



SAFETY DATA SHEET (SDS)

This SDS complies with GHS Revision 5

Date Prepared: January 7, 2017

Revision Date: April 24, 2018

Document Control #: MSDS-04

SDS Competent Person: Operations Manager

EPS Products for Construction Applications

Section 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Manufacturer's Names

Aqua-Pak Industries Ltd.
7398 132 Street
Surrey, BC V3W 4M7, CANADA

Doing Business As
Doing Business As

Quad-Lock Building Systems
Airfoam

Telephone Information: (604) 590-2886 (8:00am – 5pm Pacific Time weekdays)

Product Names: Quad-Lock® and Quad-Deck ICF panels, Airfoam EPS insulation, Airfoam geofoam lightweight fill material, Airfoam floatation billets

Other Identification: Expanded Polystyrene (EPS) foam insulation, EPS bead board

Formula: Substance, , C₈H₈ with flame-retardant additives

Product Use: Foam plastic insulation boards; geotechnical fill material; component of floatation devices; to be installed, used, and disposed in accordance with all locally applicable laws & regulations.

Section 2. HAZARDS IDENTIFICATION

GHS HAZARD CLASS: Not Applicable. The products do not meet the physical, health, or environmental classification criteria of GHS (Globally Harmonized System).

GHS LABEL ELEMENTS: Hazards not otherwise classified (HNOC) - None
None

HAZARD CLASSIFICATION: Not classified as hazardous based on IATA, IMDG, DOT, WHMIS, and TDG

FIRE AND EXPLOSION: Not considered flammable or combustible, but the products will melt or burn, if involved in a fire or exposed to heat or ignition sources.

POTENTIAL HEALTH EFFECTS: <0 % of mixture consists of ingredients of unknown acute toxicity

APPEARANCE: White or gray particle foam

NFPA RATING:

Component	Health (Blue)	Flammability (Red)	Reactivity (Yellow)	Special (White)
EPS Foam	1	2	0	----

HAZARD STATEMENTS: Polystyrene products are **Flammable solids**.

Flammable Vapour: If stored in closed containers, confined, or low-lying areas, freshly manufactured or heated products may off-gas pentane which can accumulate at hazardous concentrations above the Lower Explosion Limit (LEL). Pentane is heavier than air, so it sinks and can accumulate in low spots. **Combustible Dusts:** Grinding, sawing, rasping of products, and similar activities can produce dust particles which under certain conditions may form explosive dust atmospheres and ignite. **Respiratory Sensitization:** If heated above decomposition temperature or burned, products can emit an irritating black smoke and acid gases.

Other Hazards: Polystyrene melts at elevated temperatures and molten droplets may cause skin and eye burns.

PRECAUTIONARY STATEMENTS

Keep away from heat, open flames, sparks, direct sunlight, and all other possible ignition sources at all times.

No Smoking. Prevent inhalation of smoke, dust or fumes from burning or fabrication activities using ventilation or approved respiratory protection. If stored in closed containers, confined, or low-lying areas, ensure ventilation to prevent accumulation of flammable pentane vapours. Avoid grinding, sawing, and rasping activities unless dust particles are controlled and approved respiratory protection and eye protection are worn.

Section 3. COMPOSITION AND INGREDIENT INFORMATION

Product Composition	Approx. % by Weight	Chemical Name	CAS No.	EC Number	Canada DSL
Expanded Polystyrene (EPS)	90-100%	Ethenylbenzene homopolymer C ₈ H ₈	9003-53-6	500-008-9	Y
Pentanes*	0-3%	Pentane isomers	109-66-0; 78-78-4; 463-82-1	203-692-4	Y
Water, water vapour	0-10%	H ₂ O, Oxidane	7732-18-5	231-791-2	Y
Flame-Retardant Additive	<1%	TS	TS	TS	Y
Coatings	<1%	--	--	--	N

Some items on this SDS may be designated as trade secrets (TS). Bonafide requests for disclosure of trade secret information to medical personnel must be made in accordance with the provisions contained in 29 CFR 1910.1200 I 1-13 or equivalent.

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

Section 4. FIRST AID MEASURES

Description of First Aid Measures

Inhalation	Remove to fresh air, if excessive combustion fumes, dust particles, or pentane vapours are inhaled. If not breathing, provide CPR (cardio pulmonary resuscitation). Get immediate medical attention.
Skin contact	Wash skin with plenty of soap and water, if skin irritation develops. Seek medical attention, if irritation persists. If molten material gets on skin, treat affected area immediately with large amounts of cold water for at least 15 minutes and get immediate medical attention. Do NOT attempt to remove any molten or solidified material from the skin, or to remove contaminated clothing.
Eye contact	Immediately rinse eyes with plenty of clean water, if dust or particles enter eyes. Remove contact lenses, if safe to do so. If molten material contacts eyes, hold the eyelids apart and flush the eye with a large amount of cold water for at least 15 minutes. Get immediate medical attention.
Ingestion	If swallowed, do NOT induce vomiting; flush mouth with water and get immediate medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms/Injuries after Inhalation	Dust, combustions fumes, and/or vapours may cause respiratory tract irritation. In confined or poorly ventilated areas, fumes and vapours can readily accumulate and can cause unconsciousness and death. Symptoms may include headache, nausea, vomiting, weakness, tiredness, dizziness, confusion and clumsy or unsteady motion.
Symptoms/Injuries after Skin contact	May cause skin irritation, symptoms may include redness, drying, defatting, and cracking of the skin.
Symptoms/Injuries after Eye contact	May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.
Symptoms/Injuries after Ingestion	May be harmful, if swallowed. May cause stomach distress, nausea, vomiting, and digestive obstruction.

Indication of any immediate medical attention and special treatment needed

INHALATION: This material (or a component or decomposition product) sensitizes the myocardium to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material. Administration of sympathomimetic drugs should be avoided.

EYES: Hot material may cause burns to the eyes. Immediate ophthalmologic evaluation is recommended.

SKIN: Hot material may cause skin burns. Immerse skin covered with hot material in cold water to limit tissue damage and prevent spread of liquid material.

Symptoms may not appear immediately. In case of accident or if you feel unwell, seek medical attention immediately.

Section 5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media Use Foam, Dry Chemical, or Carbon Dioxide (CO₂).
Do not use solid water stream as it may scatter material and spread fire.

Specific Hazards Arising from the Substance or Mixture

Combustion may produce dense black smoke, hazardous decomposition products and other decomposition products in the case of incomplete combustion. These may include simple hydrocarbons to toxic and irritating gases such as carbon, carbon monoxide, carbon dioxide, styrene, acids, ketones, and aldehydes. Material is a solid and may release an extremely flammable vapour/blowing agent (for up to 12 months after manufacture). This material will burn on contact with flame or exposure to high temperature. Hazardous melting and dripping may occur at elevated temperatures. Explosion hazard, if exposed to extreme heat or in poorly ventilated areas. Extremely flammable vapours can form flammable or explosive mixtures with air at room temperature. Vapour or gas may spread to distant ignition sources and flash back. Eliminate ignition sources (including static spark) and prevent vapour accumulation. This material, as produced and not in its finely divided form as dust, is not explosive as defined by established regulatory criteria. When in its finely divided form as dust, this material presents an explosion hazard when dispersed in a confined area and ignited in air. Risk of dust-air explosion is increased, if flammable vapours are present.

Specific Protective Equipment and Precautions for Fire-fighters

Wear self-contained breathing apparatus (SCBA) and standard protective equipment for firefighting, if necessary. Dense black smoke may be generated.

Further Information Use water spray to keep adjacent products cool.

Section 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Wear proper personal protective equipment. Avoid breathing dust, fine particulate, and vapours.

Environmental precautions Prevent further spillage and leakage, if safe to do so. Product pieces, particles and dust can be blown away by the wind and enter waterways. Prevent loss of material to the local environment and spills or contaminated rinse water from entering watercourses, sewers, and storm drains.

Methods and material for containment and cleaning up

For Small Spill: In the event of a small spill, clean up area with non-sparking tools and place into a suitable container for disposal. Prevent the generation of dust clouds and contamination of waterways, sewers, and storm drains.

For Large Spill: In the event of a large spill, keep people not involved in cleanup away by isolating the area for at least 25 meters (75 feet) in all directions. Consider initial isolation for at least 100 meters (300 feet) downwind from the spill. Eliminate all sources of ignition (no smoking, flares, sparks or flames in immediate area) as this material may release a flammable blowing agent. Prevent or minimize formation of a dust cloud or layer during cleanup. In its finely divided form, this material may present an explosion hazard when dispersed in a confined area and ignited in air.

Water spill: use appropriate containment to avoid run off or release to storm drains, sewer or other waterways.

Land spill: use appropriate containment to avoid run off or release to ground.

Place into an appropriate container for disposal.

References to other Sections For personal protection refer to Section 8. For disposal refer to Section 13.

Section 7. HANDLING AND STORAGE

Precautions for safe handling

Keep away from heat, open flames, sparks, direct sunlight, and all other possible ignition sources. No Smoking.

Take precautionary measures against static discharges.

Use only in adequately ventilated areas.

Do not inhale dust, fumes, or vapours.

Wear proper protective equipment when handling this material.

Avoid contact with skin, eyes, or clothing. Wash hands after handling this material.

Appropriate container should be used for disposal.

If grinding, sawing, or rasping, use dust extraction and respiratory and eye protection equipment.

Conditions for safe storage, including any incompatibilities

Keep away from heat, open flames, sparks, direct sunlight, and all other possible ignition sources. No Smoking.

Store in a cool, dry, well-ventilated place.

Secure products against movement from winds.

Keep containers/bags closed when not in use.

Prevent build-up of electro-static charges (e.g. by grounding).

Do NOT store with acid, metallic oxide, amines, or combustible materials.

Utilize chemical segregation.

Follow all applicable local regulations for handling and storage.

Avoid prolonged exposure to direct sunlight.

Material is incompatible with Solvents, including hydrocarbons, esters, aldehydes and amines. Avoid strong oxidizers.

Specific uses

The products are intended for use as foam plastic insulation boards in residential and commercial building shells; as geotechnical fill material; and as component of floatation devices. To be installed, used and disposed of in accordance with all locally applicable laws and regulations including, but not limited to, local building codes.

Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION**Control Parameters**

PRODUCT COMPOSITION	ACGIH TLV	OSHA PEL	NIOSH REL
Expanded Polystyrene (EPS)	TWA 3 mg/m ³ ** 10 mg/m ³ **	TWA 5 mg/m ³ * 15 mg/m ³ **	TWA 3 mg/m ³ ** 10 mg/m ³ **
Pentanes	TWA 120 ppm (350 mg/m ³) British Columbia: TWA 600 ppm	TWA 500 ppm (1500 mg/m ³)	TWA 120 ppm (350 mg/m ³) C 610 ppm (1800 mg/m ³) [15-minute]
Flame-Retardant Additive	--	--	--
Coatings	--	--	--

*PNOR (Particulates Not Otherwise Regulated): OSHA 5 mg/m³ Respirable fraction (R), 15 mg/m³ Total Particulates

**PNOS (Particulates Not Otherwise Specified): ACGIH 3 mg/m³ Respirable fraction (R), 10 mg/m³ Total Particulates, total dust less than 1% quartz.

Exposure Controls**VENTILATION:**

Always provide good general, mechanical room ventilation where this chemical/material is used or stored.

SPECIAL VENTILATION CONTROLS:

Use explosion-proof equipment, if high dust/air concentrations are possible. Use only appropriately classified electrical equipment and powered industrial trucks. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen deficient environment. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work areas (i.e. there is no leakage from the equipment).

RESPIRATORY PROTECTION:

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or the CEN European Standards (EU) or equivalent. Use a NIOSH/MSHA or European Standard (EN) approved respirator, if exposure limits are exceeded or if irritation or other symptoms are experienced.

PROTECTIVE GLOVES:

Neoprene, butyl, or nitrile rubber gloves are recommended.

EYE PROTECTION:

Recommend eye protection using safety glasses or goggles.

SKIN PROTECTION:

Suitable protective clothing to prevent skin contact

WORK/HYGIENE PRACTICES:

Avoid breathing dust and vapor. Avoid contact with eyes. Wash hands after handling.

OTHER EQUIPMENT:

Make eyewash stations and hand washing equipment available in the work area.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT CRITERIA	
APPEARANCE - COLOR:	White or grey
PHYSICAL STATE:	Solid
ODOR:	Very slight hydrocarbon odor
ODOR THRESHOLD	Data not available
PH	Data not available
MELTING POINT/FREEZING POINT:	80°C (175°F)
INITIAL BOILING POINT AND BOILING RANGE:	Data not available
FLASH POINT:	> 345°C (653 °F)
EVAPORATION RATE:	Data not available
FLAMMABILITY (Solid, gas)	Oxygen Index > 24%
UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS	Data not available
VAPOR PRESSURE	Data not available
VAPOR DENSITY (AIR = 1)	Data not available
SPECIFIC GRAVITY (H2O = 1)	0.01-0.05 (estimated)
DENSITY (@ 25 °C)	0.6-3.1 lbs./cubic foot
SOLUBILITY(IES)	Insoluble in water, Soluble in hydrocarbons, esters, aldehydes and amines.
OXIDIZING PROPERTIES	Data not available
PARTITION COEFFICIENT: n-octanol/water	Data not available
AUTO IGNITION TEMPERATURE	440 °C / 824 °F
DECOMPOSITION TEMPERATURE	> 300 °C (572 °F)
VISCOSITY	Data not available
EXPLOSIVE PROPERTIES	Data not available

Section 10. STABILITY AND REACTIVITY

Reactivity:	Not reactive
Chemical Stability:	Stable under normal conditions.
Possibility of Hazardous Reactions:	Will not occur under normal temperatures and pressures.
Conditions to Avoid:	Unventilated areas, heat, open flame, sparks, ungrounded electrical equipment, prolonged exposure to sunlight
Incompatibility (Materials to Avoid):	Solvents including hydrocarbons, esters, aldehydes, and amines. Also avoid strong oxidizers.
Hazardous Decomposition Products:	Decomposition of the products can include trace amounts of hydrocarbons. Primary combustion products include carbon monoxide, carbon dioxide, styrene, hydrogen halide, nuisance particulate, carbon (soot) and pentanes. Other undetermined hydrocarbon fractions could be released in trace quantities.

Section 11. TOXICOLOGICAL INFORMATION

There is no toxicological information available for the products

GHS Required Criteria	Toxicity Criteria	Toxicity Information	Comments	Chemical Constituent
Acute Toxicity	LD50 (Oral/Rat):	2,000 mg/kg	No mortality	Pentane
	LC50	205.45 mg/L, 4hr.		Pentane
Skin Corrosion/Irritation	There was no stimulativeness to the human skin by the 24-hour patch test in the humans and there was no stimulativeness in practice by the skin irritation study in a rabbit (the erythema and dropsy with the average values of			Pentane
Serious Eye Damage / Eye Irritation	EYE-RABBIT:	Transient conjunctivitis was seen, however, it recovered within 72 hours.	Category 2B	Pentane
Respiratory or Skin Sensitization	No sensitizing properties seen in the Maximization Test using the guinea pigs.			Pentane
Germ Cell Mutagenicity	Negative micronucleus tests using rat myeloid cells of in vivo.			Pentane
Carcinogenicity	NTP	Not listed		
	IARC	Group 3		Polystyrene
	OSHA	Not listed		

Reproductive Toxicity	There is a description that no influence on dam and fetus was observed in the teratogenicity test by oral administration using rats, even at the highest dose of 1000mg/kg/day.		Pentane
STOT - Single Exposure	There were anesthetic actions and respiratory irritant through inhalation exposure to laboratory animals.	Category 3	Pentane
STOT - Repeated Exposure		Data not available	
Aspiration Hazard		Data not available	

STOT = Specific Target Organ Toxicity

Section 12. ECOLOGICAL INFORMATION

		Chemical Constituent
Toxicity:	48-hour EC50 =2.7mg/L, Crustacea (Daphnia magna)	Pentane
Persistence and degradability:	Data not available	
Bioaccumulative potential	Data not available	
Mobility in soil:	Data not available	
PBT and vPvB assessment:	PBT/vPvB assessment not available as chemical assessment not required/not conducted	
Other adverse effects:	Data not available	

Section 13. DISPOSAL CONSIDERATIONS

Waste from residues/unused products: Follow the waste disposal requirements of your country, state, provincial, or local authorities.

Contaminated packaging: Contaminated packaging material should be disposed of as stated above for residues and unused product.

Rinsate: Do NOT dispose of rinse water containing product in a sanitary sewer system, stormwater drainage system, or other waterway.

Recycling: Clean, uncontaminated EPS can and should be recycled whenever possible.

Other Information: RCRA Hazard Class: Non-hazardous



Section 14. TRANSPORT INFORMATION

DOT TRANSPORT:		Not Regulated
ADR = International Carriage of Dangerous Goods by Road		Not Regulated
SEA TRANSPORT:	IMDG	Not Regulated
AIR TRANSPORT:	IATA/ICAO	Not Regulated
UN NUMBER:		Not Classified

Special precautions for transport: Keep products away from heat and any sources of ignition.

Section 15. REGULATORY INFORMATION

CANADA:

WHMIS-2015: This SDS is in compliance with WHMIS 2015 (HPR / new HPA).

USA:

TOXIC SUBSTANCE CONTROL ACT (TSCA) STATUS:

This product is in compliance with rules, regulations, and orders of TSCA. All components are either listed on a federal chemical inventory or are considered exempt.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA) TITLE III SECTION 313 SUPPLIER NOTIFICATION:

This regulation requires submission of annual reports of toxic chemical(s) that appear in section 313 of the Emergency Planning and Community Right To Know Act of 1986 and 40 CFR 372. This information must be included in all SDS's that are copied and distributed for the material.

The Section 313 toxic chemicals contained in this product are: None

CALIFORNIA PROPOSITION 65:

This regulation requires a warning for California Proposition 65 chemical(s) under the statute.

The California proposition 65 chemical(s) contained in this product are: None

STATE RIGHT-TO-KNOW TOXIC SUBSTANCE OR HAZARDOUS SUBSTANCE LIST:

Massachusetts's hazardous substance(s): Not listed
Pennsylvania hazardous substance code(s): Not listed
New Jersey Not listed

EUROPEAN UNION:

This product has been reviewed for compliance with the following European Community Directives: REACH 1907/2006; Regulation (EC) No 1272/2008 on classification, labeling, and packaging (CLP) of substances and mixtures.

Section 16. OTHER INFORMATION

Initial issue date: January 07, 2017
Final revision date: April 24, 2018
Revision Number: 4
Revision explanation: Pentane updates
Information Sources: RTECS, ECHA, REACH, OSHA 29CFR 1910.1200

Disclaimer of warranty: This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment. The information contained herein is offered in good faith as accurate as of the date issued, but without warranty or guarantee as to its accuracy. Neither Aqua-Pak Industries Ltd. nor any related person, organization or entity assumes any responsibility for the accuracy of information contained in this or any document that is not the most current available from Aqua-Pak Industries Ltd. Conditions of use and suitability of the product for particular uses are beyond our knowledge and control. The user assumes all risks of use of the products. AQUA-PAK INDUSTRIES LTD. AND ALL RELATED PERSONS, ORGANIZATIONS AND ENTITIES EXPRESSLY DISCLAIM ALL WARRANTIES, BOTH EXPRESS AND IMPLIED, OF EVERY KIND AND NATURE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE USE OR SUITABILITY OF THE PRODUCTS. Nothing contained herein is intended to or should be interpreted to: a) grant a license; b) expand the scope of any existing license; c) recommend a use that would infringe any valid patents; or d) extend a license under valid patents held by Aqua-Pak Industries Ltd., any related person, organization or entity, or another party. Appropriate warnings and safe handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, republication or transmission of this document, in whole or in part, is not permitted. Neither Aqua-Pak Industries Ltd. nor any related person, organization, nor entity either represents or warrants that the format, content or product formulas contained in this document comply with the laws of any other country except Canada and the United States of America.

© Copyright 2018 Aqua-Pak Industries Ltd. All rights reserved.

www.quadlock.com
www.airfoam.com