



MATERIAL SAFETY DATA SHEET

HMIS

H = 2

F = 1

R = 1

PPE = See Section 8

Section I

Manufacturer: Siplast, an Icopal Group Company
(800) 643-1591 or (800) 922-8800

Address: 1000 E. Rochelle Blvd., Irving, TX 75062-3940

Emergency Phone No.: CHEMTREC, (800) 424-9300 (U.S.), (703) 527-3887 (outside of U.S.)

Product Class: 1-Part Polyurethane Adhesive

Trade Name: Para-Stik Insulation Adhesive

Section II - Ingredients

Ingredient	Percent	ACGIH TLV	OSHA PEL
Polymethylene polyphenyl isocyanate 009016-87-9 containing 4,4'Methylene bishphenyl isocyanate CAS #000101-68-8 (Approximately 40-50% MDI)	10 - 30	0.005 ppm	0.02 ppm Ceiling
Prepolymer MDI and Polyether Polyol CAS #53862-89-8	30 - 60	Not Available	Not Available
Chlorodifluoromethane CAS #75-45-6	10 - 30	1000 ppm	Not Available
Morpholine, 4,4'(oxydi-2, 1-ethanediy)bis (DMDEE) CAS #6425-39-4	1 - 5%	Not Available	Not Available

PELs are in accord with those recommended by OSHA, as in the 1989 revision of PELs.

Section III - Physical Data

Boiling Range: 410°F, 210°C @ 5 mmHG
Vapor Density (Air = 1): 8.5
Sp. Gr.: 1.24 @ 20°C
Solubility in H₂O: Insoluble in water, reacts with evolution of CO₂.
Vapor Pressure: <1 x 10⁻⁵ mmHG @25°C
pH: Not applicable
Appearance/physical state: Brown liquid
Odor: Slightly musty.

Section IV - Fire and Explosion Data

Flash Point: >400°F, >204°C
LEL %: N/A UEL %: N/A
Method Used: PMCC, ASTM D93
Autoignition Temperature: >1100°F, 600°C

Extinguishing Media: Carbon dioxide, dry chemical, foam, water fog, or fine spray. Alcohol resistant foams (ATC type) are preferred if available. General purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively. Do not use direct water stream. May spread fire.

Other Flammability Information: Product reacts with water. Reaction may produce heat and/or gases. Reaction may be violent. Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke is produced when product burns. Spills of these organic liquids on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

Firefighting Instructions: Keep people away. Isolate fire area and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Water is not recommended but may be applied in very large quantities as a fine spray when other extinguishing agents are not available. Contain firewater run-off if possible. Do not use direct water stream. May spread fire. Fight fire from protected location or safe distance. Consider use of unmanned hose holder or monitor nozzles. Use water spray to cool fire exposed containers and fire-affected zone until fire is out. Immediately withdraw all personnel from area in case of rising sound from venting safety device or discoloration of the container. Move container from fire area if this is possible without hazard.

Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes firefighting helmet, coat, pants, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant clothing with SCBA. This will not provide sufficient fire protection; consider fighting fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

Unusual Hazards: Incomplete combustion may lead to the build-up of toxic pyrolysis products. Complete combustion will result in: Carbon oxides, Nitrogen oxides, Water, Ammonia, Hydrochloric acid, Hydrofluoric acid, Chlorine, Fluorine, Phosgene, Phosphorous oxides, isocyanates, and trace amounts of Hydrogen Cyanide.

Section V - Health Hazard Data

Summary of Risks: CAUTION! Contents under pressure.

Vapors reduce oxygen available for breathing and are heavier than air. May cause moderate eye irritation.

Sprayed or heated material harmful if inhaled. May cause allergic skin reaction. May cause allergic respiratory reaction and lung injury. Avoid temperatures above 105°F (41°C). Toxic flammable gases and heat are released under decomposition conditions. Toxic fumes may be released in fire situations. Reacts slowly with water releasing, carbon dioxide, which can cause pressure buildup and rupture of closed containers. Elevated temperatures accelerate this process.

Target Organs:

EYES: May cause moderate eye irritation. May cause very slight transient (temporary) corneal injury.

SKIN: Prolonged or repeated exposure may cause slight skin irritation. May cause allergic skin reaction in susceptible individuals. Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization. May stain skin. A single prolonged exposure is not likely to result in the material being absorbed in harmful amounts.

INGESTION: Single dose oral toxicity is considered to be low. No hazards anticipated from swallowing small amounts incidental to normal handling operations.

INHALATION: At room temperature, vapors are minimal due to low vapor pressure. However, certain operations may generate vapor or aerosol concentrations sufficient to cause irritation or other adverse effects. Such operations include those in which the material is heated, sprayed, or otherwise mechanically dispersed such as drumming, venting, or pumping. Excessive exposure may cause irritation to upper respiratory tract and lungs, and pulmonary edema (fluid in the lungs). May cause respiratory sensitization in susceptible individuals. MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized. Symptoms may include coughing, difficult breathing, and a feeling of tightness in the chest. Effects may be delayed. Decreased lung function has been associated with overexposure to isocyanates.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/polymeric MDI aerosols.

CANCER INFORMATION: Lung tumors have been observed in laboratory animals exposed to aerosol droplets of MDI/Polymeric MDI (6 mg/m³) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI.

TERATOLOGY (BIRTH DEFECTS): In laboratory animals, MDI/polymeric MDI did not cause birth defects; other fetal effects occurred only at high doses which were toxic to the mother.

Emergency and First Aid Procedures:

EYES: Irrigate with flowing water immediately and continuously for 15 minutes. Consult medical personnel.

SKIN: Remove material from skin immediately by washing with soap and plenty of water, (warm water is preferable if readily available). Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. An MDI skin decontamination study demonstrated that cleaning very soon after exposure is important, and that a polyglycol-based skin cleanser or corn oil may be more effective than soap and water.

INGESTION: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, qualified personnel should administer oxygen. Call a physician or transport to a medical facility.

Trade Name: Para-Stik Insulation Adhesive
Page Three

NOTE TO PHYSICIAN: No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient. May cause respiratory sensitization or asthma-like symptoms. Bronchodilators, expectorants, and antitussives may be of help. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed for 24-48 hours for signs of respiratory distress.

Section VI - Reactivity Data

CHEMICAL STABILITY: Stable under recommended storage conditions. See Section 9, Storage.

CONDITIONS TO AVOID: Avoid temperatures above 105°F, 41°C. Avoid temperatures below 75°F, 24°C. Can react with itself at temperatures above 320°F, 160°C. Product can decompose at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid. Avoid moisture. Material reacts slowly with water, releasing carbon dioxide, which can cause pressure buildup and rupture of closed containers. Elevated temperatures accelerate this reaction.

INCOMPATIBILITY WITH OTHER MATERIALS: Avoid contact with acids, water, alcohols, amines, ammonia, bases, moist air, and strong oxidizers. Avoid contact with metals such as aluminum, brass, copper, galvanized metals, tin, and zinc. Avoid contact with moist organic absorbents. Reaction with water will generate carbon dioxide and heat. Generation of gas can cause pressure buildup in closed systems. Avoid unintended contact with polyols. The reaction of polyols and isocyanates generate heat.

Diisocyanates react with many materials and the rate of reaction increases with temperature as well as increased contact, these reactions can become violent. Contact is increased by stirring or if the other material mixes with the diisocyanate. Diisocyanates are not soluble in water and are denser than water and sink to the bottom, but react slowly at the interface. The reaction forms carbon dioxide gas and a layer of solid polyurea.

HAZARDOUS DECOMPOSITION PRODUCTS: Hazardous decomposition products depend upon temperature, air supply and the presence of other materials. Gases are released during decomposition.

HAZARDOUS POLYMERIZATION: Can occur. Polymerization can be catalyzed by: strong bases and water. Can react with itself at temperatures above 320°F (160°C).

Section VII - Spill or Leak Procedures

Steps to be Taken:

PROTECT PEOPLE: Avoid any contact. Barricade area. Clear nonemergency personnel from area. Keep upwind of spill. Ventilate area of leak or spill. The area must be evacuated and reentered by persons equipped for decontamination. Use appropriate safety equipment. Ventilate area of leak or spill. If available, use foam to suppress vapors.

PROTECT THE ENVIRONMENT: Contain liquid to prevent contamination of soil, surface water, or ground water. Keep out of ditches, sewers, and water supplies. Should the product enter sewers or drains, it should be pumped into a covered, vented container; the cover should be placed loosely on the container but not made pressure tight. Move to a well-ventilated area. Emergency services may need to be called to assist in the cleanup operation.

CLEANUP: Supplies of suitable decontaminant should always be kept available. Absorb with material such as: vermiculite, dirt, sand, clay, cob grit, Milsorb. Avoid materials such as cement powder. Collect material in suitable and properly labeled OPEN containers. Do not place in sealed container. Prolonged contact with water results in a chemical reaction that may result in rupture of the container. Place in: polylined fiber pacs, plastic drums, or properly labeled metal containers. Remove to a well-ventilated area. Clean up floor areas. Attempt to neutralize by suitable decontaminant solution: Formulation 1: sodium carbonate 5-10%; liquid detergent 0.2-2%; water to make up to 100%. OR Formulation 2: Concentrated ammonia solution 3-8%; liquid detergent 0.2-2%; water to make up to 100%. If ammonia is used, use good ventilation to prevent vapor exposure.

Trade Name: Para-Stik Insulation Adhesive
Page Four

Waste Disposal Method:

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal methods must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. SIPLAST HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION.

Waste Management:

For unused and uncontaminated product, the preferred options include sending to a licensed, permitted: recycler, reclaimer, incinerator, or other thermal destruction device.

Section VIII - Special Protection Information

Engineering Controls: Use only with adequate ventilation. Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and the people working at this point. Odor is inadequate warning of excessive exposure.

Eye/Face Protection: Use chemical goggles.

Skin Protection: Use protective clothing impervious to this material. Selection of specific items such as face shield, gloves, boots, apron, or full-body suit will depend on operation. Consideration of all chemicals involved, time, and the dexterity needed to safely complete the job must be considered. Solvents can significantly change the permeation of a chemical through a barrier. Work with safety equipment supplier to obtain the best Personal Protective Equipment for the job. Nitrile gloves are often found to be appropriate for work with MDI. Butyl rubber, PVC, and neoprene are also often chosen.

Respiratory Protection: Atmospheric levels should be maintained below the exposure guideline. When atmospheric levels may exceed the exposure guideline, use an approved air-purifying respirator equipped with an organic vapor sorbent and a particle filter. For situations where the atmospheric levels may exceed the level for which an air-purifying respirator is effective, use a positive-pressure air-supplying respirator (airline or self-contained breathing apparatus). For emergency response or for situations where the atmospheric level is unknown, use an approved positive-pressure self-contained breathing apparatus.

Section IX - Special Precautions

Handling: Avoid contact of this product with water at all times during handling and storage. Use only with adequate ventilation. Keep equipment clean. Use disposable containers and tools where possible. Do not eat, drink, or smoke in working area. Refer to Exposure Controls/Personal Protection, Section 8, of the MSDS.

Storage: Store in a dry place. Store between 32°F-90°F (0°-32°C). Keep containers tightly closed when not in use. Protect containers from physical abuse. Avoid direct sunlight. DO NOT incinerate aerosol can.

Section X - Other

REGULATORY INFORMATION (Not meant to be all-inclusive--selected regulations represented)

U.S. REGULATIONS

SARA 313 INFORMATION: This product contains the following subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

METHYLENE BIS(PHENYLISOCYANATE)(MDI)
CAS #000101-68-8

POLYMERIC DIPHENYLMETHANE
DIISOCYANATE, CAS #009016-87-9

CHLORODIFLUOROMETHANE, CAS #75-45-6

Trade Name: Para-Stik Insulation Adhesive
Page Five

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A delayed health hazard

TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

METHYLENE BIS(PHENYLISOCYANATE)(MDI)
CAS #000101-68-8
LIST: NJ3, PA1, NJ2, PA3

POLYMERIC DIPHENYLMETHANE DIISOCYANATE
CAS #009016-87-9
LIST: NJ2

CHLORODIFLUOROMETHANE
CAS #75-45-6
LIST: MA, NJ3, PA1, PA3

MA = Massachusetts Right to Know Substance List
NJ2 = New Jersey Environmental Hazardous Substance
NJ3 = New Jersey Workplace Hazardous Substance
PA1 = Pennsylvania Hazardous Substance
PA3 = Pennsylvania Environmental Hazardous Substance

OSHA HAZARD COMMUNICATION STANDARD:
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND):
This product contains the following substance(s) listed as "Hazardous Substances" under CERCLA which may require reporting of releases:

Methylene bisphenyl isocyanate
CAS #000101-68-8
RQ: 5000

The information and recommendations contained herein are, to the best of Siplast's knowledge and belief, accurate and reliable as of the date issued. Siplast does not warrant or guarantee their accuracy or reliability, and should not be liable for any loss or damage arising out of the use thereof. User should satisfy himself that he has all current data relevant to his particular use.

CANADIAN REGULATIONS

WHMIS INFORMATION: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

D2A - respiratory tract sensitizer
D2B - eye or skin irritant
D2B - skin sensitizer
A - compressed gas

Refer elsewhere in the MSDS for specific warnings and safe handling information. Refer to the employer's workplace education program.

CPR STATEMENT: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

HAZARDOUS PRODUCTS ACT INFORMATION:
This product contains the following ingredients which are Controlled Products and/or on the Ingredient Disclosure List (Canadian HPA section 13 and 14):

METHYLENE BIS(PHENYL ISOCYANATE) (MDI)
CAS #000101-68-8

POLYMERIC DIPHENYLMETHANE,
DIISOCYANATE
CAS #009016-87-9

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA):
All substances in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.