MATERIAL SAFETY DATA SHEET

3/17/2004

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

24-Hour Emergency Phone Number: 989-636-4400

Product Name: GREAT STUFF* Gaps and Cracks

Collective ID: 19
Material Type: Flammable - OCF
Revised: 02/16/04 (sec. 2 & 15)
The Dow Chemical Company, Midland, MI 48674
Customer Service: 800-366-4740

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL	CAS#	CONCENTRATION
Polymethylene polyphenyl isocyanate containing 4,4'Methylene bisphenyl isocyanate CAS# 000101-68-8 (Approximately 40-50% MDI)	009016-87-9	5-10,10-30%
Liquified Petroleum Mixture Containing Isobutane (CAS# 75-28-5) Propane (CAS# 74-98-6) Dimethyl Ether (CAS#115-10-6)		10-30%
Prepolymers of MDI and Polyether Polyol	mixture	40-70, 60-100%

3. HAZARDS IDENTIFICATION

DANGER!
Extremely Flammable.

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Sprayed or heated material harmful if inhaled. May cause allergic skin reaction. May cause allergic respiratory reaction and lung injury. Avoid temperatures above 105F (41C). 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.
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POTENTIAL HEALTH EFFECTS (See Section 11 for toxicological data.)

EYE: 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, PMDI 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. 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.

In confined or poorly ventilated areas, propane and isobutane vapors can readily accumulate and can cause unconsciousness and death due to displacement of oxygen (simple asphyxia). Excessive exposure may increase sensitivity to epinephrine and increase myocardial irritability (irregular heartbeats). Signs and symptoms of excessive exposure may be central nervous system effects. At air concentrations < 1000 ppm, propane exerts very little physiological action; at 100,000 ppm and above it may produce dizziness or other central nervous system effects. Signs and symptoms of central nervous system depression, in order of increasing exposure, are headache, dizziness, drowsiness, and unconsciousness, even death.

A single prolonged (hours) excessive inhalation exposure to dimethyl ether may cause serious adverse effects, even death. Excessive exposure may cause irritation to upper respiratory tract (nose and throat). Signs and symptoms of excessive exposure may be anesthetic or narcotic effects. In animals,

4. FIRST-AID MEASURES

EYE: 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, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

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.

5. FIRE-FIGHTING MEASURES

FLAMMABLE PROPERTIES
FLASH POINT: -156F, -104C
METHOD USED: Estimated
AUTOIGNITION TEMPERATURE: NA
FLAMMABILITY LIMITS
LFL: NA
UFL: NA

HAZARDOUS COMBUSTION PRODUCTS: During a fire, smoke may contain the original material in addition to unidentified toxic and/or irritating compounds. Hazardous combustion products may include but are not limited to: nitrogen oxides, isocyanates, hydrogen cyanide, carbon monoxide, and carbon dioxide.

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.

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.

FIRE FIGHTING 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 fire water 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 FIRE FIGHTERS: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting 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

6. ACCIDENTAL RELEASE MEASURES

PROTECT PEOPLE: Avoid any contact. Barricade area. Clear non-emergency 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. For additional information, refer to "Exposure Controls/Personal Protection", MSDS Section 8. See Section 10, Stability and Reactivity.

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.

CLEAN-UP: Supplies of suitable decontaminant should always be kept available. Absorb with material such as: sawdust, 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 which 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. If you have any questions on how to neutralize call The Dow Chemical Company. Please refer to Disposal Information, MSDS Section 13. See Section 7 and 15 for more specific information.

7. HANDLING AND STORAGE

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.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

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.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION: Use chemical goggles.

SKIN PROTECTION Use protective clothing impervious to this material. Selection of specific items such as faceshield, gloves, boots, apron, or full-body suit will depend on operation. Remove contaminated clothing immediately, wash skin area with soap and water (warm water if available) and launder clothing before reuse. Items which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and destroyed.

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.

EXPOSURE GUIDELINES(S):
Methylene bisphenyl isocyanate (MDI): ACGIH TLV is 0.005 ppm TWA and OSHA PEL is 0.02 ppm Ceiling.

Isobutane: ACGIH TLV and OSHA PEL are 800 ppm.

Propane: ACGIH TLV is 2500 ppm TWA and OSHA PEL is 1000 ppm.

Dimethyl Ether: ACGIH TLV is 1000 ppm TWA.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Flash Point	: -156°F (-104°C) (estimated)
Vapor Pres. (21°C/70°F)	: 4210 mm HG
Specific Gravity	: 1.1
VOC Content (g/L)	: 158.1 grams/Litre

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable under recommended storage conditions.
See Section 7, Storage.

CONDITIONS TO AVOID: Avoid temperatures above 105F, 41C. Avoid temperatures below 75F, 24C. Can react with itself at temperatures above 320F, 160C. 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, 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. See Hazardous Polymerization Section.

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 320F (160C).

11. TOXICOLOGICAL INFORMATIONTOXICOLOGICAL INFORMATION (See Section 3 for Potential Health
Effects)

ACUTE:
SKIN: The LD50 for skin absorption in rabbits is > 2000 mg/kg.

INGESTION: The oral LD50 for rats is > 10,000 mg/kg.

MUTAGENICITY (EFFECTS ON GENETIC MATERIAL): Mutagenicity data on MDI are inconclusive. MDI was weakly positive in some in-vitro (test tube) studies; other in-vitro studies were negative. A mutagenicity study in animals was

DIMETHYL ETHER (115-10-6)

MUTAGENICITY
In vitro mutagenicity studies were positive. Animal mutagenicity studies were negative in some cases and positive in other cases.

12. ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE

MOVEMENT & PARTITIONING: Based on information for MDI and polymeric MDI. In the aquatic or terrestrial environment, movement is expected to be limited by its reactivity with water forming predominantly insoluble polyureas.

DEGRADATION & PERSISTENCE: Based on information for MDI and polymeric MDI. In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates.

ECOTOXICITY: Based on information for MDI and polymerc MDI. The measured ecotoxicity is that of the hydrolzed product, generally under conditions maximizing production of soluble species. Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50 > 100 mg/L in most sensitive species). The LC50 in earthworm Eisenia foetida is > 1000 mg/kg.

13. DISPOSAL CONSIDERATIONS

DISPOSAL CONSIDERATIONS (See Section 15 for Regulatory Information)

DISPOSAL: 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. THE DOW CHEMICAL COMPANY 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 AS DESCRIBED IN MSDS SECTION 2 (Composition/Information On Ingredients).

FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: recycler, reclaimer, incinerator or other thermal destruction device.

For additional information, refer to:

- Handling & Storage Information, MSDS Section 7. - Stability & Reactivity Information, MSDS Section 10.
- Regulatory Information, MSDS Section 15.

As a service to its customers, Dow can provide names of information resources to help identify waste management companies and other facilities which recycle, reprocess or manage chemicals or plastics, and that manage used drums. Telephone Dow's Customer Information Center at 800-258-2436 or 989-832-1556 for further details.

14. TRANSPORT INFORMATION

Consumer Commodity ORM-D

15. REGULATORY INFORMATION

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, expressed or implied is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See other sections for health and safety information.

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:

CHEMICAL NAME	CAS NUMBER
METHYLENE BIS(PHENYLISOCYANATE)(MDI)	000101-68-8
POLYMERIC DIPHENYLMETHANE DIISOCYANATE	009016-87-9

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:

PMDI/MDI
An immediate health hazard
A delayed health hazard

ISOBUTANE/PROPANE: A fire 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.

CHEMICAL NAME	CAS NUMBER	LIST
Isobutane	75-28-5	MA. NJ, PA
Propane	74-98-6	MA. NJ, PA**15.**

REGULATORY INFORMATION

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): To the best of our knowledge, this product contains the following chemical subject to reporting under CERCLA.

Propane 100 lbs
Isobutane 100 lbs

CANADIAN REGULATIONS

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WHMIS INFORMATION: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:
D3 combustible liquid.

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.

16. OTHER INFORMATION

HMIS - H - F - R - PPE

2 - 4 - 1 - B

This product is a polyurethane blend in the form of a solution in liquid containing by weight 50% or more polymer.

(TM),*, OR (R) INDICATES A TRADEMARK OF THE DOW CHEMICAL COMPANY