

MATERIAL SAFETY DATA SHEET

POLYGUARD PRODUCTS, INC.

ESSENTIALLY SIMILAR TO
OSHA FORM - 174

Manufacturer's Name POLYGUARD PRODUCTS, INC.		TELEPHONE NUMBER (972) 875-8421		N F P A *** FIRE HAZARDS IDENTIFICATION SYSTEM	
Address: P.O. Box 755, Ennis Texas, 75120		Date 4/4/05			
FOR EMERGENCY ASSISTANCE CALL POLYGUARD - (800) 541-4994 (DAY) OR CHEMTREC - (800) 424-9300 (24 HOURS)					
Trade Name & Synonyms - Polyguard #95 Liquid Membrane - Component B					
Chemical Name or Composition - Polymeric MDI		Chemical Family - Diisocyanate		HEALTH 2	
				FIRE 1	
				REACTIVITY 1	
				SPECIFIC W	

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NUMBER	OSHA PERMISSIBLE EXPOSURE LIMIT	AGCIH - THRESHOLD LIMIT VALUES	IS PRODUCT LISTED IN NATIONAL TOXICOLOGY PROGRAM (NTP) ANNUAL REPORT ON CARCINOGENS?	IF PRODUCT HAS BEEN EVALUATED BY THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC), DESCRIBE RESULTS.	HAS PRODUCT BEEN FOUND TO BE A POTENTIAL CARCINOGEN BY OSHA?	% BY WGT.
4,4 - Diphenylmethane Diisocyanate ****	CAS #101-68-8)	0.02 ppm	.005 ppm	NO	NOT LISTED	NO	55-60%
Polymeric Diphenylmethane Diisocyanate ****	CAS #9016-87-9)	0.02 ppm	.005 ppm	NO	NOT LISTED	NO	30-35%
MDI Homopolymer	CAS#25686-28-6	NA	NA	NO	NOT LISTED	NO	8-12%

*** NFPA 49 - Hazardous Chemical Data

**** This chemical is subject to the reporting requirements of Section 313 of SARA Title III

A. IARC definitions:

GROUP 1:	Carcinogenic to humans
GROUP 2A:	Probably carcinogenic to humans
GROUP 2B:	Possibly carcinogenic to humans
GROUP 3:	Not classifiable as to carcinogenic or non carcinogenic to humans
GROUP 4:	Probably not carcinogenic to humans

SECTION III - PHYSICAL DATA

APPEARANCE AND ODOR: Liquid, Slight Aromatic Odor			
BOILING POINT (°F)	N/A	SPECIFIC GRAVITY (H₂O = 1)	1.2
VAPOR PRESSURE (mm Hg)	4 x 10 ⁻⁶	PERCENT, VOLATILE BY VOLUME (%)	N/D
VAPOR DENSITY (AIR = 1)	8.6	EVAPORATION RATE (ETHER = 1)	N/D
SOLUBILITY IN WATER	Reacts with water	VOC g / L	0

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

EXTINGUISHING MEDIA CO ₂ , Dry Chemical, Foam	FLASH POINT (Method used) 375°F.COC	FLAMMABLE LIMITS	LEL N/D
			UEL N/D
SPECIAL FIRE FIGHTING PROCEDURES -As appropriate for surrounding materials/equipment.			
EXTINGUISHING MEDIA - Carbon dioxide, dry chemical, or appropriate foam. If water is used, very large quantities are required. Reaction between water and hot isocyanate may be vigorous. Contain run-off water with temporary barriers.			
FIRE FIGHTING PROTECTIVE EQUIPMENT - Use self-contained breathing apparatus and full protective clothing (Bunker gear).			
UNUSUAL FIRE AND EXPLOSION HAZARDS -Avoid water contamination in closed container or confined areas. (CO ₂ released with water reaction.) Containers may burst under intense heat. Due to reaction with water, a hazardous build-up of pressure could result if contaminated containers are re-sealed.			

SECTION V - REACTIVITY DATA

STABILITY	UNSTABLE	X	CONDITIONS TO AVOID
	STABLE		Temperatures exceeding 100°F or below 40°F.
INCOMPATIBILITY (Materials to Avoid) - Water, strong bases, alcohol, metal compounds, surface active agents.			
HAZARDOUS DECOMPOSITION OR BYPRODUCTS - Carbon Monoxide, Nitrogen Oxides, traces of Hydrogen Cyanide.		HAZARDOUS POLYMERIZATION	MAY OCCUR
			WILL NOT OCCUR
			X

SECTION VI - HEALTH HAZARD DATA

CONDITIONS TO AVOID - Contamination by moisture or other materials that react with isocyanates.	ROUTES OF ENTRY - INHALATION (X)	SKIN (X)	INGESTION ()
HEALTH HAZARD (Acute Over Exposure) - Irritating to eyes, respiratory system and skin. Inhalation at levels above the occupational exposure limit could cause respiratory sensitization. Risk of serious damage to respiratory system. The onset of the respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response to even minimal concentrations of MDI may develop in sensitized persons. Sensitized persons should not be exposed to any mixture containing unreacted MDI.			
HEALTH HAZARD (Chronic Over Exposure)			
SKIN - A study was conducted where groups of rats were exposed for 6 hours/day, 5 days/week for a lifetime to atmospheres of polymeric MDI aerosol at concentrations of 0, 0.2, 1 or 6 mg/m ³ . No adverse effects were observed at 0.2 mg/m ³ . At the 1 mg/m ³ concentration minimal nasal and lung irritant effects were seen. Only at the top concentration, 6.0 mg/m ³ were there increased incidence of a benign tumor of the lung (adenoma) and one malignant tumor (adenocarcinoma).			
EMERGENCY AND FIRST AID PROCEDURES -			
INHALATION - Remove patient from exposure, keep warm and at rest. Obtain medical attention. Treatment is symptomatic for primary irritation or difficulty in breathing. If breathing is labored, oxygen should be administered by qualified personnel. Apply artificial respiration if breathing has ceased or shows signs of failing.			
SKIN CONTACT - Remove contaminated clothing. Wash affected areas thoroughly with soap and water. If irritation, redness, or a burning sensation develops and persists, obtain medical advice. Contaminated clothing should be thoroughly cleaned before reuse.			
EYE CONTACT - Immediately flush eyes with running water for a minimum of 15 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY.			
INGESTION - Do NOT induce vomiting. Provided the patient is conscious, wash out mouth with water then give 1 or 2 glasses of water to drink. Refer person to medical personnel for immediate attention.			
NOTE TO PHYSICIANS - Symptomatic and supportive therapy as needed. Following severe exposure medical follow-up should be monitored for at least 48 hours.			

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED -
SPILLS, LEAKS, OR RELEASE - Clean-up should only be performed by trained personnel. People dealing with major spillages should wear full protective clothing including full air supplied respirator. Evacuate the area. Prevent further leakage, spillage or entry into drains. Contain and absorb large spillages onto an inert, non-flammable adsorbent carrier (such as earth or sand). Shovel into open-top drums or plastic bags for further decontamination, if necessary. Wash the spillage area clean with liquid decontaminant. Test atmosphere for MDI. Neutralize small spillages with decontaminant. Remove and properly dispose of residues. Notify applicable government authorities if release is reportable. The CERCLA RQ for MDI is 5,000 lbs (see CERCLA in Section 15).
PREPARATION OF DECONTAMINATION SOLUTION - Prepare a decontamination solution of 0.2-0.5% liquid detergent and 3-8% concentrated ammonium hydroxide in water (5-10% sodium carbonate may be substituted for the ammonium hydroxide). Follow the precautions on the supplier's material safety data sheets when preparing and using solution.
USE OF DECONTAMINATION SOLUTION - Allow deactivated material to stand for at least 30 minutes before shoveling into drums. Do not tighten the bungs. Mixing with wet earth is also effective, but slower.
WASTE DISPOSAL METHOD - Dispose in accordance with Local, State and Federal regulations.
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING - Store in a dry, ventilated area away from heat. Do not reuse containers for any other products. Do not reseal contaminated containers. Do not store in containers made of copper, copper alloys or galvanized surfaces.
OTHER PRECAUTIONS - Keep away from moisture. Reacting with water in contaminated containers will produce CO ₂ gas. Do NOT freeze.

SECTION VIII - CONTROL MEASURES

RESPIRATORY PROTECTION - Use an approved NIOSH/MSHA positive pressure air-supplied respirator equipped with a full facepiece, or an air-supplied hood, if airborne concentrations exceed or are expected to exceed the occupational exposure standard. Air purifying (cartridge type) respirators are not approved for protection against diisocyanates.

VENTILATION -

LOCAL EXHAUST - Use local and explosion proof mechanical exhaust to maintain exposure levels below TLV's.

MECHANICAL - Use local and explosion proof mechanical exhaust to maintain exposure levels below TLV's.

SKIN PROTECTION - The following protective materials are recommended:

GLOVES - neoprene, nitrile rubber, butyl rubber. Thin latex disposable gloves should be avoided for repeated or long term use. Protective clothing should be selected and used in accordance with "Guidelines for the Selection of Chemical Protective Clothing" published by ACGIH.

EYE PROTECTION - Wear chemical safety goggles to prevent contact with eyes. If there is a potential for splashing, use a full-face shield.

OTHER PROTECTIVE EQUIPMENT - To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

WORK - HYGIENIC PRACTICES - Medical supervision of all employees who handle or come in contact with respiratory sensitizers is recommended. Persons with respiratory problems including asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases or recurrent skin eczema or skin allergies should be evaluated for their suitability of working with this product. Once a person is diagnosed as sensitized, no further exposure to the material that caused the sensitization should be permitted.

SECTION IX - TOXICOLOGICAL INFORMATION

INHALATION: This product is a respiratory irritant and potential respiratory sensitizer. Inhalation of vapor or aerosol at levels above the occupational exposure limit could cause respiratory sensitization and lung injury. Symptoms may include irritation to the eyes, nose, throat and lungs, possibly combined with dryness of the throat, tightness of chest and difficulty in breathing and/or flu-like symptoms. The onset of the respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response to even minimal concentrations of MDI may develop in sensitized persons. In a single evaluation of 5 men occupationally exposed to MDI and hydrocarbon solvent vapors under conditions where adequate ventilation or other safety precautions were not used, neuropsychologic findings were attributed to MDI.

SKIN CONTACT: Moderate irritant. Repeated and/or prolonged contact may cause skin sensitization. There is limited evidence from animal studies that skin contact may play a role in respiratory sensitization. These results emphasize the need for protective clothing including gloves to be worn at all times when handling these chemicals or in maintenance work.

EYE CONTACT: The aerosol, vapor or liquid will irritate human eyes following contact.

INGESTION: Ingestion may cause irritation of the gastrointestinal tract. Based on the acute oral LD50, this product is considered practically non-toxic by ingestion.

CHRONIC EFFECTS: A study was conducted where groups of rats were exposed for 6 hours/day, 5 days/week for a lifetime to atmospheres of respirable polymeric MDI aerosol either at concentrations of 0.02, 1 or 6 mg/m³. No adverse effects were observed at 0.2 mg/m³ concentrations. At the 1 mg/m³ concentration minimal nasal and lung irritant effects were seen. Only at the top concentration (6.0 mg/m³) there was an increased incidence of a benign tumor of the lung (adenoma) and one malignant tumor (acenicarcinoma). Overall, the tumor incidence, both benign and malignant, and the number of animals with tumors were not different. The increased incidence of lung tumors is associated with prolonged respiratory irritation and the concurrent accumulation of yellow material in the lung. In the absence of prolonged exposure to high concentrations leading to chronic irritation and lung damage, it is highly unlikely that tumor formation will occur.

There are reports that excessive chronic exposure to diisocyanates may result in permanent decrease in lung function.

CARCINOGENICITY: The ingredients of this product are not classified as carcinogenic by ACGIH or IARC, not regulated as carcinogens by OSHA, and not listed as carcinogens by NTP.

MUTAGENICITY: There is no substantial evidence of mutagenic potential.

REPRODUCTIVE EFFECTS: No adverse reproductive effects are anticipated.

TERATOGENICITY and FETOTOXICITY: No birth defects were seen in two independent animal (rat) studies. Fetotoxicity was observed at doses that were extremely toxic (including lethal) to the mother. Fetotoxicity was not observed at doses that were not maternally toxic. The doses used in these studies were maximal, respirable concentrations well in excess of the defined occupational limits.

SECTION X - DISPOSAL CONSIDERATIONS

The generation of waste should be avoided or minimized wherever possible.

Disposal should be in accordance with local, state, provincial or national regulations. This material is not a hazardous waste under RCRA 40 CFR 261. Small quantities should be treated with a decontaminant solution (See Section 6). The treated waste is not a hazardous material under RCRA 40 CFR 261. Chemical waste, even small quantities, should never be poured down drains, sewers or waterways.

Empty containers should be decontaminated and either passed to an approved drum recycler or destroyed.

SECTION XI - REGULATORY INFORMATION

USA CLASSIFICATION:

OSHA CLASSIFICATION:

- Physical; Not regulated
- Health; Highly toxic. Respiratory sensitizer. Skin sensitizer. Irritant
- Target Organ: Respiratory tract. Skin

TSCA (Toxic Substances Control Act) Regulations: All ingredients are on the TSCA Chemical Substance Inventory

EPCRA Section 313(40 CFR 372): This product contains the following chemical(s) subject to reporting requirements: -98% Diisocyanate compounds (Category Code N120).

CERCLA (Comprehensive Environmental Response, Compensation and Liability Act): 4,4'-Methylene diphenyl diisocyanate (CAS 101-68-8) has a 5,000 lb. RQ (reportable quantity). Any spill or release above the RQ must be reported to the National Response Center (800-424-8802). The % of 4,4'-MDI in this product is listed in Section 2 of this MSDS.

This product does not contain nor is it manufactured with ozone depleting substances.

Other Regulations/Legislation which apply to this product: Massachusetts Right-to-Know, Pennsylvania Right-to-Know, New Jersey Right-to-Know, CERCLA

CANADIAN CLASSIFICATION:

This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and this MSDS (Material Safety Data Sheet) contains all the information required by the CPR.

Controlled Products Regulations (WHMIS) Classification: D-1A: Very toxic (acute effects), D-2A: Very Toxic. D-2B: Toxic.

CEPA / Canadian Domestic Substances List (DSL): The substance(s) in this product is/are on the Canadian Domestic Substance List (CEPA DSL).

D.O.T. STATUS

D.O.T. HAZARDOUS MATERIAL	D.O.T. SHIPPING NAME AND NUMBER	D.O.T. HAZARD CLASS
No-If single container less than 5000 lbs.	Not restricted if less than 5000 lbs.	Not restricted if less than 5000 lbs.