

T. CLEAR THERMADRY[®]
INSULATING DRAINAGE PANELS
MATERIAL SAFETY DATA SHEET

The THERMADRY[®] INSULATING DRAINAGE PANEL is a composite of STYROFOAM[®] RM brand extruded polystyrene foam thermal insulation with a polyester fabric adhered with THERMOLOCK[®] brand adhesive. We will treat this MSDS as a three-part document covering: (A) the extruded polystyrene foam thermal insulation, (B) the polyester fabric, and (C) the adhesive.

(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 PointNot Applicable
Vapor Pressure.....Not Applicable
Vapor Density.....Not Applicable
Solubility in waterNone
Specific Gravity/Density.....0.027 to 0.064
AppearanceBlue 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 LFLNot Applicable
Flammable Limits UFL.....Not Applicable
Extinguishing MediaFoam, Water, Carbon Dioxide, Dry Chemical

T. CLEAR THERMADRY[®]
INSULATING DRAINAGE PANELS
MATERIAL SAFETY DATA SHEET

4. Fire and Explosion Hazard Data (continued):

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.

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.

T. CLEAR THERMADRY[®]
INSULATING DRAINAGE PANELS
MATERIAL SAFETY DATA SHEET

6. Health Hazard Data (continued):

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.

7. First Aid:

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

Skin: Wash off in flowing water or shower.

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 10, 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.

T. CLEAR THERMADRY[®]
INSULATING DRAINAGE PANELS
MATERIAL SAFETY DATA SHEET

8. Handling and Storage (continued):

Storage: Flammable vapors may accumulate in some storage situations. Storage, use and handling areas should be "No Smoking" areas. See Section 10, 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 15 for Regulatory Information):

Protect People: Clear non-emergency personnel from area. Use appropriate safety equipment. For additional information, refer to Section 10, 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 13, Disposal Considerations.

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. Toxicological Information: (See Section 6 for Health Hazard Data. For detailed toxicological data, write or call The Dow Chemical Company)

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.

T. CLEAR THERMADRY[®]
INSULATING DRAINAGE PANELS
MATERIAL SAFETY DATA SHEET

12. 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 CO₂, 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.

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.

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 8, 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.

14. 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.

T. CLEAR THERMADRY[®]
INSULATING DRAINAGE PANELS
MATERIAL SAFETY DATA SHEET

15. **Regulatory Information:** (Not meant to be all-inclusive - selected regulations represented)

NOTICE: The information contained herein is based on data considered to be accurate. 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. While the information is believed to be reliable, NO Warranty, expressed or implied, is given in regards to the accuracy of this data or the results to be obtained from the use thereof. Since the use of this information and the conditions and use of this product are controlled by the user, it is the user's obligation to determine the conditions of safe use of the product. 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>
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:

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.

<u>Chemical Name</u>	<u>CAS Number</u>	<u>List</u>
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.

T. CLEAR THERMADRY[®]
INSULATING DRAINAGE PANELS
MATERIAL SAFETY DATA SHEET

15. Regulatory Information (continued):

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.

16. Other Information:

National Fire Protection Association (NFPA) Ratings:

Health.....0
 Flammability1
 Reactivity0

(B) 2024 POLYESTER FABRIC

1. Product and Company Identification:

Product Name: 2024 Polyester Fabric

Manufacturer: BBA Fiberweb, Old Hickory, TN 37138 (800-284-2780)
 Emergency Contact: Chemtrec, 800-424-9300

2. Composition/Information on Ingredients:

Chemical Name	CAS Number	Concentration
Polyester	25038-59-9	>85%
Co-Polyester Resin	Mixture	>15%
Whitner Masterbatch	Mixture	>.2%
Dimethylpolysiloxanes	63148-62-9	trace

This document was prepared pursuant to the OSHA hazard communication standard (29 CFR 1910.1200). This product is not hazardous according to the criteria specified in the aforementioned. This product is considered an article and does not require an MSDS. This part of the document has been taken from MSDS information supplied to us from BBA Fiberweb.

3. Physical and Chemical Properties:

Boiling PointNot Applicable
 Melting Point1.3-1.4
 Percent Volatiles.....Not Applicable
 Vapor Pressure.....Not Applicable
 Vapor Density.....>165°C/ Not Applicable
 Packing DensityNot Applicable
 Evaporation RateNot Applicable
 Solubility in waterNegligible

T. CLEAR THERMADRY[®]
INSULATING DRAINAGE PANELS
MATERIAL SAFETY DATA SHEET

3. Physical and Chemical Properties (continued):

Specific Gravity/DensityNIL
AppearanceWhite fabric
Odor.....Not Applicable
pH.....Not Applicable
Physical State.....Solid

4. Fire and Explosion Hazard Data:

Flash Point.....Not Applicable
Method Used.....Not Applicable
Lower Explosive LimitNot Applicable
Upper Explosive LimitNot Applicable
Extinguishing MediaWater spray, foam, carbon dioxide or dry chemical

Hazardous Combustion Products: Upon decomposition this product may emit carbon dioxide, carbon monoxide and/or low molecular weight hydrocarbons.

General Hazards: Solid Material may burn upon extended exposure to open flames.

Protective Fire-fighting Equipment: As in any fire, wear self-contained breathing apparatus and full protective gear.

5. Reactivity Data:

Stability: Stable under ordinary conditions or use and storage.

Conditions To Avoid - Combustible when exposed to open flames.

Incompatibility with Other Materials: None known.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbon may be emitted upon decomposition.

Hazardous Polymerization: Will not occur.

6. Health Hazard Data:

Eye: Not expected to be a problem, being that this product is an inert solid.

Skin Contact: Possible mechanical irritation.

Ingestion: Not Applicable

Inhalation: Not expected to be a problem, being that this product is an inert solid.

Emergency Overviews: None of the components in this material are considered hazardous.

7. First Aid:

Eyes: Rinse eyes with water for at least 15 minutes. If irritation persists, contact physician.

Skin: Wash affected area with soap and water.

Ingestion: Not Applicable

T. CLEAR THERMADRY[®]
INSULATING DRAINAGE PANELS
MATERIAL SAFETY DATA SHEET

7. First Aid (continued):

Inhalation: Not Applicable

Note to Physician: No health conditions aggravated by exposure are identified. Contact the poison control center if any problems occur.

8. Handling and Storage:

Handling: Avoid exposure to heat, sparks or open flames.

Storage: Store material in cool (below 140°F) warehouse that is equipped with a sprinkler system.

Ensure product is not stacked too high.

Store product off the floor to prevent water damage.

9. Accidental Release Measures: (See Section 15 for Regulatory Information)

Containment Procedures: Sweep waste fabric into a pile.

Evacuation Procedures: Not Applicable

Cleanup Procedures: Sweep waste fabric into a waste container and recycle, incinerate or landfill in conformity with local disposal regulations.

Special Procedures: None

10. Exposure Controls/Personal Protection:

Component	CAS Number	Exposure Limits
Polyester	25038-59-9	Manufacturer Limit: 10 mg/m ³ , 8 hr. TWA, total dust 10 mg/m ³ , 8 hr. TWA, respirable dust
Co-Polyester Resin	Mixture	Manufacturer Limit: 10 mg/m ³ , 8 hr. TWA, total dust 10 mg/m ³ , 8 hr. TWA, respirable dust
Whitner Masterbatch	Mixture	ACGIH: None Available OSHA: None Available
Dimethylpolysiloxanes	63148-62-9	ACGIH: None Available OSHA: None Available

Engineering Controls: Normal room ventilation is usually adequate.

Respiratory Protection: None usually required

Skin Protection: None usually required

Eye Protection: None usually required

General Protection: Follow individual plant safety rules.

T. CLEAR THERMADRY[®]
INSULATING DRAINAGE PANELS
MATERIAL SAFETY DATA SHEET

11. Toxicological Information:

Acute and Chronic Toxicity: No components of this product are known to be hazardous according to the criteria specified in the OSHA hazard communication standard (29 CFR 1910.1200).

Component	CAS Number	LD50/CD50
Polyester	25038-59-9	None Available
Co-Polyester Resin	Mixture	None Available
Whitner Masterbatch	Mixture	None Available
Dimethylpolysiloxanes	63148-62-9	Acute Oral LD50:>40,000 mg/kg -Acute Dermal; None (rat)

Carcinogenicity: Product is considered to be non-hazardous.

Epidemiology: No information available.

Neurotoxicity: No information available.

Mutagenicity: No information available.

Teratogenicity: No information available.

Other Toxicological Information: Specific toxicity testing has not been performed on this product. Hazard evaluation is based on information from similar products, raw material data, and technical literature.

12. Ecological Information:

General product information: No available information.

Environmental Fate: No available information.

13. Disposal Considerations: (See Section 15 for Regulatory Information)

General Information: None identified

Component Waste Numbers: No EPA Waste Numbers are applicable for this product.

Disposal: Dispose of container and unused contents in accordance with federal, state and local requirements. Processing, use or contamination of this product may change the waste management options.

For additional information, refer to Section 8, Handling & Storage Information.

14. Transportation Information:

Product is not regulated.

T. CLEAR THERMADRY[®]
INSULATING DRAINAGE PANELS
MATERIAL SAFETY DATA SHEET

15. Regulatory Information: (Not meant to be all-inclusive - selected regulations represented)

NOTICE: The information contained herein is based on data considered to be accurate. 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. While the information is believed to be reliable, NO Warranty, expressed or implied, is given in regards to the accuracy of this data or the results to be obtained from the use thereof. Since the use of this information and the conditions and use of this product are controlled by the user, it is the user's obligation to determine the conditions of safe use of the product. 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. Federal Regulations:

This material meets the criteria of 21CFR177.1630 of the FDA contact regulations

Component	CAS Number	SARA 302	SARA 313	CERCLA
Polyester	25038-59-9	No	No	No
Co-Polyester Resin	Mixture	No	No	No
Whitner Masterbatch	Mixture	No	No	No
Dimethylpolysiloxanes	63148-62-9	No	No	No

State Right-to-Know:

Other state regulations may apply. Check individual state requirements

Component	CAS Number	CA	FL	MA	MN	NJ	PA
Polyester	25038-59-9	No	NK	NK	NK	No	NK
Co-Polyester Resin	Mixture	No	NK	NK	NK	No	NK
Whitner Masterbatch	Mixture	No	NK	NK	NK	NK	NK
Dimethylpolysiloxanes	63148-62-9	No	NK	NK	NK	NK	NK

NK=Not Known

WHMIS IDL:

Component	CAS Number	TSCA	DSL/NDSL	EINECS
Polyester	25038-59-9	Yes	Yes	Yes
Co-Polyester Resin	Mixture	Yes	Yes	Yes
Whitner Masterbatch	Mixture	Yes	NK	NK
Dimethylpolysiloxanes	63148-62-9	No	No	No

NK=Not Known

T. CLEAR THERMADRY[®]
INSULATING DRAINAGE PANELS
MATERIAL SAFETY DATA SHEET

Protective Fire-fighting Equipment: No special equipment known.

5. Reactivity Data:

Stability: Normally stable.

Conditions To Avoid - None known

Incompatibility with Other Materials: None known

Hazardous Decomposition Products: Burning, including when heated by welding or cutting. Will produce smoke, carbon monoxide and carbon dioxide.

Hazardous Polymerization: Will not occur.

Conditions To Avoid - None known

6. Health Hazard Data:

Eye: May cause transient eye irritation.

Skin Contact: May cause transient skin irritation.

Ingestion: Unknown

Inhalation: May cause respiratory irritation.

Repeated Exposure: Unknown

7. First Aid:

Eyes: Flush eyes with water until relieved. Consult a physician.

Skin: None should be needed.

Ingestion: None should be needed.

Inhalation: Remove to fresh air.

Note to Physician: Any treatment that might be required for overexposure should be directed at the control of symptoms and the clinical conditions.

8. Handling and Storage:

Precautions: None likely to be needed.

9. Accidental Release Measures (See Section 15 for Regulatory Information):

Containment Procedures: Confine in small area; use absorbent to clean up. Place in container for disposal.

10. Exposure Controls/Personal Protection:

Respiratory Protection: Not likely to be needed.

Ventilation: Natural ventilation should be adequate under normal conditions.

Skin Protection: Not likely to be needed.

11. Toxicological Information:

No information available.

T. CLEAR THERMADRY[®]
INSULATING DRAINAGE PANELS
MATERIAL SAFETY DATA SHEET

12. Ecological Information:

No information available.

13. Disposal Considerations (See Section 15 for Regulatory Information):

Disposal: Dispose in accordance with federal, state and local regulations.

14. Transportation Information:

Product is not regulated.

15. Regulatory Information: (Not meant to be all-inclusive - selected regulations represented)

NOTICE: The information contained herein is based on data considered to be accurate. 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. While the information is believed to be reliable, NO Warranty, expressed or implied, is given in regards to the accuracy of this data or the results to be obtained from the use thereof. Since the use of this information and the conditions and use of this product are controlled by the user, it is the user's obligation to determine the conditions of safe use of the product. 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.

16. Other Information

National Fire Protection Association (NFPA) Ratings

Health.....Not Applicable
FlammabilityNot Applicable
ReactivityNot Applicable

HMIS Ratings

Health.....0
Flammability0
Reactivity0