

# Material Safety Data Sheet



## 1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

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

Product: BETAMATE(TM) 73701 STRUCTURAL ADHESIVE

Product Code: 27729

Effective Date: 10/09/02      Date Printed: 12/26/02      MSD: 005711

The Dow Chemical Company, Midland, MI 48674

Customer Information Center: 800-258-2436

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

Component(s)	CAS#	Amount (wt % or ppm)
Clay	001332-58-7	20-30
	066402-68-4	
MDI, 4,4'-isomer, free Phthalate esters	000101-68-8	< 1
	068515-44-6	
	068515-45-7	
	111381-89-6	
	111381-90-9	
	085507-79-5	
MDI based urethane polymer	111381-91-0	35-45
	P83-1015	
	P86-546	
Silica, fumed	067762-90-7	< 10
Glass beads	065997-17-3	< 10

## 3. HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW

\*\*\*\*\*  
\* White paste. Mild odor. May cause allergic respiratory \*  
\* reaction. May cause allergic skin reaction. May cause eye \*  
\* irritation. \*  
\*\*\*\*\*

### POTENTIAL HEALTH EFFECTS (See Section 11 for toxicological data.)

This section includes possible adverse effects which could occur if this material is not handled in the recommended manner.

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EYE:    May cause eye irritation.

SKIN:    Brief contact is essentially nonirritating to the skin. Material may stick to skin causing irritation upon removal. Skin contact may cause an allergic skin reaction. Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization. Prolonged skin contact is unlikely to result in absorption of harmful amounts. May stain skin.

INGESTION: Low toxicity if swallowed. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury.

INHALATION: At room temperature, exposure to vapor is minimal due to low volatility. Vapor from heated material or mist may cause respiratory irritation and other effects. For the minor component, MDI, excessive exposure may cause irritation to upper respiratory tract and lungs and pulmonary edema (fluid in the lungs). May cause allergic respiratory response. 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. Occasionally, breathing difficulty may be life threatening. Decreased lung function has been associated with overexposure to isocyanates. This material contains mineral and/or inorganic fillers. There is essentially no potential for inhalation exposure to these fillers incidental to industrial handling due to the physical state.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: For a phthalate ester component: liver effects were observed in rats given high doses in their diet; no adverse effects were observed in repeated exposure inhalation studies in several animal species. Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposure to MDI/polymeric MDI aerosols.

CANCER INFORMATION: Contains a phthalate ester which produced an increased incidence of leukemia in a 2-yr animal feeding study; effects were not dose related. There were no carcinogenic effects observed in rats given 0.03-0.3% in their diet for 30 months. For the minor component, MDI: Lung tumors have been observed in laboratory animals exposed to aerosol droplets of MDI (6 mg/m<sup>3</sup>) for their lifetime. Tumors occurred concurrently

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with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI.

TERATOLOGY (BIRTH DEFECTS): The phthalate ester has caused birth defects in laboratory animals only at doses toxic to the mother. 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.

REPRODUCTIVE EFFECTS: For a phthalate ester component: minimal effects on reproduction considered secondary to parental toxicity were observed in animals given extremely high dietary doses. A lower dose produced parental toxicity but no reproductive effects. There were no effects on fertility at any dose.

#### 4. FIRST AID

EYE: Flush eyes thoroughly with water for several minutes. Remove contact lenses after initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

SKIN: Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. 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: Move person 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. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. May cause respiratory sensitization or asthma-like symptoms. Bronchodilators, expectorants and anti-tussives may be of help. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory

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distress. Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome).

#### 5. FIRE FIGHTING MEASURES

##### FLAMMABLE PROPERTIES

FLASH POINT: > 220F  
METHOD USED: Setaflash

EXTINGUISHING MEDIA: Carbon dioxide, dry chemical, foam.

SPECIAL FIRE FIGHTING PROCEDURES: Fire fighters should wear self-contained, positive pressure breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None known.

#### 6. ACCIDENTAL RELEASE MEASURES (See Section 15 for Regulatory Information)

PROTECT PEOPLE: Clear non-emergency personnel from area. Use appropriate safety equipment. For additional information, refer to "Exposure Controls/Personal Protection", MSDS section 8.

PROTECT THE ENVIRONMENT: Contain material to prevent contamination of soil, surface water or ground water.

CLEAN-UP: Contain spill if possible. Absorb with material such as cat litter, sand or sawdust. Please refer to Disposal Information, MSDS Section 13.

#### 7. HANDLING AND STORAGE

HANDLING & STORAGE: Store in tightly closed container. Store indoors between 50-95 degrees F.

#### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

These precautions are suggested for conditions with high potential for exposure. If handling procedures are such that there is only a low potential for exposure, less protection may be needed. Emergency conditions may require additional precautions.

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. The odor and irritancy of this material are

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inadequate to warn of excessive exposure. Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and the people working at this point.

PERSONAL PROTECTIVE EQUIPMENT:

EYE/FACE PROTECTION: Use safety glasses.

SKIN PROTECTION: Use protective clothing chemically resistant 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, and launder clothing before reuse or dispose of properly. Items which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly.

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: Methylene bisphenyl isocyanate (MDI): ACGIH TLV is 0.005 ppm TWA and OSHA PEL is 0.02 ppm ceiling.

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

Although some of the fillers used in this product may have exposure guidelines, no exposure would be expected under normal handling conditions because of the physical state of the material.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE/PHYSICAL STATE: White paste.

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ODOR: Mild odor.

VAPOR PRESSURE: N/A

VAPOR DENSITY: N/A

BOILING POINT: N/A

SOLUBILITY IN WATER/MISCIBILITY: N/A

SPECIFIC GRAVITY OR DENSITY: 0.91 (+/- 0.03)

VOLATILE ORGANIC COMPOUNDS (VOC) CONTENT: 0.01 lbs/gal (nominal)  
EPA Method 24 Procedure B

#### 10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable.

INCOMPATIBILITY WITH OTHER MATERIALS: Strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon dioxide, carbon monoxide,  
smoke, fumes.

HAZARDOUS POLYMERIZATION: Will not occur.

#### 11. TOXICOLOGICAL INFORMATION (See Section 3 for Potential Health Effects. For detailed toxicological data, write or call the address or non-emergency number shown in Section 1)

SKIN: The dermal LD50 has not been determined.

INGESTION: Single dose oral LD50 has not been determined.

MUTAGENICITY: For the phthalate ester component, in vitro mutagenicity studies were negative. 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 negative.

#### 12. ECOLOGICAL INFORMATION (For detailed Ecological data, write or call the address or non-emergency number shown in Section 1)

For detailed ecological data, write or call the Dow Chemical Company.

#### 13. DISPOSAL CONSIDERATIONS (See Section 15 for Regulatory Information)

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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 characterization and compliance with applicable law 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 AND UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted incinerator or other thermal destruction device.

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

U.S. DOT CLASSIFICATION/DESCRIPTION: For DOT regulatory information, if required, consult transportation regulations or product shipping papers.

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

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express 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.

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See other sections for health and safety information.

U.S. REGULATIONS

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SARA 313 INFORMATION: This product contains the following substances 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:

MDI, 4,4'-ISOMER, FREE                      000101-68-8                      < 1%

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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

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TOXIC SUBSTANCES CONTROL ACT (TSCA):

All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

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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
METHYLENE BIS(PHENYLISOCYANATE) (MDI)	000101-68-8	NJ2 NJ3 PA1 PA3
KAOLIN	001332-58-7	PA1
CARBON BLACK	001333-86-4	NJ3 PA1

NJ3=New Jersey Workplace Hazardous Substance (present at greater than



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REGULATORY INFORMATION (CONTINUED)

or equal to 1.0%).

PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).

PA3=Pennsylvania Environmental Hazardous Substance (present at greater than or equal to 1.0%).

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OSHA HAZARD COMMUNICATION STANDARD:

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

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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:

Category:

Chemical Name	CAS#	RQ	% in Product
MDI, 4,4'-isomer, free	000101-68-8	5000 lbs.	< 1%

CANADIAN REGULATIONS

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

D2A - respiratory tract sensitizer

D2B - skin sensitizer

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):

COMPONENTS:	CAS #	AMOUNT (%w/w)
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REGULATORY INFORMATION (CONTINUED)

MDI, 4,4'-isomer, free	000101-68-8	0.1-1
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16. OTHER INFORMATION

Section(s) changed: 2, 3, 4, 8, 15

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The Information Herein Is Given In Good Faith, But No Warranty,  
Express Or Implied, Is Made. Consult The Dow Chemical Company  
For Further Information.