

Safety Data Sheet

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1. IDENTIFICATION

Product Name: Quad-Deck EPS Insulation Boards of varying thicknesses with embedded Steel Strips

Chemical Product Identification: Expanded Polystyrene (EPS), Galvanized Steel

Chemical family: Ethenylbenzene Homopolymer, Iron

Recommended Use: Building Insulation and Concrete Formwork

Identification of the company:

Quad-Lock Building Systems, Ltd.

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2. HAZARDS IDENTIFICATION

Overview

When handling products, exposed steel strips can cause skin cuts – **WEAR GLOVES AND PROTECTIVE CLOTHING WHEN HANDLING.** If heated above decomposition temperature or burned, product can emit an irritating dense black smoke and acid gases. **Grinding, sawing or fabrication activities can produce dust particles which under certain conditions may form explosive dust atmospheres** and/or ignite. **If stored in closed containers or confined areas**, freshly manufactured or heated EPS foam may off-gas pentane which can accumulate at hazardous concentrations above the Lower Explosion Limit (LEL). **To prevent ignition ensure ventilation, avoid smoking, and keep away from open flames, ignition sources, and high temperatures.**

Appearance and Odor

White or light-gray solid blocks with slight hydrocarbon odor, with partially exposed steel strips

Emergency Overview

	<u>Health</u>	<u>Fire</u>	<u>Reactivity</u>
NFPA Rating:	1	2*	0
HMS Rating:	1	2*	0

Degree of Hazard

- 0 – Minimal (Insignificant)
- 1 – Slight (Minor)
- 2 – Moderate
- 3 – Serious (High)
- 4 – Severe (Extreme)

Potential Health Effects Summary: Skin exposure to the product may cause mechanical irritation, cuts or punctures. Inhalation of combustion fumes of products may cause irritation of the respiratory system and coughing. Exposures to larger amounts of combustion fumes can result in central nervous system depression the symptoms of which include headache, nausea, vomiting, weakness, tiredness, dizziness, confusion and clumsy or unsteady motion. Inhalation or eye exposure to dust from this product may cause temporary irritation.

Routes of Entry: Inhalation, skin and eye contact, and ingestion.

Acute Inhalation: Breathing dust may cause temporary mechanical irritation and coughing. Overexposure to extremely high concentrations of pentane can cause narcotic effects. Signs and symptoms of overexposure to pentane include headache, nausea, dizziness, difficulty walking or sleepiness.

Chronic Inhalation: None identified.

Acute Skin Contact: Direct contact with embedded metal strips can cause light to severe cuts. Direct contact with rough cut EPS foam can cause mechanical abrasion to exposed skin.

Chronic Skin Contact: None identified.

Acute Eye Contact: Eye contact may cause mild mechanical irritation, redness, tearing and blurred vision.

Chronic Eye Contact: None identified.

Acute Ingestion: Ingestion of this material is unlikely, if used as intended. However, ingestion of this product may produce gastrointestinal irritation and disturbances.

Chronic Ingestion: None identified.

**Carcinogenicity:
Styrene monomer**

ACGIH: A4 – Not classifiable as a Human Carcinogen

IARC: 2B – Possibly Carcinogenic to Humans (Vol. 60, 1994)

California Proposition 65: Styrene oxide is listed as known to the State of California to cause cancer.

Styrene oxide is a metabolite of styrene monomer, see Section 15.

Medical Conditions Aggravated by Exposure: Treat symptomatically. Specific data that address medical conditions that are generally recognized as being aggravated by exposure to this product are not available. However, chronic respiratory or eye conditions may worsen from exposure to these products.

3. COMPOSITION AND INGREDIENT INFORMATION

Common Name	Chemical Name	CAS No.	% by Weight
Expanded Polystyrene Foam	Ethenylbenzene homopolymer	9003-53-6	40-60% (<60% for thickest boards to 40% for thinnest boards)
Galvanized Steel	Iron, Zinc, Manganese, Carbon, and others	7439-89-6 7440-66-6 7439-96-5	40-60% (40% for thickest boards to 60% for thinnest boards)
Pentanes* (isomers)	n-pentane Isopentane Cyclopentane	09-66-0 78-78-4 287-92-3	<2%
HBCD (flame-retardant)	Hexabromocyclododecane	3194-55-6	<0.75%

**Pentanes are a flammable blowing agent and VOC that off-gas from product. Most of the pentanes off-gas during product manufacturing prior to shipment (50-85% of the original pentane content). However, residual blowing agent may gradually off-gas from the EPS foam during storage or use, with very low levels of pentane remaining in product 2 months after manufacture.*

4. FIRST AID MEASURES

Inhalation: Move person to fresh air. If irritation persists, seek medical attention.

Skin: Treat skin cuts as needed based on severity (such as band-aids/bandages for slight cuts, or seek medical attention for severe cuts). Wash skin exposure to EPS with mild soap and running water.

Remove and launder contaminated clothing before reuse. If irritation develops, seek medical attention.

Eyes: Flush eyes with running water for at least 15 minutes. Seek medical attention if irritation develops.

Ingestion: Ingestion of this material is unlikely. If it does occur, do not induce vomiting; seek medical attention.

Fire: Move to fresh air. Administer oxygen and seek medical attention.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Use water spray, water fog, fire-fighting foam or dry chemical or CO₂ extinguishing media.

Hazardous Combustion Products: Burning EPS foam emits a dense, black, irritating smoke with acid gases. Primary combustion products are carbon monoxide, carbon dioxide, and styrene oxides. Other undetermined hydrocarbon fraction could be released in small quantities.

Special protective equipment and precautions for fire-fighters: Use respirators. Visibility can become extremely low from dense black combustion smoke.

Special Fire and Explosion Hazards: Pentane vapors may be emitted from freshly expanded or processed foam or when product is heated. Hazardous pentane concentrations may accumulate inside a sealed container or within confined space areas. Electrostatic discharge can be a source of ignition of accumulated pentane vapors exceeding the L.E.L (lower explosion limit) of 1.5% (15,000 ppm). If ignited, there may be a very high rate of flame propagation and/or an associated explosion. Assure proper ventilation of storage or shipping containers to prevent accumulation of hazardous concentrations of off-gassed pentane.

6. ACCIDENTAL RELEASE MEASURES

Land Spill: Scoop up material and put into suitable container for recycling or disposal as a nonhazardous waste in an appropriate recycling or disposal facility.

Water Spill: This material will float and disperse with wind and current. Contain the material with brooms, pick up or remove with a vacuum truck.

Air Release: This material will settle out of the air. If concentrated on land, it can then be scooped up for recycling or disposal as a non-hazardous waste.

7. HANDLING AND STORAGE

“No Smoking – No Matches – No Lighters – No Welding” rules should be enforced

Storage Temperature: Below 170° F. **Storage Pressure:** Not applicable.

General Storage: Store in a well-ventilated area. Assure storage containers or areas and shipping containers are adequately ventilated. The flammable vapors of pentane (blowing agent) are heavier than air and may accumulate in low places.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Work Practices and Engineering Controls: Avoid unnecessary dust exposures when cutting or abrading by using adequate local exhaust or general ventilation. General dilution ventilation and/or local exhaust ventilation should be provided as necessary to maintain exposures below occupational exposure limits and to prevent accumulation of hazardous concentrations of off-gassed pentane (see section 5).

Personal Protective Equipment:

Skin: Sturdy Gloves, long sleeved shirt and long pants should be worn when handling product and may be worn, as needed, to prevent skin contact and irritation from EPS foam.

Eye: Safety glasses or goggles should be worn when cutting or otherwise processing product, and may be worn at all times to reduce the risk of eye injury or irritation.

Respirators: Respiratory protection is not normally required. If dusts are generated up to 10 times above occupational exposure limits, use a NIOSH-approved particulate respirator (disposable filtering dust mask type) with an efficiency rating of N95 or higher (e.g. 3M’s 8210, Moldex 2300). Wear an air-purifying respirator with charcoal cartridges or a supplied air respirator when exposure to pentane exceeds exposure limits.

Other: None.

INGREDIENT	OSHA PEL	ACGIH TLV	NIOSH REL
Expanded Polystyrene			
PNOC:			
Inhalable	-	10 mg/m3	-
Respirable	5 mg/m3	3mg/m3	-
Total Particulate	15 mg/m3	-	-
Pentanes			
Pentane	1000 ppm	600 ppm	120 ppm 610 (Ceiling)
Cyclopentane	-	600 ppm	600ppm

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White or light gray solid blocks or panels with partially exposed steel strips

Vapor Density (Air=1): Not applicable (Pentane blowing agent – 2.5)

Flash Point and Method: 610°F (ASTM D-1929) for expanded polystyrene

Upper Flammable Limit (UFL): Not applicable

Lower Flammable Limit (LFL): Not applicable

Auto Ignition: 880° F (ASTM D-1929) for expanded polystyrene

Physical State: Solid

pH: Not applicable

Vapor Pressure (mm Hg @ 20 o C): 400 mm Hg

Boiling Point: Not applicable

Odor: Slight hydrocarbon odor

Viscosity: Not applicable

Specific Gravity (Water=1): 0.024 to 0.03

Freezing Point: Not applicable

Solubility in Water: Very slight

Melting Point: Not determined

10. STABILITY AND REACTIVITY

General: This is a stable material below 170°F; avoid sources of ignition and excessive heat.

Incompatible Materials and Conditions to Avoid: Reactive with oxidizing agents. Organic solvents, esters, amine and aldehydes will dissolve product. High temperature, poor ventilation combined with freshly expanded product may create hazardous, explosive or fire conditions.

Hazardous Decomposition Products: May decompose in a fire. See Section 5 for combustion products statement.

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: Acute health effects from this product are unlikely when used as intended.

Chronic Effects: Chronic health effects from this product are unlikely when used as intended.

Styrene Monomer

In March 1987, the International Agency for Research on Cancer (IARC) reclassified styrene as possibly carcinogenic to human (Group 2B) due to "inadequate evidence in humans", "limited evidence in animals" and "other relevant data". Previously, styrene was classified as a Group 3 compound (not classified as to carcinogenicity to humans). The IARC working group determined that the weight of data on genetic and related effects, together with the consideration that styrene metabolized in humans and animals to styrene oxide for which there is sufficient evidence of carcinogenicity in experimental animals and has been classified by IARC as probably carcinogenic to humans (Group 2A), was sufficient reason to recommend the change in classification.

12. ECOLOGICAL INFORMATION

This material is not expected to cause harm to animals, plants or fish. Fish or animals may eat product and obstruct their digestive tract. It is not expected to harm ecosystems through its applied use.

13. DISPOSAL CONSIDERATIONS

RCRA Hazard Class: Non-hazardous

Waste Disposal: Incinerate, recycle or dispose in a licensed facility. Do not discharge into waterways or sewer systems without proper authority.

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 contains trace amounts of styrene, which is listed as a hazardous air pollutant

SARA Title III Regulations

This product contains pentane, which OSHA defines as a hazardous chemical. This product may be portable under SARA sections 311 and 312, depending on the 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 sections 302 and 304 of Title III of the Superfund Amendments and Reauthorization Act (SARA-40 CFR 355). This product does not contain any substance(s) subject to reporting requirements (i.e., at or above de minimis quantities) of sections 302 and 304 of Title III of the Superfund Amendments and Reauthorization Act (SARA-40 CFR 372).

Toxic Substance Control Act (TSCA)

All ingredients are listed on the TSCA inventory.

California Proposition 65

Styrene oxide is listed as known to the State of California to cause cancer. Styrene oxide is a metabolite of styrene monomer. Polystyrene used in the products listed may contain detectable trace amounts of styrene. The "non-significant risk levels" (NSRL) for styrene oxide exposures have not been set by the California Office of Environmental Health Hazard Assessment, who will consider a "Safe Use Determination" for polystyrene products based on scientific exposure data showing levels far below the proposed NSRL.

Component Analysis: State

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

Component	CAS #	CA	MA	MI	MN	NJ	PA
Pentane (Isomers)	109-66-0 78-78-4 287-92-3	✓ <input type="checkbox"/>	✓ <input type="checkbox"/>	<input type="checkbox"/>	✓ <input type="checkbox"/>	✓ <input type="checkbox"/>	✓ <input type="checkbox"/>

Component Analysis: WHMIS IDL

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

Component	CAS #	Minimum Concentration
Pentane (Isomers)	109-66-0 78-78-4 287-92-3	1% English Item 1243; French Item 1348 <input type="checkbox"/>

16. ADDITIONAL COMMENTS

Other Information

Expanded Polystyrene materials sold for construction use have a fire retardant modifier but are considered combustible, as are all organic materials. They must not be stored or installed near open flame or any other source of ignition or high heat. In addition, when EPS insulation is installed in the interior of a structure it must be protected by a proper thermal barrier, and the installer must review applicable local, state and federal building codes to determine the correct thermal barrier for the particular application.

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.