

# T. CLEAR HEAVYGUARD® BALLASTED ROOF INSULATION MATERIAL SAFETY DATA SHEET

The HEAVYGUARD® BALLASTED ROOF INSULATION is a composite of STYROFOAM® RM brand extruded polystyrene foam thermal insulation with an attached coating of modified latex concrete. We will treat this MSDS as a two-part document: (A) covering the extruded polystyrene foam thermal insulation, and (B) the concrete topping.

## (A) STYROFOAM® RM BRAND EXTRUDED POLYSTYRENE THERMAL INSULATION

### 1. Product and Company Identification

*Product Name:* STYROFOAM® ROOFMATE® 2.00 x 24 inch Extruded Foam Roof Insulation (Product Code: 39067, MSD: 006839)  
*Manufacturer:* The Dow Chemical Company, Midland MI 48674 (800-258-2436)  
Emergency Phone: 989-636-4400

### 2. Composition/Information on Ingredients:

| <u>Chemical Name</u>        | <u>CAS Number</u> |
|-----------------------------|-------------------|
| Polystyrene .....           | 009003-53-6       |
| Chlorodifluoroethane.....   | 000075-68-3       |
| Copolymer mixtures          |                   |
| Hologenated flame retardant |                   |

This product may contain additives (such as magnesium silicate, CAS # 14807-96-6) generally at levels <1.5% maximum.

This document was prepared pursuant to the OSHA hazard communication standard (29 CFR 1910.1200). In addition, other substances not hazardous per this OSHA standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard. This part of the document has been taken from MSDS information supplied to us from The Dow Chemical Company.

### 3. Physical and Chemical Properties:

Boiling Point .....Not Applicable  
Vapor Pressure.....Not Applicable  
Vapor Density .....Not Applicable  
Solubility in water .....None  
Specific Gravity/Density.....0.027 to 0.064  
Appearance.....Blue Rigid Cellular Foam Board  
Odor .....No Odor

### 4. Fire and Explosion Hazard Data:

Flash Point .....670°F/354°C Flash Ignition Temperature  
Method Used .....ASTM D1929 Proc. B.  
Flammable Limits LFL .....Not Applicable  
Flammable Limits UFL .....Not Applicable  
Extinguishing Media .....Foam, Water, Carbon Dioxide, Dry Chemical

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*Hazardous Combustion Products:* In smoldering or flaming conditions, carbon monoxide, carbon dioxide and carbon are generated. Evolution of small amounts of hydrogen halides occurs when burned or heated above 250°C (480°F). Under fire conditions polymers decompose. The smoke may contain polymer fragments of varying compositions in addition to unidentified and/or irritating compounds. 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.

*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 Fire-fighting Equipment:* Wear positive-pressure, self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots and gloves). If protective equipment is not available or not used, fight fire from protected location or safe distance.

## 5. Reactivity Data:

*Stability:* Thermally stable at typical use temperatures.

Conditions To Avoid - Avoid direct sunlight. Maximum use temperature is 73°C (165°F). Avoid temperatures over 300°C (572°F). Product can decompose at elevated temperatures.

*Incompatibility with Other Materials:* Avoid contact with oxidizing materials. Avoid contact with aldehydes, amines, esters, liquid fuels, and organic solvents.

*Hazardous Decomposition Products:* Does not normally decompose. Evolution of small amounts of hydrogen halides occurs when heated above 250°C. Under high heat, non-flaming conditions, small amounts of aromatic hydrocarbons such as styrene and ethylbenzene are generated. 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, polymer fragments, and styrene.

*Hazardous Polymerization:* Will not occur.

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**6. Health Hazard Data:**

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

*Skin Contact:* Essentially nonirritating to skin. Mechanical injury only. Skin absorption is unlikely due to the physical properties.

*Ingestion:* Single dose oral toxicity is considered to be low. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury. May cause choking or blockage of the digestive tract if swallowed.

*Inhalation:* Dust may cause irritation to the upper respiratory tract (nose and throat). Vapors/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 and cardiac sensitization (irregular heartbeats). Concentrations of the blowing agents anticipated incidental to proper handling are expected to be well below guidelines. In animals, excessive exposure to chlorodifluoroethane (HCFC-142b) has caused low blood pressure, respiratory stimulation and chest tightness (bronchial constriction).

*Systemic (Other Target Organ) Effects:* Based on available data, repeated exposures to dusts of this material are not anticipated to cause significant adverse effects.

*Cancer Information:* Neither polystyrene foam dust, nor chlorodifluoroethane (HCFC-142b) caused cancer in long-term animal studies.

*Teratology (Birth Defects):* Contains component(s) which did not cause birth defects in laboratory animals. The component(s) is/are dichlorofluoroethane (HCFC-142b).

*Reproductive Effects:* No relevant information found.

*Mutagenicity (Effects on Genetic Material):* For the minor component(s) dichlorofluoroethane (HCFC-142b), in vitro mutagenicity studies were negative in some cases and positive in other cases. Animal mutagenicity studies were negative.

**7. First Aid:**

*Eyes:* Flush eyes with plenty of water; mechanical effects only.

*Skin:* Wash off in flowing water or shower.

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*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:* 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. Exposure may increase "myocardial irritability." Do not administer sympathomimetic drugs unless absolutely necessary.

**8. Handling and Storage:**

*Handling:* Maintain good housekeeping. Layers of flammable dusts should not be permitted to accumulate. See Section 9, Exposure Controls/Personal Protection.

*WARNING:* In order to prevent buildup of combustible vapors, do not store large quantities of this product in unventilated spaces. Transport bulk shipments of this product in ventilated vehicles.

*Storage:* Flammable vapors may accumulate in some storage situations. Storage, use and handling areas should be "No Smoking" areas. See Section 9, Exposure Controls/Personal Protection.

Minimize sources of ignition, such as static buildup, heat, spark or flame.

When storing or fabricating large quantities of extruded polystyrene foam, the blowing agents (i.e. chlorodifluoroethane) released from the foam, if any, may thermally decompose to hydrogen chloride, which tends to accelerate corrosion or rust development of heaters, boilers, gas fired recirculating air furnaces or heaters, or gas water heaters.

This polystyrene foam plastic product is combustible and should be protected from flame and other high heat sources. It should be installed with code-acceptable thermal barriers or used in approved alternative constructions.

**9. Accidental Release Measures (See Section 13 for Regulatory Information):**

*Protect People:* Clear non-emergency personnel from area. Use appropriate safety equipment. For additional information, refer to Section 9, Exposure Controls/Personal Protection.

*Protect the Environment:* Firewater run off may be toxic.

*Cleanup:* Pick up, or if dust or in small pieces, sweep up and place in suitable container for disposal. See Section 11, Disposal Considerations.

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**10. Exposure Controls/Personal Protection:**

*Engineering Controls:* Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

*Respiratory Protection:* Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, including but not limited to saw, router, or hot wire cutting, use an approved air-purifying respirator. In dusty atmospheres, use an approved dust respirator.

*Skin Protection:* No precaution other than clean body-covering clothing should be needed.

*Eye Protection:* Use Safety Glasses. If there is a potential for exposure to particles, which could cause mechanical injury to the eye, wear chemical goggles.

*Exposure Guideline(s):* 1-Chloro-1, 1-difluoroethane (HCFC-142b): AIHA WEEL is 1000 ppm, TWA.

**11. Ecological Information:**

*Movement & Partitioning:* No bioconcentration is expected because of the relatively high molecular weight (MW greater than 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 groundwater.

*Degradation & Persistence:* Surface photodegradation is expected with exposure to sunlight. No appreciable biodegradation is expected. Based largely or completely on information for blowing agent. Chlorodifluoroethane (HCFC-142b) remains in the foam and diffuses out slowly, most of it degrading in the troposphere to CO<sub>2</sub>, HCl, and 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.

**12. Disposal Considerations (See Section 13 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.

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*For unused & uncontaminated product*, the preferred options include sending to a licensed, permitted: recycler, re-claimer, incinerator or other thermal destruction device, landfill.

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

The Dow Chemical Company 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. Call Dow Customer Information at 800-258-2436 or 989-832-1556 for further details.

**13. Transportation Information:**

*Department of Transportation (DOT):* This product is not regulated by the DOT when shipped domestically by land.

*Canadian TDG Information:* This product is not regulated by the TDG when shipped domestically by land.

**14. 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 review date of 01/13/04. 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/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:

| <b><u>Chemical Name</u></b> | <b><u>CAS Number</u></b> | <b><u>Concentration</u></b> |
|-----------------------------|--------------------------|-----------------------------|
| Chlorodifluoroethane        | 000075-00-3              | < 15%                       |

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

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Not to have met any hazard category.

*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.

| <b>Chemical Name</b> | <b>CAS Number</b> | <b>List</b> |
|----------------------|-------------------|-------------|
| Chlorodifluoroethane | 000075-00-3       | NJ2 PA1 NJ3 |
| Talc                 | 014807-96-6       | PA1 NJ3     |

NJ2=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%)

*OSHA Hazard Communication Standard:* This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

## *Canadian Regulations*

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

This Product is not a "Controlled Product" under WHMIS.

*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.

## **15. Other Information**

### *National Fire Protection Association (NFPA) Ratings*

Health.....0  
Flammability.....1  
Reactivity.....0

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## (B) MODIFIED LATEX CONCRETE TOPPING

### 1. Identity

*Product Name:* Concrete topping for HEAVYGUARD® Ballasted Roof Insulation

The concrete topping on the HEAVYGUARD Ballasted Roof Insulation is a latex modified heavy weight concrete, which is formed and extruded on the surface of the STYROFOAM® RM brand extruded polystyrene foam thermal insulation. After the concrete is allowed to cure, there are no serious hazards when utilized except those as noted below.

### 2. Hazardous Ingredients

|                                        |                    |
|----------------------------------------|--------------------|
| Cement.....                            | 10 - 25% by weight |
| Heavyweight Aggregate .....            | 60 - 80% by weight |
| Latex (Styrene/butadiene polymer)..... | <10% by weight     |
| Water .....                            | <10% by weight     |

### 3. Physical & Chemical Characteristics

|                                       |                                                   |
|---------------------------------------|---------------------------------------------------|
| Boiling Point .....                   | Not Applicable                                    |
| Specific Gravity .....                | Not Applicable                                    |
| Vapor Pressure.....                   | Not Applicable                                    |
| % Volatile .....                      | Not Applicable                                    |
| Vapor Density .....                   | Not Applicable                                    |
| Evaporation Rate .....                | Not Applicable                                    |
| Appearance & Odor.....                | A hard gray covering with a slight<br>cement odor |
| Flash Point .....                     | Not Applicable                                    |
| Flammable Limits in Air .....         | Not Applicable                                    |
| Extinguisher Type .....               | Water                                             |
| Unusual Fire & Explosion Hazards..... | None                                              |

### 4. Physical Hazards

|                                       |                                       |
|---------------------------------------|---------------------------------------|
| Stability.....                        | Stable                                |
| Incompatibility.....                  | Strong Acids                          |
| Materials to Avoid.....               | Strong Acids                          |
| Hazardous Decomposition Products..... | Gases from Strong Acid<br>Degradation |



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## 5. Toxicological Properties

Medical Conditions

Generally Aggravated

by Exposure ..... Possible abrasion by handling without proper protection

Route of Entry ..... Inhalation or Eye Contact

Acute Exposure ..... Possible irritation of nose, throat and lungs from  
excessive exposure to dust.

Chronic Exposure ..... Chronic overexposure to dust containing Silica (Quartz  
Cristobalite and Tridymite) can cause delayed lung injury  
(Silicosis). Inhalation of Crystalline Silica may contribute  
to pre-existing pulmonary diseases such as Asthma and  
lung disorders associated with the smoking of tobacco.  
Some recent animal studies have caused the international  
agency to conclude: (1) there is sufficient evidence for  
carcinogenicity to experimental animals; (2) there is  
limited evidence for the carcinogenicity to humans.

### *Toxicity Data:*

Quartz: LCLO - 300 ug/m<sup>3</sup>/IDY-1 Inhalation Human

Cristobalite: TCLO - 16 mppcf/8H/17.9Y-1 Inhalation Human

Tridymite: TCLO - 16 mppcf/8H/17.9Y-1 Inhalation Human

*Note:* LD 50 and LC 50 are not available.

In contradiction to IARC's listing as a Class 2A carcinogen,  
there is considerable disagreement by an informed  
scientific body. (i.e. "Literature Survey of the Evidence  
Concerning the Carcinogenicity of Crystalline Silica," by  
Dr. Karen Hagelstein of Stefan, Robertson and Kristen,  
Consulting Engineers, 1412 140<sup>th</sup> Place, NE, Bellevue,  
Washington 98007.

## 6. Special Protection Information

Respiratory

Protection ..... Dust may cause irritation to respiratory tract, use  
NIOSH approved dust masks.

Ventilation ..... General or local to control airborne levels.

Protective Gloves ..... In damp conditions, abrasion and skin irritation due to  
the Alkali in the cement.

Eye Protection ..... Use safety glasses with shields while cutting.

Other Protective

Clothing or Equipment ..... Possible use for aprons.

First Aid Measures ..... Wash thoroughly with soap and water. If irritation  
remains, seek medical attention.

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**7. Documentary Information**

The information presented here is based on the testing data available to us at the time of publication and is believed to be correct. Since this information may have been obtained in part from independent laboratories or other sources not under our direct supervision, no representation is made that the information is accurate, reliable, complete or representative. We have made no effort to conceal nor to censor deleterious aspects of this product. Since we cannot anticipate all conditions, which may arise during use of this product, we make no guarantee that the health and safety precautions for all individuals and/or situations involving it's handling and use. Likewise, we make no guaranty or warranty of any kind that the use or disposal of this product is in compliance with all federal, state, or local laws. It is the obligation of the user of the product herein to determine and comply with the requirements on all applicable statutes.