
MATERIAL SAFETY DATA SHEET

STYROFOAM(TM) SP-X Extruded PolystyreneRevision Date: 16/01/2007

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND THE COMPANY / UNDERTAKING**1.1. PRODUCTS IDENTIFICATION:** STYROFOAM(TM) SP-X Extruded Polystyrene Foam**1.2. USE OF SUBSTANCE:** Thermal Insulation**1.3. COMPANY:** Dow Chemical Company Ltd
Diamond House, Lotus Park
Kingsbury Crescent
Staines
Middlesex
TW18 3AG
Telephone Number: 0044 155 37 61 251**1.4. EMERGENCY TELEPHONE:** 0044 155 37 61 251**2. HAZARDS IDENTIFICATION**

This product is not classified as dangerous according to EC criteria.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Amount	Classification:	CAS #	EC #
1,1,1,2- Tetrafluoroethane	< 8.0%	Not classified	811-97-2	212-377-0
Ethanol; ethyl alcohol	< 3.0%	F: R11	64-17-5	200-578-6

See Section 16 for full text of R-phrases.

Extruded polystyrene foam containing a halogenated flame retardant system.

4. FIRST-AID MEASURES**Eye Contact:**

Flush eyes with plenty of water; remove contact lenses after the first 1-2 minutes then continue flushing for several minutes. Only mechanical effects expected. If effects occur, consult a physician, preferably an ophthalmologist.

Skin Contact:

Wash skin with plenty of water.

Inhalation:

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

Ingestion:

If swallowed, seek medical attention. May cause gastrointestinal blockage. Do not give laxatives. Do not induce vomiting unless directed to do so by medical personnel.

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Notes to Physician:

No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE-FIGHTING MEASURES**Extinguishing Media:**

Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam.

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.

Unusual Fire and Explosion Hazards:

Container may vent and/or rupture due to fire. When product is stored in closed containers, a flammable atmosphere can develop. 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.

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 fluoride. 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.

6. ACCIDENTAL RELEASE MEASURES**Steps to be Taken if Material is Released or Spilled:**

Recover spilled material if possible. See Section 13, Disposal Considerations, for additional information.

Personal Precautions:

There are no special required instructions.

Environmental Precautions:

There are no special required instructions.

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7. HANDLING AND STORAGE**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.

Storage

In order to prevent buildup of combustible vapors, do not store large quantities of this product in unventilated spaces. Transport bulk shipments of this product in ventilated vehicles. 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. Gas fired recirculating air furnaces or heaters, gas heaters, etc., drawing air from areas where there may be a presence of the blowing agents emitted from this foam during storage or fabrication, can be subject to rust and corrosion problems as a result of thermal decomposition of the blowing agents to hydrogen fluoride.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Exposure Limits**

Component	List	Type	Value
Ethanol; ethyl alcohol	Ireland OELV	TWA	1,900 mg/m3 1,000 ppm
	ACGIH	TWA	1,000 ppm
	UK WEL	TWA	1,920 mg/m3 1,000 ppm
1,1,1,2-Tetrafluoroethane	WEEL	TWA	4,240 mg/m3 1,000 ppm
	UK WEL	TWA	4,240 mg/m3 1,000 ppm

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.

Personal Protection:**Eye/Face Protection:**

Eye protection should not be necessary. For fabrication operations safety glasses are recommended. Safety glasses 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.

Skin Protection:

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

Hand protection:

Chemical protective gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized. Use gloves to protect from mechanical injury. Selection of gloves will depend on the task.

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Respiratory Protection:

Atmospheric levels should be maintained below the exposure guideline. 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.

Engineering Controls:**Ventilation:**

Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Board

Color: Blue

Odor: Odorless

Flash Point - Closed Cup: 346 °C *Literature*

Flammable Limits In Air Lower: 3.5 %(V) *Literature* Ethanol

Upper: Not applicable

Autoignition Temperature: 491 °C *Literature*

Vapor Pressure: Not applicable

Boiling Point (760 mmHg): Not applicable.

Vapor Density (air = 1): Not applicable

Specific Gravity (H₂O = 1): Not applicable

Solid Density: 20 - 70 kg/m³ *Literature*

Freezing Point: Not applicable

Melting Point: > 75 °C *Literature*

Softening point/range: > 75 °C *Literature*

Solubility in Water (by weight): insoluble in water

PH: Not applicable

Kinematic Viscosity: Not applicable

10. STABILITY AND REACTIVITY**Stability/Instability**

Thermally stable at typical use temperatures.

Conditions to Avoid:

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

Incompatible Materials:

Avoid contact with oxidizing materials. Avoid contact with: Aldehydes. Amines. Esters. Liquid fuels. Organic solvents.

Hazardous Polymerization

Will not occur.

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Thermal Decomposition

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. Hydrogen fluoride. Polymer fragments. Styrene. Under high heat, non-flaming conditions, small amounts of aromatic hydrocarbons such as styrene and ethylbenzene are generated.

11. TOXICOLOGICAL INFORMATION**Acute Toxicity****Ingestion**

Swallowing is unlikely because of the physical state. Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. May cause choking or blockage of the digestive tract if swallowed.

Eye Contact

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

Skin Contact

Essentially nonirritating to skin. Mechanical injury only.

Skin Absorption

Skin absorption is unlikely due to physical properties.

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.

Repeated Dose Toxicity

Contains component(s) which have been reported to cause effects on the following organs in humans:

Central nervous system. Liver. The component(s) is/are: Ethanol. Testing has indicated that normal handling and cutting are unlikely to result in exposure levels sufficient to cause the listed effects.

Developmental Toxicity

Contains component(s) which did not cause birth defects in animals; other fetal effects occurred only at doses toxic to the mother. The component(s) is/are: 1,1,1,2-Tetrafluoroethane. Testing has indicated that normal handling and cutting are unlikely to result in exposure levels sufficient to cause the listed effects.

12. ECOLOGICAL INFORMATION**CHEMICAL FATE****Movement & Partitioning**

No bioconcentration is expected because of the relatively high molecular weight (MW greater than 1000). In the terrestrial environment, material is expected to remain in the soil. In the aquatic environment, material is expected to float. There is no evidence of any significant leaching, therefore it is unlikely to contaminate ground water.

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Persistence and Degradability

Surface photodegradation is expected with exposure to sunlight. No appreciable biodegradation is expected. Based largely or completely on information for the blowing agent: 1,1,1,2-tetrafluoroethane (HFC-134a) remains in the foam and diffuses out slowly, most of it degrading in the troposphere to CO₂ and HF. 1,1,1,2-Tetrafluoroethane (HFC-134a) has a stratospheric ozone depletion potential (ODP) of zero, relative to CFC 12 (ODP=1).

ECOTOXICITY

Material is not classified as dangerous to aquatic organisms (LC₅₀/EC₅₀/IC₅₀ greater than 100mg/L in most sensitive species).

13. DISPOSAL CONSIDERATIONS

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 & RAIL**

NOT REGULATED

OCEAN

NOT REGULATED

AIR

NOT REGULATED

INLAND WATERWAYS

NOT REGULATED

15. REGULATORY INFORMATION**European Inventory of Existing Commercial Chemical Substances (EINECS)**

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

EC Classification and User Label Information

This product is not classified as dangerous according to EC criteria.

16. OTHER INFORMATION**Risk-phrases in Section 2**

R11 Highly flammable.