



# Material Safety Data Sheet

The Dow Chemical Company  
Midland, Michigan 48674  
Emergency 989.636.4400

## 1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Page: 1

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

Product: STYROFOAM\* 8.00 INCH PIPE BILLET FOAM INSULATION

Product Code: 81773

Effective Date: 01/22/02  
03/20/02

Date Printed:  
MSD: 006580

The Dow Chemical Company, Midland, MI 48674

Customer Information Center: 800-258-2436

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

Polystyrene	CAS# 009003-53-6
Chlorodifluoroethane	CAS# 000075-68-3
Chlorodifluoromethane	CAS# 000075-45-6
Halogenated flame retardant	
Magnesium silicate (talc)	CAS# 014807-96-6

## 3. HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW

\*\*\*\*\*

\* Blue rigid extruded foam billet. Odorless. Toxic flumes may be \*  
 \* released in fire situations. \*

\*\*\*\*\*

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

EYE: Solid or dust may cause irritation or corneal injury due to mechanical action.

SKIN: Essentially nonirritating to skin. Mechanical injury only. No adverse effects anticipated by skin absorption.

INGESTION: Low Toxicity if swallowed. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. May cause choking or blockage of the digestive tract if swallowed.  
(Continued on page 2)

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

**Product: STYROFOAM\* 8.00 INCH PIPE BILLET FOAM INSULATION**

Product Code: 81773

Effective Date: 01/22/02

Date Printed: 03/20/02

MSD: 6580

.....

INHALATION: Dust may cause irritation to upper respiratory tract (nose and throat). Vapor/fumes released during thermal operations such as hot wire cutting may cause eye and respiratory irritation. High concentrations of the blowing agents (>5000 ppm) may cause central nervous system, anesthetic or narcotic effects & cardiac sensitization (irregular heartbeats). In animals, excessive exposure to chlorodifluoethane (HCFC 142b) has caused low blood pressure, respiratory stimulation and chest tightness (bronchoconstriction). Concentrations of the blowing agents anticipated incidental to proper handling are expected to be well below those which cause acute inhalation effects and below exposure guidelines.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: No relevant information found.

CANCER INFORMATION: Neither polystyrene foam dust nor chloro-difluoroethane (HCFC-142b) caused cancer in long-term animal studies. Increased tumor incidence was observed in male rats after lifetime exposure to high concentrations (50,000 ppm) of chloro-difluoromethane (HCFC-22). Long term animal studies at low concentrations (up to 10,000 ppm) have been negative.

TERATOLOGY (BIRTH DEFECTS) : No birth defects were observed in animal studies with chlorodifluoroethane (HCFC-142b). Chloro-difluoromethane (HCFC-22) caused birth defects in animal only at doses toxic to the mother.

REPRODUCTIVE EFFECTS: Contains component(s) which did not interfere with the reproduction in animal studies. The component(s) is/are chloro-difluoromethane (HCFC-22).

**4. FIRST AID**

EYE: Flush eyes with plenty of water; remove contact lenses after the first 1-2 minutes then continue flushing for several minutes. Only mechanical effects only.

SKIN: Wash skin with plenty of water.

(Continued on Page 3)

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

**Product: STYROFOAM\* 8.00 INCH PIPE BILLET FOAM INSULATION**

Product Code: 81773

Effective Date: 01/22/02

Date Printed: 03/20/02

MSD: 6580

.....

**INGESTION:** If swallowed, seek medical attention. May cause gastrointestinal blockage. Do not give laxatives. Do not induce vomiting unless directed to do so by medical personnel.

**INHALATION:** Move person to fresh. 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. Exposure may increase "myocardial irritability". Do not administer sympathomimetic drugs such as epinephrine unless absolutely necessary.

**5. FIRE FIGHTING MEASURES****FLAMMABLE PROPERTIES**

FLASH POINT: 670F, 354C Flash ignition temperature

METHOD USED: ASTM D1929 Proc. B

AUTOIGNITION TEMPERATURE: 835F (446C)

**FLAMMABILITY LIMITS**

LFL: Not applicable.

UFL: Not applicable.

**HAZARDOUS COMBUSTION PRODUCTS:** Under fire conditions polymers decompose. The smoke may contain polymer fragments of varying compositions in addition to unidentified toxic and/or irritating compounds. In smoldering or flaming conditions, carbon monoxide, carbon dioxide and carbon are generated. Hazardous combustion products may include and are not limited to hydrogen bromide, hydrogen chloride and hydrogen fluoride. Studies have shown that the products of combustion of this foam are not more acutely toxic than the products of combustion of common building materials such as wood.

**OTHER FLAMMABILITY INFORMATION:** When product is stored in closed containers a flammable atmosphere can develop. Container may vent and/or rupture due to fire. Mechanical cutting, grinding or sawing can cause formation of dusts. To reduce potential for dust explosion, do not permit dust to accumulate. This product contains a flame retardant to inhibit accidental ignition from small fire sources. This plastic foam product is combustible and should be protected from flames and other high heat sources. For more information (continued on page 4)

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

**Product: STYROFOAM\* 8.00 INCH PIPE BILLET FOAM INSULATION**

Product Code: 81773

Effective Date: 01/22/02

Date Printed: 03/20/02

MSD: 6580

.....

contact Dow. Dense smoke is produced when product burns.

EXTINGUISHING MEDIA: Water fog or fine spray, carbon dioxide, dry chemical, foam.

FIRE FIGHTING INSTRUCTIONS: Keep people away. Isolate fire area and deny unnecessary entry. If material is molten, do not apply direct water stream. Use fine water spray or foam. Soak thoroughly with water to cool and prevent re-ignition. Cool surroundings with water to localize fire zone.

PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting equipment (includes fire fighting helmet, coat, pants, boots, and gloves) .If protective equipment is not available or not used, fight fire from a protected location or safe distance.

## **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 Section 8, Exposure Controls/Personal Protection.

PROTECT THE ENVIRONMENT: Fire water run off may be toxic.

CLEANUP: Pick up, or if duct or in small pieces, sweep up and place in suitable container for disposal. See Section 13, Disposal Considerations.

## **7. HANDLING AND STORAGE**

HANDLING: Mechanical handling equipment can cause formation of dusts. Maintain good housekeeping. Layers of flammable dusts should not be permitted to accumulate.

(Continued on Page 5)

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

**Product: STYROFOAM\* 8.00 INCH PIPE BILLET FOAM INSULATION**

Product Code: 81773

Effective Date: 01/22/02

Date Printed: 03/20/02

MSD: 6580  
.....

STORAGE: Flammable vapors may accumulate in some storage situations. Storage, use and handling areas should be "No Smoking" areas. Minimize sources of ignition, such as static buildup, heat, spark or flame.

When large quantities of this product are stored or fabricated, blowing agents released from the foam may tend to accelerate corrosion of heaters and boilers and/or fumes.

NOTICE: This polystyrene foam plastic product is COMBUSTIBLE and should be protected from flame and other high heat sources. For more information, contact the appropriate fire regulatory authority or Dow (1-800-441-4369) .

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

**PERSONAL PROTECTIVE EQUIPMENT**

EYE/FACE PROTECTION: Use safety glasses. If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles. If exposure causes eye eye discomfort, use a full-face respirator.

SKIN PROTECTION: No precautions other than clean body-covering clothing should be needed.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use an approved air-purifying respirator. In dusty or misty atmospheres, use an approved particulate respirator.

EXPOSURE GUIDELINE (S) : 1-Chloro-1,1-difluoroethane (HCFC 142b): AIHA WEEL is 1000 ppm, TWA.

Chlorodifluoromethane (HCFC 22): ACGIH TLV & OSHA PEL are 1000 ppm. ACGIH classifies as A4. PELS are in accord with those recommended by OSHA, as the 1989 revision of PELS. Interim IHG is 1000 ppm.

(Continued on Page 6)

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

**Product: STYROFOAM\* 8.00 INCH PIPE BILLET FOAM INSULATION**

Product Code: 81773

Effective Date: 01/22/02

Date Printed: 03/20/02

MSD: 6580  
.....**9. PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE: Blue rigid extruded foam billet

ODOR: Odorless

VAPOR PRESSURE: Not applicable.

VAPOR DENSITY: Not applicable.

BOILING POINT: Not applicable.

SOLUBILITY IN WATER/MISCIBILITY: None

SPECIFIC GRAVITY: .027 To .064

**10. STABILITY AND REACTIVITY**

STABILITY: Thermally stable at typical use temperatures.

CONDITIONS TO AVOID: Avoid temperatures above 300C (572F).  
Product can decompose at elevated temperatures. Avoid direct  
sunlight.INCOMPATIBILITY WITH OTHER MATERIALS: Avoid contact with  
oxidizing materials. Avoid contact with aldehydes, amines, esters,  
amines, liquid fuels, organic solvents.HAZARDOUS DECOMPOSITION PRODUCTS: Does not normally  
decompose. Evolution of small amounts of hydrogen halides occur  
when heated above 250C (482F). Hazardous decomposition products  
depend upon temperature, air supply, and the presence of other  
materials. Hazardous decomposition products may include and are  
not limited to ethylbenzene, aromatic compounds, aldehydes,  
hydrogen bromide, hydrogen chloride, hydrogen fluoride and styrene.  
Under high heat, non-flaming conditions, small amounts of aromatic  
hydrocarbons such as styrene and ethylbenzene are generated.

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)**MUTAGENICITY: For Chlorodifluoroethane (HCFC 142b) and  
chlorodifluoromethane (HCFC 22) in vitro mutagenicity studies were  
negative in some cases and positive in other cases. Animal  
mutagenicity studies were negative.

(Continued on Page 7)

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

**Product: STYROFOAM\* 8.00 INCH PIPE BILLET FOAM INSULATION**

Product Code: 81773

Effective Date: 01/22/02

Date Printed: 03/20/02

MSD: 6580

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

## ENVIRONMENTAL FATE

**MOVEMENT & PARTITIONING:** No bioconcentration is expected because of the relatively high molecular weight (MW >1000). In the terrestrial environment, material is expected to remain in the soil. In the aquatic environment, material is expected to float. Based largely or completely on information for flame retardant. There is no evidence of any significant leaching, therefore it is unlikely to contaminate ground water.

**DEGRADATION & PERSISTENCE:** Surface photodegradation is expected with exposure to sunlight. No appreciable biodegradation is expected. Based largely or completely on information for blowing agent. Most of the chlorodifluoromethane (HCFC 22) diffuses out of the foam in the first years of the product's life, most of its degrading in the troposphere to CO<sub>2</sub>, HCl, and HF. Chlorodifluoromethane (HCFC 22) has a stratospheric ozone depletion potential (ODP) of 0.055, relative to CFC 12 (ODP=1). Chlorodifluoroethane (HCFC 142b) remains in the foam and diffuses out slowly, most of it degrading in the troposphere to CO<sub>2</sub>, HCl, HF. Chlorodifluoroethane (HCFC 142b) has a stratospheric ozone depletion potential (ODP) of 0.065, relative to CFC 12 (ODP=1).

**ECOTOXICITY:** Not expected to be acutely toxic to aquatic organisms.

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

**DISPOSAL:** 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) .

(continued on page 8)

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

**Product: STYROFOAM\* 8.00 INCH PIPE BILLET FOAM INSULATION**

Product Code: 81773

Effective Date: 01/22/02

Date Printed: 03/20/02

MSD: 6580

FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: recycler, reclaimer, incinerator, landfill.

For additional information, refer to Handling & Storage Information, MSDS Section 7.

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**

DEPARTMENT OF TRANSPORTATION (D.O.T.) : This product is not regulated by D.O.T. when shipped domestically by land.

CANADIAN TDG INFORMATION: This product is not regulated by TDG when shipped domestically by land.

**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. See other sections for health and safety information.

**U.S. REGULATIONS**

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:

<u>CHEMICAL NAME</u>	<u>CAS NUMBER</u>	<u>CONCENTRATION</u>
CHLOROFLUOROMETHANE	000075-45-6	<10%
CHLOROFLUOROETHANE	000075-86-3	<10%

(continued on page 9)

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

**Product: STYROFOAM\* 8.00 INCH PIPE BILLET FOAM INSULATION**

Product Code: 81773

Effective Date: 01/22/02

Date Printed: 03/20/02

MSD: 6580

SARA HAZARD CATEGORY: This product has been reviewed according to the 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:

Not to have met any hazard category  
This hazard category classification is listed solely to assist with federal laws under SARA Title III. This classification is not intended nor appropriate for evaluating safe handling and use of this product. Refer to the body of this material safety data sheet for health and safety information.

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.

<u>CHEMICAL NAME</u>	<u>CAS#</u>	<u>LIST</u>
CHLORODIFLUOROMETHANE	000075-45-6	NJ2 NJ3
CHLORODIFLUOROETHANE	000075-86-3	NJ2 NJ3 PA1
TALC	014807-96-6	NJ3 PA1

NJ3 = New Jersey Environmental Hazardous Substance (Present at greater than or equal to 1.0%)

NJ3 = New Jersey Workplace Hazardous Substance (Present at greater than or equal to 1.0%)

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

(continued on page 10)

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

**Product: STYROFOAM\* 8.00 INCH PIPE BILLET FOAM INSULATION**

Product Code: 81773

Effective Date: 01/22/02

Date Printed: 03/20/02

MSD: 006580

.....

**CANADIAN REGULATIONS**

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

This product is exempt under WHMIS.

**16. OTHER INFORMATION**

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

Health	0
Flammability	1
Reactivity	0

MSDS STATUS: Revised Sections 2, 3, 5, 6, 7, 9, 13, 15.

\* OR (R) INDICATES A TRADEMARK OF THE DOW CHEMICAL COMPANY  
The Information Herein is Given In Good Faith, But No Warranty,  
Express Or Implied, Is Made. Consult The Dow Chemical Company For  
Further Information.