - LD50/LC50

Polymethylene polyphenylene isocyanate (9016-87-9)

Inhalation LC50 Rat: 490 mg/m³/4H; Oral LD50 Rat: 49 g/kg; Dermal LD50 Rabbit: >9400 mg/kg

Methylene bisphenol isocyanate (MDI) (101-68-8)

Oral LD50 Rat: 9200 mg/kg

Repeated Dose Effects

Repeated or prolonged exposure to MDI may result in isocyanate sensitization (chemical asthma) in some individuals, causing them to react to isocyanate exposure at concentrations below the established exposure limits. Symptoms include chest tightness, wheezing, coughing, and shortness of breath. Effects can be delayed. Overexposure can cause lung damage, including decreased lung function. Prolonged or repeated skin contact may cause irritation leading to dermatitis. Skin sensitization may also occur.

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Lung injury has been observed in laboratory animals after repeated excessive exposure to MDI/polymeric MDI aerosol droplets. Lung tumors have been observed in laboratory animals exposed to aerosol droplets of MDI/polymeric MDI (6 mg/m) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects.

Carcinogenicity

A: General Product Information

No additional information available.

B: Component Carcinogenicity

Polymethylene polyphenylene isocyanate (9016-87-9)

IARC: Supplement 7 [1987], Monograph 19 [1979] (Group 3 (not classifiable))

Methylene bisphenol isocyanate (MDI) (101-68-8)

IARC: Monograph 71 [1999], Supplement 7 [1987], Monograph 19 [1979] (Group 3 (not classifiable))

*** Section 12 - Ecological Information ***

Ecotoxicity

A: General Product Information

No information available for the product. Product is immiscible with water.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

No ecotoxicity data are available for this product's components.

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

Wastes must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

*** Section 14 - Transportation Information ***

US DOT Information

Shipping Name: Not Regulated.

TDG Information

Shipping Name: Not Regulated.

*** Section 15 - Regulatory Information ***

US Federal Regulations

A: General Product Information

Components of this product have been checked against the non-confidential TSCA inventory by CAS Registry Number. Components not identified on this non-confidential inventory are either exempt from listing (i.e. polymers, hydrates) or are listed on the confidential inventory as declared by the supplier.

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B: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Polymethylene polyphenylene isocyanate (9016-87-9)

SARA 313: 1.0 % de minimis concentration (listed under Chemical Category N120, Diisocyanates)

Methylene bisphenol isocyanate (MDI) (101-68-8)

SARA 313: 1.0 % de minimis concentration (listed under Chemical Category N120, Diisocyanates)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

Acute Health: Yes Chronic Health: Yes Fire: No Pressure: Yes Reactive: Yes

State Regulations

A: General Product Information

Other state regulations may apply. Check individual state requirements.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Methylene bisphenol isocyanate (MDI)	101-68-8	Yes	Yes	Yes	Yes	Yes	Yes

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Methylene bisphenol isocyanate (MDI)	101-68-8	0.1 %

WHMIS Classification: D2A, D2B

Additional Regulatory Information

A: General Product Information

No additional information available.

B: Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Polymethylene polyphenylene isocyanate	9016-87-9	Yes	DSL	No
Methylene bisphenol isocyanate (MDI)	101-68-8	Yes	DSL	EINECS

*** Section 16 - Other Information ***

Other Information

Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration, NFPA = National Fire Protection Association; HMIS = Hazardous Material Identification System; CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; SARA = Superfund Amendments and Reauthorization Act; DSL = Canadian Domestic Substance List; EINECS = European Inventory of New and Existing Chemical Substances; WHMIS = Workplace Hazardous Materials Information System; CAA = Clean Air Act

Material Safety Data Sheet

Material Name: Millennium PG-1 Pump Grade Adhesive, Part B

ID: ML-023

*** Section 1 - Chemical Product and Company Identification ***

Manufacturer Information

ADCO Products, Inc.
4401 Page Ave., PO Box 457
Michigan Center, MI 49254
Mfg Contact: Phone: 517-764-0334

Phone: CHEMTREC 1-800-424-9300 (US)

Emergency # CHEMTREC International 1-703-527-3887

*** Section 2 - Hazards Identification ***

Emergency Overview

APPEARANCE AND ODOR: Colorless liquid with a polyether odor.

Severely irritating to eyes, skin and lungs. May cause allergic skin and respiratory reactions. May cause burns. May be harmful if swallowed.

Potential Health Effects: Eyes

This product is severely irritating to the eyes. Symptoms include itching, burning, redness and tearing. May cause eye burns.

Potential Health Effects: Skin

This product is severely irritating to the skin. This product may cause an allergic skin reaction.

Potential Health Effects: Ingestion

Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Potential Health Effects: Inhalation

Allergic lung reaction such as asthma, which includes coughing, wheezing, chest pain and tightness, difficulty breathing and shortness of breath; irritation of the upper respiratory tract, which includes burning of mouth, throat, and chest.

HMIS Ratings: Health: 2 Fire: 0 Physical: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

*** Section 3 - Composition / Information on Ingredients ***

CAS #	Component	Percent
25322-69-4	Polypropylene glycol	60-100
Not Available	Proprietary Tertiary Amines	1-5

Component Information/Information on Non-Hazardous Components

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

This material is a controlled product under Canadian WHMIS regulations.

*** Section 4 - First Aid Measures ***

First Aid: Eyes

Immediately flush eyes with water for at least 15 minutes, while holding eyelids open. Seek medical attention at once.

First Aid: Skin

Wash exposed skin with soap and water. If irritation develops or persists, seek medical attention. Contaminated leather articles, including shoes, that cannot be decontaminated should be discarded.

First Aid: Ingestion

If the material is swallowed, get immediate medical attention or advice -- Do not induce vomiting. Never give anything by mouth to a victim who is unconscious or is having convulsions.

First Aid: Inhalation

Move affected individual to an area free of risk from further exposure. Administer oxygen or artificial respiration as needed. Immediate or delayed asthma-like symptoms may develop. Obtain medical attention.

*** Section 5 - Fire Fighting Measures ***

General Fire Hazards

See Section 9 for Flammability Properties.

Cool containers with water spray. Containers may burst if overheated.

Material Safety Data Sheet

Material Name: Millennium PG-1 Pump Grade Adhesive, Part B

ID: ML-023

Hazardous Combustion Products

Combustion products may include carbon oxides, nitrogen oxides, HCN and organic acid vapors.

Extinguishing Media

Use methods for the surrounding fire.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self contained breathing apparatus.

NFPA Ratings: Health: 2 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

*** Section 6 - Accidental Release Measures ***

Containment Procedures

Wear appropriate personal protective equipment. Stop the flow of material, if this is without risk. Do not allow to drain to sewers.

Clean-Up Procedures

Ventilate the contaminated area. Absorb spill with inert material. Shovel material into appropriate container for further neutralization and disposal. Dispose of in accordance with federal, state and local regulations in a permitted waste management facility.

Evacuation Procedures

Evacuate the area promptly. Keep upwind of the spilled material and isolate exposure.

Special Procedures

Avoid inhalation of vapors or mists. Surfaces may become slippery after a spill.

*** Section 7 - Handling and Storage ***

Handling Procedures

Avoid contact with skin and eyes. Do not breathe vapors. Wear proper personal protective equipment. Avoid contact with water. Do not re-seal contaminated product as a hazardous build-up of pressure may result from liberation of CO₂ gas. Avoid contact with metals such as aluminum, brass, copper, galvanized metals, tin and zinc.

Storage Procedures

Keep containers properly sealed in a cool, dry, well-ventilated area between 65-85F (18.3-29.4C). Do not store in open, unlabeled or mislabeled containers. Do not reuse empty container without commercial cleaning or reconditioning.

*** Section 8 - Exposure Controls / Personal Protection ***

A: Component Exposure Limits

ACGIH, OSHA, and NIOSH have not developed exposure limits for any of this product's components.

Engineering Controls

Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear chemical goggles; add face shield (if splashing is possible).

Personal Protective Equipment: Skin

The use of neoprene, nitrile rubber or butyl rubber gloves is recommended.

Personal Protective Equipment: Respiratory

Use a NIOSH-approved organic vapor respirator to protect against inhalation of vapors. A respirator should be used if ventilation is unavailable, or is inadequate for keeping vapor levels below the applicable exposure limits.

Personal Protective Equipment: General

Eye wash fountain and emergency showers are recommended.

*** Section 9 - Physical & Chemical Properties ***

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Material Name: Millennium PG-1 Pump Grade Adhesive, Part B

ID: ML-023

Appearance:	Colorless liquid.	Odor:	Polyether.
Physical State:	Liquid.	pH:	9-10
Vapor Pressure:	Not Available.	Vapor Density:	Not Available.
Boiling Point:	Not Available.	Melting Point:	Not Available.
Solubility (H2O):	Not Available.	Specific Gravity:	1.01
Evaporation Rate:	Not Available.	VOC:	Not Available.
Viscosity:	325 – 385 cps	Percent Volatile:	<0.15
Octanol/H2O Coeff.:	Not Available.	Flash Point:	>350°F (177°C)
Flash Point Method:	Pensky-Martin Closed Cup	Upper Flammability Limit (UFL):	Not Available.
Lower Flammability Limit (LFL):	Not Available.	Burning Rate:	Not Available.
Auto Ignition:	Not Available.		

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

Stable at room temperature.

Chemical Stability: Conditions to Avoid

Avoid high temperatures. Avoid contact with water. Avoid contamination. Avoid contact with metals such as aluminum, brass, copper, galvanized metals, tin and zinc.

Incompatibility

Water, alcohols, amines, bases and acids.

Hazardous Decomposition

Carbon oxides, nitrogen oxides, hydrocarbons, HCN and organic acid vapors.

Possibility of Hazardous Reactions

Will not occur.

*** Section 11 - Toxicological Information ***

Acute Dose Effects

A: General Product Information

Severely irritating to eyes, skin and lungs. May cause allergic skin and respiratory reactions. May cause burns. May be harmful if swallowed.

B: Component Analysis - LD50/LC50

Polypropylene glycol (25322-69-4)

Oral LD50 Rat: >2 g/kg

Repeated Dose Effects

No information available on the product. Avoid repeated exposure.

Carcinogenicity

A: General Product Information

No additional information available.

B: Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

*** Section 12 - Ecological Information ***

Ecotoxicity

A: General Product Information

No information available for the product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

No ecotoxicity data are available for this product's components.

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Material Name: Millennium PG-1 Pump Grade Adhesive, Part B

ID: ML-023

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

Wastes must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

*** Section 14 - Transportation Information ***

US DOT Information

Shipping Name: Not regulated as a hazardous material.

TDG Information

Shipping Name: Not regulated as a dangerous good.

*** Section 15 - Regulatory Information ***

US Federal Regulations

A: General Product Information

Components of this product have been checked against the non-confidential TSCA inventory by CAS Registry Number. Components not identified on this non-confidential inventory are either exempt from listing (i.e. polymers, hydrates) or are listed on the confidential inventory as declared by the supplier.

B: Component Analysis

None of this products components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

Acute Health: Yes **Chronic Health:** No **Fire:** No **Pressure:** No **Reactive:** No

State Regulations

A: General Product Information

Other state regulations may apply. Check individual state requirements.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Polypropylene glycol	25322-69-4	No	No	Yes	No	No	No

Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

WHMIS Classification: D2A, D2B

Additional Regulatory Information

A: General Product Information

No additional information available.

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ID: ML-023

B: Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Polypropylene glycol	25322-69-4	Yes	DSL	No

*** Section 16 - Other Information ***

Other Information

Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration, NFPA = National Fire Protection Association; HMIS = Hazardous Material Identification System; CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; SARA = Superfund Amendments and Reauthorization Act; DSL = Canadian Domestic Substance List; EINECS = European Inventory of New and Existing Chemical Substances; WHMIS = Workplace Hazardous Materials Information System; CAA = Clean Air Act