



# MATERIAL SAFETY DATA SHEET

HCFC-Free  
**"GREEN"**  
 Polyiso Roof Insulation

**SECTION 1: Product and Company Information**

**PRODUCTS:**    **Energy Shield® Sheathing**  
                   **Energy Shield® Plus Sheathing**  
                   **Energy Shield® Cavity Wall Sheathing**

**PRODUCT DESCRIPTION AND USE:**  
 Rigid foam insulation panels for installation as delivered in concealed applications to walls, ceilings, and floor slabs. Consists of flat panels of closed-cell polyisocyanurate foam core bonded to foil facers. Energy Shield and Energy Shield Cavity Wall have a tri-laminate (foil-kraft-foil) facer on the topside; Energy Shield Plus has a nonreflective trilaminate facer on the topside. All have a solid foil facer or tri-laminate foil facer on the unprinted backside. The thickness of the foam ranges from 0.5 to 4 inches.

**MANUFACTURER:**    Atlas Roofing Corporation  
                               2000 River Edge Parkway, Suite 800  
                               Atlanta, Georgia 30328  
                               Phone: 770-952-1442

**HEALTH AND TECHNICAL CONTACTS:**  
 From 8:00 AM to 5:00 PM (respective time zone); call one of the following numbers for the location closest to you:

Camp Hill, Pennsylvania	800-688-1476	LaGrange, Georgia	800-955-1476
East Moline, Illinois	800-677-1476	Phoenix, Arizona	800-477-1476
Northglenn, Colorado	800-288-1476	Diboll, Texas	800-766-1476
Etobicoke, Ontario, Canada	888-647-1476		

In the event of a chemical emergency after 5:00 PM and on weekends, call CHEMTREC at 800/424-9300 or, in Canada, CANUTEC at 613/996-6666.

**SECTION 2: Composition and Ingredient Information**

COMMON NAME	CHEMICAL NAME	WEIGHT % IN ARTICLE‡	CAS NUMBER
Polyiso foam, containing:	isocyanurate homopolymer	93.5	None
Residual blowing agent	normal pentane	< 5.6	109-66-0
Foil-kraft-foil and foil facers, containing:		6.5	
Foil	aluminum	5	7429-90-5

‡Weight % based on 1-inch foam thickness.

### SECTION 3: Hazard Overview

No unusual conditions are expected from this product. Freshly expanded or heated foam may off-gas some pentane-blowing agent, which is heavier than air and may accumulate to ignitable concentrations if stored inside a sealed container or within confined areas. Ignitable atmospheres have concentrations that exceed inhalation exposure limits for workers, further reinforcing the need for ventilation when foam is freshly expanded.

With the exception of the blowing agent, this product does not present an inhalation, ingestion, or contact health hazard unless subjected to operations such as sawing that result in the generation of airborne particulates (dusts). Exposure to high dust levels may irritate the skin, eyes, nose, throat, or upper respiratory tract. Inhalation of high amounts of dust over long periods may overload lung clearance mechanisms and make lungs more vulnerable to respiratory disease. [See Section 6 of this MSDS for other health information and exposure limit standards for product ingredients.]

Canadian users: LD50 and LC50 data are listed below for the constituent(s) that are available.

	LC50	LD50	Hodge & Sterner classes	
	mg/(m <sup>3</sup> air)	mg/(kg body wgt)	(inhalation)	(oral)
Pentane	364,000 (rat, inh, 4hr)	446 (mouse, i.v.)	relatively harmless	insufficient data

### SECTION 4: Fire and Explosion Hazard Data

The product is a solid article that will burn if exposed to an ignition source of sufficient heat and intensity, or open flame, such as a welder's torch. It should be installed with a 15-minute thermal barrier between it and the structure's interior. Under certain fire conditions, combustible gases can be generated, creating rapidly spreading, high-intensity flames and dense, black smoke. Burning of this product can produce irritating and potentially toxic fumes and gases, including carbon monoxide and carbon dioxide; other undetermined hydrocarbon fractions could be released in small quantities.

Flashpoint: Not applicable (product is not a liquid).  
Auto-ignition temperature: Not determined  
Extinguishing media: Water spray/fog, CO<sub>2</sub>, dry chemical (consider media appropriate for surrounding materials).  
Respirator for fire fighting: Self-contained breathing apparatus (SCBA).

Pentane vapors may be emitted from freshly produced foam or when product is heated. Pentane concentrations between the lower and upper explosive limits (LEL and UEL) may accumulate under unique circumstances inside a sealed container or within confined areas. If such concentrations are provided a source of ignition, there may be a very high rate of flame propagation.

Pentane:	Flashpoint	≤ -37°C	Vapor pressure	= 514 mm Hg at 25°C
	Boiling point	= 28 to 49°C	LEL	= 1.5% (35,000 mg/m <sup>3</sup> )
	Vapor density	= 2.49	UEL	= 7.8%

### SECTION 5: Reactivity Data

Stability: Stable. Service temperature range: -100 to 250°F. To prevent structural deterioration, avoid contact with acetone, methyl ethyl ketone, tetrahydrofuran, chlorine, chloroform, hydrogen peroxide, ethylene dichloride, dimethyl sulfoxide, and dimethyl formamide.

Hazardous Decomposition Products: None identified.

Hazardous Polymerization: Will not occur.

## SECTION 6: Health Hazard Data

Primary Means of Exposure: Inhalation of particulates  
 Secondary Means of Exposure: Eye and skin contact with particulates and inhalation of vapors

### INHALATION HEALTH HAZARDS:

- Acute:** Dust may cause transient mechanical irritation of the upper respiratory tract. Workplace exposures to residual pentane vapors from this product are expected to be below levels of any health risk. Overexposure to high concentrations of pentane can cause narcotic effects. Signs and symptoms of overexposure to pentane include headache, nausea, dizziness, difficulty walking, or sleepiness. Studies have shown that short-term (10-minute) exposures to pentane concentrations as high as 5,000 ppm (11,750 mg/m<sup>3</sup>) produced no symptoms. Workplace exposure limits for pentane and foam dust are provided in table below.
- Chronic:** There is no evidence that dusts generated from this product cause disease in humans. The facer material is not expected to generate dust. No chronic effects are known for exposures to pentane vapor.

### AIRBORNE EXPOSURE LIMITS:

Constituent or Category	OSHA PEL	ACGIH TLV	NIOSH REL
	(mg/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(mg/m <sup>3</sup> )
Nuisance dusts NOS containing no asbestos and <1% crystalline silica	15 TWA total 5 TWA respirable	10 TWA	Not applicable
n-Pentane	2950 TWA	1410 TWA	350 TWA 1800 Ceiling 3525 IDLH

### EYE CONTACT HEALTH HAZARDS:

- Acute:** Mechanical irritation, redness, tearing, and blurred vision can occur if dusts generated from these products come into contact with eyes.
- Chronic:** None known.

### SKIN CONTACT HEALTH HAZARDS:

- Acute:** Direct contact with rough-cut foam can cause mechanical abrasion cuts or puncture to fingers, hands or exposed skin.
- Chronic:** None known.

### SIGNS AND SYMPTOMS OF EXPOSURE:

Irritation of the upper respiratory tract, eyes, and/or skin.

### MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:

Any condition generally aggravated by mechanical irritants in the air or on the skin. Specific data are not available which address medical conditions that are generally recognized as being aggravated by exposure to this product.

### CANCER-CAUSING POTENTIAL

None.

## FIRST AID PROCEDURES

- Inhalation: Remove to fresh air. Drink water to clear throat and blow nose to remove dust.
- Skin: Wash with soap and cool running water.
- Eyes: Flush eyes with running water for at least 15 minutes. Do not rub or wipe eyes. If irritation persists, consult a medical professional.
- Ingestion: Product is not intended to be ingested or eaten. If product is ingested, irritation of the gastrointestinal tract may occur, and should be treated symptomatically. Do not induce vomiting. Rinse mouth with water to remove particles, and drink plenty of water to help reduce the irritation. [No chronic effects are expected following ingestion.]

*Note to Physician: This product is a mechanical irritant. It is not expected to produce any chronic health effects from acute exposures. Treatment should be directed toward removing the source of irritation with symptomatic treatment as necessary.*

## **SECTION 7: Workplace Precautions and Control Measures for Safe Handling and Use**

Ventilation: Store in a dry, well-ventilated area. Assure storage containers or areas and shipping containers are adequately ventilated. No Smoking—No Matches—No Lighters—No Welding rules should be enforced. Install according to manufacturer's recommendations.

Installation Procedure: Cutting of product should be done in a manner to reduce or control generation of airborne dusts. Avoid unnecessary dust exposures when cutting by using adequate local or general ventilation. Avoid dust contact with ignition sources. Handle product using good industrial hygiene and safety practices.

Respiratory Protection: If respiratory tract irritations occurs or if any dust exposure limit is exceeded, use a respirator such as 3M Model 8271 or Model 8210, or equivalent for protection against nuisance dusts. When normal ventilation is provided to work area, no respiratory protection is needed for pentane vapor.

Protective Clothing: To avoid skin irritation from excessive dust generated during cutting operations, wear long-sleeved, loose fitting clothing, long pants, and gloves.

Eye Protection: Goggles or safety glasses with side shields are recommended.

Work Area cleanup: Pick up large pieces; do not wash down drain. Sweep or vacuum smaller pieces into a waste container for disposal. If needed, use water spray to wet down and minimize dust generation. Do not dry sweep dust accumulation or use compressed air for cleanup.

Hygienic Practices: Exposed skin areas should be washed with soap and cool water after working with product. Clothing should be laundered separately from other clothes.

## **SECTION 8: Releases to the Environment and Waste Disposal**

Do not discard residues into sewers, storm sewers, or surface waters. If accidentally released to a water body, material will float and disperse with wind and current; contain the material with booms and remove either manually or with a vacuum truck.

If accidentally released to land, scoop up material and put into suitable container for disposal.

Chemicals in this material are not expected to cause harm to aquatic or terrestrial plants or animals; however, fish or other animals may eat the product, which could obstruct their digestive tracts.

Be a good steward of the environment and clean up residues (some components of the product are not biodegradable).

This product, if discarded as supplied, is not considered a hazardous waste under RCRA (40 CFR 261) and may be placed directly into receptacles that will transport the waste to a municipal waste, industrial waste, or demolition waste landfill. If contact with a contaminating substance alters the material, it is the user's responsibility to determine at the time of disposal whether it meets RCRA criteria for hazardous waste. Dispose in accordance with federal, state and local regulations.

## SECTION 9: Additional Regulatory Considerations

Transportation Regulations: This product is not regulated as a hazardous material in transportation.

TSCA: All chemicals in this product are listed on the TSCA Inventory. TSCA 12(b) export notification requirements do not apply to this product.

SARA TITLE III: There is no Section 302 extremely hazardous substance in this product. Reporting requirements under Sections 311, 312, or 313 do not apply. [Diisocyanate precursors do not remain in the polymer foam of this product.]

All chemicals and component categories found on state lists are addressed in this MSDS.

This product has been classified in accordance with the hazard criteria of Canada's *Controlled Products Regulations* and the MSDS contains all of the information required by said regulations. All chemical components are on Canada's Domestic Substances List (DSL). Pentane and aluminum are the only constituents on Canada's Ingredients Disclosure List (IDL) that exceed threshold concentrations.

NFPA / HMIS Rating: Health= 1 Flammability= 1 Reactivity= 0

## SECTION 10: Physical/Chemical Characteristics

The following applies to the product (article), not to pure forms of individual constituents of the product:

Appearance: White or cream-colored foam solid with printed tri-laminate foil facer on topside (nonreflective on Energy Shield<sup>®</sup> Plus version) and simple foil facer or tri-laminate foil on backside.

PROPERTY		PROPERTY	
Boiling Point (°F):	NA	Specific Gravity:	<1
Melting Point (°F):	>250	Solubility (Water):	Insoluble
Vapor Pressure:	NA	Vapor Density (Air=1):	NA
Percent Volatile By Volume:	<1	Evaporative Rate:	NA
pH:	NA	Odor:	Negligible

NA=not applicable

Prepared by: Atlas Roofing Corporation