



SAFETY DATA SHEET (SDS)

HCFC-Free

SECTION 1: Identification

PRODUCT(S) IDENTIFICATION:

Mule-Hide Poly ISO 2

Article Name: Rigid polyisocyanurate foam panels
 CAS Number: None Assigned
 Common Name: Rigid Foam Insulation



PRODUCT DESCRIPTION AND USE:

Rigid foam insulation panels for installation as delivered over roof decks. ACFoam®-II consists of a flat or tapered closed-cell polyisocyanurate foam core bonded on both sides to a dark gray non-asphaltic, glass fiber reinforced organic felt facer. The thickness of the foam ranges from 0.5 to 4.5 inches. Intended to be covered by hot asphalt or coal tar BUR, modified bitumen, and single ply membrane system roof coverings.

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

SUPPLIER: Mule-Hide Products Co, Inc.
 1195 Prince Hall Dr.
 Beloit, WI 53511
 Phone: 800-786-1492

MANUFACTURER 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	Delta, British Columbia, Canada	855-267-1476

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

SECTION 2: Hazard(s) Identification

GHS CLASSIFICATION: Not a hazardous substance or mixture

GHS Label Element: Not a hazardous substance or mixture

WHMIS: In Canada, the product mentioned above is not considered hazardous under the Workplace Hazardous Materials Information System (WHMIS)

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, sanding, or machining 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 3 of this SDS for other exposure limit standards for the 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 ³ air)	mg/(kg body wgt.)	(inhalation)	(oral)
Pentanes	364,000 (rat, inh, 4hr)	446 (mouse, i.v.)	relatively harmless	insufficient data
Formaldehyde	400 (mouse, inh, 2hr)	42 (mouse, oral) 100 (rat, oral)	moderately toxic	moderately toxic

POTENTIAL HEALTH EFFECTS:

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

INHALATION HEALTH HAZARDS:

For polyiso foam (generated dust and residual vapor) and for organics in facers (generated dusts)

- 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/m³) produced no symptoms. Workplace exposure limits for pentane and other organic components are provided in table below.
- Chronic: There is no evidence that dusts generated from these products cause disease in humans. Facer dusts containing carbon black pigment are not analogous to the raw carbon black powders for which human carcinogenicity is suspected. No chronic effects are known for exposures to pentane vapor.

For continuous filament glass fibers in facers (generated dust)

- Acute: Airborne fragments of glass fibers may cause mechanical irritation of the upper respiratory tract, particularly mouth, nose and throat; glass dust may cause transient irritation of the upper respiratory tract. Workplace exposure limits are provided in table below.
- Chronic: No chronic health effects are known to be associated with exposure to glass fibers. Results from epidemiological studies have not shown any increase in respiratory disease or cancer. The International Agency for Research on Cancer has classified continuous filament fiberglass "Not Classifiable as to Carcinogenicity to Humans" (Group 3).

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 or felt facers 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.

CARCINOGENICITY:

Ingredient:	Textile Fibrous Glass
NTP:	Not Listed
IARC:	Not Classifiable – Group 3
OSHA:	Not Listed
Mutagenicity:	None
Teratogenicity:	None
Reproductive Toxicity:	None

California Proposition 65:  **WARNING:** This product can expose you to chemicals including quartz, which is known to the State of California to cause cancer. For more information, go to www.P65Warnings.ca.gov

ACFoam®-II does not contain any quartz compounds in the closed-cell polyisocyanurate foam core. However, there is a trace amount in the glass fiber reinforced felt facer that is bonded to the foam core.

SECTION 3: Composition and Ingredient Information

This item meets the definition of an “article” in the OSHA Hazard Communication Standard 29CFR1910.1200. Non-hazardous according to 29CFR1910.1200 when used as intended.

* The foam core does not contain urea formaldehyde

COMMON NAME	CHEMICAL NAME	WEIGHT % IN ARTICLE‡	CAS NUMBER
Polyiso foam, containing:	polyurethane modified polyisocyanurate polymer	78	None
Residual blowing agent	pentanes	< 4.7	109-66-0
Felt facer (composite of wood pulp and glass fibers), containing:		22	None
Fiberglass	continuous filament glass fibers	5	65997-17-3
Pigment	carbon black	1	1333-86-4

‡Weight % based on 1-inch foam thickness.

AIRBORNE EXPOSURE LIMITS:

Constituent or Category	OSHA PEL	ACGIH TLV	NIOSH REL
	(mg/m ³)	(mg/m ³)	(mg/m ³)
Nuisance dusts NOS containing no asbestos and <1% crystalline silica	15 TWA total 5 TWA respirable	10 TWA	Not applicable
Fiberglass dust	see nuisance dusts	5 TWA	Not applicable
Carbon black	3.5 TWA	3.5 TWA	3.5 TWA 1750 IDLH
Pentanes vapor	2950 TWA	1410 TWA	350 TWA 1800 Ceiling 3525 IDLH
Formaldehyde	0.9 TWA 2.5 STEL	0.4 TWA	0.02 TWA 0.12 STEL 25 IDLH

SECTION 4: First Aid Measures

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 5: Fire Fighting Measures

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, CO₂, 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 ³)
			UEL	= 7.8%
	Vapor density	= 2.49		

SECTION 6: Accidental Release Measures

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).

SECTION 7: Handling and Storage

Storage: 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 or abrading by using adequate local or general ventilation. Avoid dust contact with ignition sources. Handle product using good industrial hygiene and safety practices.

SECTION 8: Exposure Control - Personal Protection

Respiratory Protection: If a respiratory tract irritation 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 9: 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 a dark gray glass fiber reinforced felt facing on both sides.

<u>PROPERTY</u>		<u>PROPERTY</u>	
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

SECTION 10: Stability and Reactivity

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 11: Toxicological Information

Extensive medical-scientific research has been conducted regarding the health aspects of fiber glass over the past 50 years. The International Agency for Research on Cancer (IARC), and agency of the World Health Organization (WHO), at a meeting in June 1987, reviewed all of the significant research on the health effects attributed to fiber glass.

IARC determined that the data from both human and animal studies was inadequate to classify continuous filament glass fibers such as used in fiber glass reinforcement products, as carcinogenic to humans.

No chronic health effects are known to be associated with exposure to glass fibers. Results from epidemiological studies have not shown any increase in respiratory disease or cancer. The International Agency for Research on Cancer has classified continuous filament fiberglass "Not Classifiable as to Carcinogenicity to Humans" (Group 3).

SECTION 12: Ecological Information

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 is not manufactured with, nor does it contain any Class 1 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.

SECTION 13: Disposal Considerations

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 14: Transportation Information

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

National Motor Freight Classification (NMFC): 157320, Class 150

SECTION 15: Regulatory Information

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 SDS.

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

SECTION 16: Other Information

	<u>Health</u>	<u>Fire</u>	<u>Reactivity</u>	<u>Degree of Hazard</u>
HMIS Rating	1	1	0	0 - Minimal (insignificant)
NFPA Rating	1	1	0	1 - Slight 2 - Moderate 3 - Serious (high) 4 - Severe (extreme) 5 - Chronic Health Effort(s)

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