QUANTUM INSULATION

SAFETY DATA SHEET

RAVATHERM XPS X 300 SL

SECTION 1 Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Trade name: RAVATHERM XPS X 300 SL

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Thermal Insulation

1.3 Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Quantum Insulation Ltd, Holland House, Valley Way, Rockingham Road
Market Harborough Leicestershire LE16 7PS
T: +44 1858 456018, F: +44 (0) 1858410572, sales@quantuminsulation.com

Further information obtainable from: www.quantuminsulation.com

1.4 Emergency telephone number:
During office hours tel: +44 (0) 1858410372. At all other times please contact your national poisoning centre.

SECTION 2 Hazards identification

2.1 Classification of the substance or mixture
Classification according to Directive 67/548/EEC or Directive 1999/45/EC
This product is not classified as dangerous according to EC criteria.

2.2 Label elements
Labeling according to EU guidelines:
This product is not classified as dangerous according to EC criteria.

2.3 Other hazards
No information available.

SECTION 3 Composition/information on ingredients

3.1 Mixtures
This product is a mixture.

CAS-No / EC-No / Index No.	Concentration	Component	Classification: REGULATION (EC) No 1272/2008
CAS No 3194-55-6 EC-No. 221-695-9	<= 1.0 %	1,2,5,6,9,10-Hexabromocyclo d odecane (HBCD)	Aquatic Chronic, 1, H410

CAS-No / EC-No / Index No.	Concentration	Component	Classification: 67/548/EEC
CAS-No 75-28-5 EC-No. 220-857-2 Index-No. 601-004-00-0	<= 2.0 %	Isobutane	Flam. Gas, 1, H220

CAS-No / EC-No / Index No.	Concentration	Component	Classification: 67/548/EEC
CAS-No 3194-55-6 **EC-No.** 220-857-2	<= 1.0 %	1,2,5,6,9,10-Hexabromocyclo d odecane (HBCD)	N: R50, R53
CAS-No 3194-55-6 **EC-No.** 220-857-2 **Index** 601-004-00-0	<= 2.0 %	Isobutane	F+: R12

For the full text of the H-Statements mentioned in this Section, see Section 16. See Section 16 for full text of R-phrases. Extruded polystyrene foam containing a halogenated flame retardant system.

SECTION 4 First aid measures

4.1 Description of first aid measures
General information: If potential for exposure exists refer to Section 8 for specific personal protective equipment.

After inhalation: Move person to fresh air; if effects occur, consult a physician.

After skin contact: Wash skin with plenty of water.

After eye contact: If irritation occurs, Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

After ingestion: No emergency medical treatment necessary.

4.2 Most important symptoms and effects, both acute and delayed
Symptoms/injuries: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), no additional symptoms and effects are anticipated.

4.3 Indication of any immediate medical attention and special treatment needed
No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5 Firefighting measures

5.1 Extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam.

5.2 Special hazards arising from the substance or mixture
Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. In smoldering or flaming conditions, carbon monoxide, carbon dioxide and carbon are generated. Combustion products may include and are not limited to: Hydrogen bromide. Based on combustion toxicity testing, the effects of combustion from this foam are not more acutely toxic than the effects of combustion from common building materials such as wood.

Unusual Fire and Explosion Hazards: Mechanical cutting, grinding or sawing can cause formation of dusts. To reduce the potential for dust explosion, do not permit dust to accumulate. This product contains a flame retardant to inhibit accidental ignition from small fire sources. This plastic foam product is combustible and should be protected from flames and other high heat sources. For more information, contact Dow. Dense smoke is produced when product burns.

5.3 Advice for firefighters
Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Soak thoroughly with water to cool and prevent re-ignition. If material is molten, do not apply direct water stream. Use fine water spray or foam. Cool surroundings with water to localize fire zone.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

SECTION 6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
General measures:
There are no special required instructions.

6.2 Environmental precautions:
There are no special required instructions.

6.3 Methods and materials for containment and cleaning up:
Recover spilled material if possible. See Section 13, Disposal Considerations, for additional information.

6.4 Reference to other sections:
References to other sections, if applicable, have been provided in the previous sub-sections.

SECTION 7 Handling and storage

7.1 Precautions for safe handling
General Handling: Fabrication methods which involve cutting into this product may release the blowing agent(s) remaining in the cells. Provide adequate ventilation to assure localized concentrations in release areas are maintained below the lower flammable limit. Mechanical cutting, grinding or sawing can cause formation of dusts. To reduce the potential for dust explosion, do not permit dust to accumulate. This product is combustible and may constitute a fire hazard if improperly used or installed. When installed, this product should be adequately protected as directed by national building regulations or instructions in the specific application brochure.

7.2 Conditions for safe storage, including any incompatibilities
During shipment, storage, installation and use, this material should not be exposed to flame or other ignition sources. This material contains a halogenated flame retardant additive system to inhibit accidental ignition from small fire sources.

7.3 Specific end use(s):
See the technical data sheet on this product for further information.

SECTION 8 Exposure controls/personal protection

8.1 Control parameters

Exposure limits.

Component	Regulation	Type of listing	Value/Notation
Isobutane	ACGIH	TWA	1000 ppm
United Kingdom	Short-term value: 10 mg/m³ Long-term value: 5 mg/m³		

Concentrations of the blowing agents anticipated incidental to proper handling are expected to be well below those which cause acute inhalation effects and below exposure guidelines.

8.2 Exposure controls

Personal protective equipment:

Eye protection:

Eye protection should not be necessary. For fabrication operations safety glasses (with side shields) are recommended. Safety glasses (with side shields) should be consistent with EN 166 or equivalent. If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent.

Protective goggles

Skin protection:

No precautions other than clean body-covering clothing should be needed.

Hand Protection:

Use gloves to protect from mechanical injury. Selection of gloves will depend on the task.

Protective gloves

Respiratory protection:

Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. In dusty or misty atmospheres, use an approved particulate respirator. When respiratory protection is required for certain operations, including but not limited to saw, router or hot-wire cutting, use an approved air- purifying respirator. Use the following CE approved air-purifying respirator: Organic vapor cartridge with a particulate pre-filter, type AP2.

Ingestion:

No precautions necessary due to the physical properties of the material.

Ventialtion: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

SECTION 9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

GENERAL INFORMATION	
Physical state	Board
Colour	Grey
Odour	Odourless
Odour threshold	No test data available
pH	Not applicable
Melting point / range	> 75 °C *see literature*
Freezing point	Not applicable
Boiling point (760 mmHg)	Not applicable
Flash point	closed cup 346 °C *see literature*
Evaporation Rate (Butyl Acetate = 1)	Not applicable
Auto-ignition temperature	491 °C *Literature*
Decomposition temperature	No test data available
Flammability (solid, gas)	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Kinematic viscosity	Not applicable
Explosive properties	No test data available
Oxidising properties	No test data available
Vapour pressure	Not applicable
Relative vapour density (air =1)	Not applicable
Relative density (water =1)	Not applicable
Solubility	Insoluble in water
Partition coefficient: n-octanol/water	No data available

9.2 Other Information

Solid density: 20 – 70 kg/m^3 *see literature*

SECTION 10 Stability and reactivity

10.1 Reactivity
No dangerous reaction known under conditions of normal use.

10.2 Chemical stability
Thermally stable at typical use temperatures.

10.3 Possibility of hazardous reactions
Polymerization will not occur.

10.4 Conditions to avoid
Avoid temperatures above 300 °C (572 °F). Exposure to elevated temperatures can cause product to decompose. Avoid direct sunlight.

10.5 Incompatible materials
Avoid contact with: Oxidizers. Aldehydes. Amines. Esters. Liquid fuels. Organic solvents.

10.6 Hazardous decomposition products
Does not normally decompose. Evolution of small amounts of hydrogen halides occur when heated over 250°C (482°F). Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aromatic compounds. Aldehydes. Ethylbenzene. Hydrogen bromide. Polymer fragments. Under high heat, non-flaming conditions, small amounts of aromatic hydrocarbons such as styrene and ethylbenzene are generated.

SECTION 11 Toxicological information

11.1 Information on toxicological effects

Ingestion: Swallowing is unlikely because of the physical state. Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.
As product: Single dose oral LD50 has not been determined.

Aspiration Hazard: Based on physical properties, not likely to be an aspiration hazard.

Dermal: Skin absorption is unlikely due to physical properties.
As product: The dermal LD50 has not been determined.

Inhalation: Dust may cause irritation to upper respiratory tract (nose and throat). Fumes/vapors released during thermal operations such as hot wire cutting may cause respiratory irritation. Based on the available data, narcotic effects were not observed.
As product: The LC50 has not been determined.

Eye damage/irritation: Solid or dust may cause irritation due to mechanical action. Fumes/vapor released during thermal operations such as hot-wire cutting may cause eye irritation.

Skin corrosion/irritation: Mechanical injury only. Essentially nonirritating to skin.

Respiratory or skin sensitisation: No relevant data found

Repeated Dose Toxicity: Additives are encapsulated in the product and are not expected to be released under normal processing conditions or foreseeable emergency.

Chronic Toxicity and Carcinogenicity: Relevant data not available.

Developmental Toxicity: Relevant data not available.

Reproductive toxicity: Relevant data not available.

Genetic toxicity: Relevant data not available.

SECTION 11 Toxicological information (continued)

Component Toxicology	1,2,5,6,9,10-Hexabromocyclododecane (HBCD)
Skin Absorption	LD50, rabbit > 20,000 mg/kg
Skin Absorption	LD50, rat > 8,000 mg/kg
Component Toxicology	1,2,5,6,9,10-Hexabromocyclododecane (HBCD)
Inhalation	LC50, 4 h, Aerosol, rat > 200 mg/l
Component Toxicology	Isobutane
Inhalation	LC50, 1 h, mouse 52 mg/l
Component Toxicology	LC50, 1 h, mouse 52 mg/l
Ingestion	LD50, rat > 10,000 mg/kg

SECTION 12 Ecological information

12.1 Toxicity
This product contains a substance which is classified as dangerous for the environment. However recent studies on aquatic organisms have shown that articles such as Extruded polystyrene (XPS) foams, while containing this substance, do not need to be classified for environmental danger

12.2 Persistence and degradability
Surface photodegradation is expected with exposure to sunlight. No appreciable biodegradation is expected.

12.3 Bioaccumulative potential
No bioconcentration is expected because of the relatively high molecular weight (MW greater than 1000). In the aquatic environment, material is expected to float.

12.4 Mobility in soil
In the terrestrial environment, material is expected to remain in the soil.

12.5 Results of PBT and vPvB assessment
This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

12.2 Other adverse effects
No relevant data found.

13 Disposal considerations

13.1 Waste treatment methods
All efforts to recycle material should be made. However, this material contains a halogenated flame retardant and should not be recycled with other non-flame retarded plastics. This material may be disposed of preferably by incineration under approved conditions or, in some countries, in approved landfills. Customers are advised to check their local legislation governing the disposal of waste materials. If incinerated, it is recommended that the flue gases be treated by a scrubber before exhausting to the atmosphere.

14 Transport information

Road and Rail: Not regulated
Ocean: Not regulated
Air: Not regulated
Inland waterways: Not regulated

SECTION 15 Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

European Inventory of Existing Commercial Chemical Substances (EINECS)

The components of this product are on the EINECS inventory or are exempt from inventory requirements.

REACH Regulation (EC) No 1907/2006

This product is an article according to Article 3(3) which does not intentionally release substances and therefore does not require registration according to Article 7. This product contains a substance listed in the Candidate list for Authorization established in accordance with article 59(1): 1,2,5,6,9,10- Hexabromocyclododecane (HBCD).

15.2 Chemical safety assessment

A Chemical Safety Assessment is not required for this substance when it is used in the specified applications.

SECTION 16 Other information

Hazard statement in the composition section

H220 Extremely flammable gas.
H410 Very toxic to aquatic life with long lasting effects.

Full text of R-phrases in the composition section

R12 Extremely flammable.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Information Source and References

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.