PRODUCT CATEGORY: FOAM ROOF INSULATION

DATE PREPARED: DECEMBER 23, 2002

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

CHEMICAL PRODUCT IDENTIFICATION

Product/Trade Name: FlintBoard ISO Roof Insulation
FlintBoard ISO-T Roof Insulation
FlintBoard ISO Plus Roof Insulation
FlintBoard ISO-T Plus Roof Insulation
FlintBoard ISO Cold Roof Insulation
FlintBoard Pre-Cut Crickets

Chemical Name: None
CAS NO: None Assigned
Common Name: Polysiocyanurate Foam Roof Insulation
Product use: Rigid Roof Insulation

MANUFACTURER INFORMATION

CertainTeed Corporation
P.O. Box 860
Valley Forge, PA USA 19482-0105

Phone: Main Number 800-274-8530
Safety and Environmental Affairs: 610-341-7482
9 am - 5 pm (Eastern Time - USA)

EMERGENCY TELEPHONE: CHEMTREC 800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Polyisocyanurate Foam</th>
<th>CAS #: None Assigned</th>
<th>Percent In Product: 97%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure Limits</td>
<td>OSHA PEL</td>
<td>ACGIH TLV</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td>PNSC:</td>
<td>Inhalable</td>
<td>-</td>
<td>10 mg/m^3</td>
</tr>
<tr>
<td></td>
<td>Respirable</td>
<td>5 mg/m^3</td>
<td>3 mg/m^3</td>
</tr>
<tr>
<td></td>
<td>Total Particulate</td>
<td>15 mg/m^3</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Fiber Glass (continuous glass filament)</th>
<th>CAS #: 65997-17-3</th>
<th>Percent In Product: 1%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure Limits</td>
<td>OSHA PEL</td>
<td>ACGIH TLV</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td>Fiber Glass:</td>
<td>Inhalable</td>
<td>-</td>
<td>5 mg/m^3</td>
</tr>
<tr>
<td></td>
<td>Respirable</td>
<td>1 f/cc</td>
<td>1 f/cc</td>
</tr>
<tr>
<td></td>
<td>Total Particulate</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
2. COMPOSITION/INFORMATION ON INGREDIENTS (Continued)

<table>
<thead>
<tr>
<th>Chemical Name:</th>
<th>Pentane</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS #:</td>
<td>109-66-0</td>
</tr>
<tr>
<td>Percent In Product:</td>
<td>2%</td>
</tr>
<tr>
<td>Exposure Limits:</td>
<td>OSHA PEL 1000 ppm</td>
</tr>
</tbody>
</table>

Exposure Limits: OSHA PEL, ACGIH TLV, NIOSH REL

Chemical Name: Pentane
CAS #: 109-66-0
Percent In Product: 2%
Exposure Limits: OSHA PEL 1000 ppm, ACGIH TLV 600 ppm, NIOSH REL 120 ppm

FlintBoard ISO, ISO-T, ISO Plus and ISO-T Plus contain:

<table>
<thead>
<tr>
<th>Chemical Name:</th>
<th>Carbon Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS #:</td>
<td>1333-86-4</td>
</tr>
<tr>
<td>Percent In Product:</td>
<td>1%</td>
</tr>
<tr>
<td>Exposure Limits:</td>
<td>OSHA PEL 3.5 mg/m³</td>
</tr>
</tbody>
</table>

Exposure Limits: OSHA PEL, ACGIH TLV, NIOSH REL

Chemical Name: Carbon Black
CAS #: 1333-86-4
Percent In Product: 1%
Exposure Limits: OSHA PEL 3.5 mg/m³, ACGIH TLV 3.5 mg/m³, NIOSH REL 3.5 mg/m³

FlintBoard ISO Plus and ISO-T Plus contain:

<table>
<thead>
<tr>
<th>Chemical Name:</th>
<th>Expanded Perlite</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS #:</td>
<td>None Assigned</td>
</tr>
<tr>
<td>Percent In Product:</td>
<td>2%</td>
</tr>
<tr>
<td>Exposure Limits:</td>
<td>OSHA PEL PNC:</td>
</tr>
</tbody>
</table>

Exposure Limits: OSHA PEL, ACGIH TLV, NIOSH REL

Chemical Name: Expanded Perlite
CAS #: None Assigned
Percent In Product: 2%
Exposure Limits: OSHA PEL, ACGIH TLV

PNOC:
Inhalable - 10 mg/m³
Respirable 5 mg/m³, 3 mg/m³
Total Particulate 15 mg/m³

Additional Information On Ingredients:
The products listed in this MSDS do not contain any form of Asbestos.

3. HAZARDS IDENTIFICATION

APPEARANCE AND ODOR
Cream to tan colored solid foam board with no significant odor, and with various facings and backings:
FlintBoard ISO and FlintBoard ISO-T are faced with a fiber glass reinforced felt facing on both surfaces;
FlintBoard Cold Roof Insulation is faced with a coated fiber glass mat on both surfaces; and
FlintBoard ISO Plus and FlintBoard ISO-T Plus are faced with perlite board on one surface and fiber
glass-reinforced felt facing on the other.

EMERGENCY OVERVIEW

<table>
<thead>
<tr>
<th>NFPA Rating:</th>
<th>1</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMIS Rating:</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

(see section 16 for acronym definitions)

POTENTIAL HEALTH EFFECTS
Summary: Dust from this product is a mechanical irritant, which means that it may cause temporary irritation or
scratchiness of the throat and/or itching of the eyes and skin.
Routes of Entry: Inhalation, skin and eye contact.
Acute Inhalation: Breathing dust from these products may cause mechanical irritation of the mouth, nose, throat
and respiratory tract.
3. **HAZARDS IDENTIFICATION (Continued)**

**Chronic Inhalation:**
- **Fiber Glass:** No chronic health effects are known to be associated with exposure to continuous filament fiber glass. Results from epidemiological studies have not shown any increase in respiratory disease or cancer. In 1987, the International Agency for Research on Cancer (IARC) has classified continuous filament fiber glass “Not Classifiable as to its Carcinogenicity to Humans” (Group 3; i.e., IARC-3). In 2002, IARC re-affirmed this designation. Because of the large diameter of continuous filament fibers, these fibers are not considered respirable.
- **Polyisocyanurate Foam:** There is no evidence that polyisocyanurate foam dust causes disease in humans.

**Acute Skin Contact:** Contact with the skin may result in transient mechanical irritation, characterized by itching or redness.

**Chronic Skin Contact:** None identified.

**Acute Eye Contact:** Contact with the eye may result in mechanical irritation, characterized by itching or redness.

**Chronic Eye Contact:** None identified.

**Acute Ingestion:** Ingestion of this product is unlikely. However, ingestion of product may produce gastrointestinal irritation and disturbances.

**Chronic Ingestion:** None identified.

**Carcinogenicity:**
- **Fiber Glass** (continuous filament fiber glass)
  - ACGIH: A4 – Not Classifiable as a Human Carcinogen (related to continuous filament glass fibers)
  - IARC: Group 3 – Not Classifiable as to its carcinogenicity to humans
  - NTP: Reasonably anticipated to be a Human Carcinogen (respirable size fibers only)
- **Carbon Black**
  - ACGIH: A4 – Not Classifiable as a Human Carcinogen
  - NIOSH: Carcinogen (in the presence of polycyclic aromatic hydrocarbons)

**Medical Conditions Aggravated by Exposure:** Any condition generally aggravated by mechanical irritants in the air or on the skin.

4. **FIRST AID MEASURES**

**Inhalation:** Remove to fresh air. Drink water to clear throat, and blow nose to remove dust. If symptoms persist, seek medical attention.

**Skin:** For skin contact, wash immediately with soap and water. If irritation persists, seek medical attention.

**Eyes:** Flush eyes with running water for at least 15 minutes. Do not rub or scratch eyes. Dust particles may cause eyes to be scratched. If irritation persists, seek medical attention.

**Ingestion:** Product is not intended to be ingested or eaten. If this product is ingested, irritation of the gastrointestinal (GI) tract may occur, and should be treated symptomatically. Rinse mouth with water to remove fibers, and drink plenty of water to help reduce the irritation. No chronic effects are expected following ingestion.

**Fire:** Remove to fresh air. Administer oxygen and get medical attention.
5. FIRE FIGHTING MEASURES

- **Flash Point:** Not Applicable
- **Upper Flammable Limit (UFL):** Not Applicable
- **Lower Flammable Limit (LFL):** Not Applicable
- **Flammability Classification:** Not Determined
- **Method Used:** Not Applicable
- **Auto Ignition:** Not Determined
- **Extinguishing Media:** CO₂, Dry Chemical, Water Spray and/or Fog
- **Special Fire-Fighting Procedures:** This product will burn, and should not be left exposed to very high heat, open flame or other sources of ignition. Under certain fire conditions, combustible gases can be generated, creating rapidly-spreading, high-intensity flames and dense black smoke. Normal fire-fighting procedures should be followed under fire conditions to avoid inhalation of smoke and gases (self contained breathing apparatus).
- **Hazardous Decomposition Products:** Primarily CO, CO₂. Some HCN possible under certain conditions.

6. ACCIDENTAL RELEASE MEASURES

- **Spills:** Pick up large pieces; do not wash down drain. Sweep or vacuum material into a waste container for disposal. If needed, use water spray to wet down material to minimize dust generation. Do not dry sweep dust accumulation or use compressed air for clean-up. These procedures will help minimize potential exposures.
- **Personal Protective Equipment:** Use appropriate safety equipment as necessary.

7. HANDLING AND STORAGE

- **Handling:** Use protective equipment as described in Section 8 of this MSDS when handling uncontained material. Avoid breathing dusts from this material. Wash thoroughly after handling.
- **Storage:** Avoid direct exposure to very high heat, open flame or other sources of ignition. Keep material dry and protected from the elements.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

- **Work Practices and Engineering Controls:** Cutting of product should be done with a gypsum type knife; the use of rotary powered saws is not recommended. Any dust-generating process should be performed in an area provided with either natural or mechanical ventilation. The original continuous filament fibers are of non-respirable size and the use of powered saws may create smaller fibers and cause them to become airborne.

- **Personal Protective Equipment:**
  - **Eye:** Safety glasses with side shields or goggles may be worn to reduce the risk of eye injury caused by abrasive dusts.
  - **Respirators:** If irritation occurs or if exposure limits are exceeded, use an approved respirator for protection against nuisance dusts. A NIOSH-certified particulate respirator (disposable filtering dust mask type) with an efficiency rating of N95 or higher may be used to lessen respiratory tract irritation and for exposures up to 10 times the established exposure limits (e.g. 3M’s 8210, Moldex 2300). Tear out and sawing may generate airborne fiber concentrations requiring a higher level of respiratory protection.
  - **Skin:** Wear long-sleeved, loose fitting clothes, long pants and gloves to reduce irritation. Clothing should be washed separately from other clothes, and the water should be rinsed thoroughly (run empty for a complete wash cycle). This will reduce the chances of fiber glass being transferred to other clothing.
  - **Other:** None
9. PHYSICAL AND CHEMICAL PROPERTIES

   Appearance: Cream to tan colored solid foam board with various facings and backings (See Section 3).
   Odor: No Significant Odor
   Physical State: Solid
   pH: Not Applicable
   Vapor Pressure: Not Applicable
   Boiling Point: Not Applicable
   Vapor Density: Not Applicable
   Solubility (H₂O): Insoluble
   Melting Point: Not Determined
   Evaporation Rate: Not Applicable
   Specific Gravity: Not Determined
   Freezing Point: Not Applicable
   Percent Volatile: Not Determined

10. REACTIVITY

   Stability: This is a stable material; avoid sources of ignition.
   Corrosivity: Not applicable
   Incompatibility: Acetone, methyl ethyl ketone, tetrahydrofuran, chlorine, chloroform, hydrogen peroxide, ethylene dichloride, dimethyl sulfoxide, and dimethyl formamide.
   Reactivity: Not applicable
   Reactive with water: None under normal conditions of use.
   Explosion: None expected
   Hazardous Polymerization: Will not occur

11. TOXICOLOGICAL INFORMATION

   This product has not been tested as a separate entity. Therefore, the hazards must be evaluated on the basis of the individual ingredients, and those hazards must be assumed to be additive in the absence of complete information. The hazards described in this document have been evaluated on a threshold of 1.0% for all hazardous ingredients and 0.1% for all carcinogens.

   Acute Effects:
   Dust from this product is a mechanical irritant, and may cause transitory irritation to exposed areas such as the eyes, skin and upper respiratory passages.
   Pentane may be released at very low concentrations (well below its lower flammable limit) from these products when they are cut or crushed.

   Chronic Effects:
   Chronic health effects from this product are unlikely when used as intended.
   Fiber Glass (continuous glass filament): No chronic health effects are known to be associated with exposure to continuous filament fiber glass. The International Agency for Research on Cancer (IARC) has classified continuous filament fiber glass as a Group 3 substance, not classifiable as to its carcinogenicity to humans. Because continuous filament fiber glass is a large diameter fiber, there is minimal risk of a respiratory hazard.
   Polyisocyanurate Foam: There is no evidence that polyisocyanurate foam dust causes disease in humans. There are no known animal studies of the chronic health effects of breathing dusts from polyisocyanurate foam.
12. **ECOLOGICAL INFORMATION**

This product has not been tested. Based on information related to all raw materials in the finished product, it is not expected to harm ecosystems through its applied use.

13. **WASTE DISPOSAL CONSIDERATIONS**

**US EPA Waste Number & Descriptions**

**A: General Product Information**

This product, as supplied, is not regulated as a hazardous waste by the US Environmental Protection Agency (EPA) under its Resource Conservation and Recovery Act (RCRA) regulations. Comply with state and local regulation for disposal. If you are unsure of the regulations, contact your local Public Health Department or the local office of the EPA.

**B: Component Waste Numbers**

No EPA Waste Numbers are applicable for this product’s components.

**Disposal Instructions:** Dispose in accordance with federal, state and local regulations. The primary method of disposal is to place product waste in a municipal or industrial landfill.

14. **TRANSPORTATION INFORMATION**

**US DOT Information:** For domestic transportation purposes, this product is not regulated as a hazardous material by the US Department of Transportation (DOT) under Title 49 of the Code of Federal Regulations.

15. **REGULATORY INFORMATION**

**Clean Air Act**

This product is not manufactured with, nor does it contain, any Class I ozone-depleting chemicals, as defined by EPA in Title VI of the Clean Air Act Amendments of 1990 (40 CFR Part 82- Protection of Stratospheric Ozone).

**SARA Title III Regulations**

Based on the fact that this product contains fiber glass, which OSHA defines as a hazardous chemical, this product may be reportable under SARA sections 311 and 312, depending upon maximum on-site storage volumes. This product does not contain any substance(s) subject to the reporting requirements (i.e., at or above de minimis quantities) of Section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA-40 CFR 372).

**Component Analysis**

The following components appear on one or more of the following state hazardous substance lists:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>CA</th>
<th>FL</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentane</td>
<td>109-66-0</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Fiber glass mat, which is continuous filament fiber glass (encapsulated)</td>
<td>65997-17-3</td>
<td>✔</td>
<td>-</td>
<td>✔</td>
<td>✔</td>
<td>-</td>
<td>✔</td>
</tr>
<tr>
<td>Carbon black</td>
<td>1333-86-4</td>
<td>-</td>
<td>-</td>
<td>✔</td>
<td>-</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>
15 REGULATORY INFORMATION (Continued)

Component Analysis: WHMIS IDL
The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>Minimum Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentane</td>
<td>109-66-0</td>
<td>1% English Item 1243; French Item 1348</td>
</tr>
<tr>
<td>Fiber glass mat, which is continuous filament fiber glass (encapsulated)</td>
<td>65997-17-3</td>
<td>1% English Item 768; French Item 884 (related to fibrous glass)</td>
</tr>
</tbody>
</table>

16. ADDITIONAL COMMENTS

Other Information
Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

Acronyms/definitions used in this MSDS:
- ACGIH American Conference of Governmental Industrial Hygienists;
- CAS No: Chemical Abstracts Services Number;
- CERCLA Comprehensive Environmental Response, Compensation and Liability Act;
- CFR Code of Federal Regulations;
- EPA Environmental Protection Agency;
- f/cc Fibers per cubic centimeter;
- g/cm³ Grams per cubic centimeter;
- HMIS Hazardous Material Identification System;
- IARC International Agency for Research on Cancer;
- LC₅₀ Lethal concentration that produces death in 50% of the test population;
- LD₅₀ Lethal dose required to produce death in 50% of the test population;
- LFL Lower Flammable Limit;
- mg/m³ Milligrams per cubic meter;
- NFPA National Fire Protection Association;
- NIOSH National Institute for Occupational Safety and Health;
- NTP National Toxicology Program;
- OSHA Occupational Safety and Health Administration;
- ppm Parts per million;
- PEL Permissible Exposure Limit;
- PNOC Particulates Not Otherwise Classified;
- REL Recommended Exposure Limit;
- SARA Superfund Amendments and Reauthorization Act;
- RCRA Resource Conservation and Recovery Act;
- Title III Emergency Planning and Community Right to Know Act;
- Section 302- Extremely Hazardous Substances;
- Section 313- Toxic Chemicals;
- TLV Threshold Limit Value;
- TWA Time Weighted Average;
- UFL Upper Flammable Limit.

MSDS History

MSDS Revision Summary:

<table>
<thead>
<tr>
<th>Date</th>
<th>MSDS No.</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/23/2002</td>
<td>CT 10058-1</td>
<td>New MSDS</td>
</tr>
</tbody>
</table>

This is the end of MSDS # CT 10058-1