

## Section 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

**Product name:** HEPTAFLUOROBUTYRYL FLUORIDE  
**CAS number:** 335-42-2  
**EINECS number:** 206-390-0  
**Product code:** PC4555

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

### 1.3. Details of the supplier of the safety data sheet

**Company name:** Apollo Scientific Ltd  
Units 3 & 4  
Parkway  
Denton  
Manchester  
M34 3SG  
UK  
**Tel:** 0161 337 9971  
**Fax:** 0161 336 6932  
**Email:** david.tideswell@apolloscientific.co.uk

### 1.4. Emergency telephone number

## Section 2: Hazards identification

### 2.1. Classification of the substance or mixture

**Classification under CLP:** Acute Tox. 3: H301+311+331; Skin Corr. 1B: H314

**Most important adverse effects:** Toxic if swallowed, in contact with skin or if inhaled. Causes severe skin burns and eye damage.

### 2.2. Label elements

**Label elements:**

**Hazard statements:** H301+311+331: Toxic if swallowed, in contact with skin or if inhaled.  
H314: Causes severe skin burns and eye damage.

**Signal words:** Danger

**Hazard pictograms:** GHS05: Corrosion  
GHS06: Skull and crossbones



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**Precautionary statements:** P310: Immediately call a POISON CENTER/doctor/.  
P260: Do not breathe gas.  
P280: Wear protective gloves/protective clothing/eye protection/face protection.  
P284: [In case of inadequate ventilation] wear respiratory protection.

**2.3. Other hazards**

**Other hazards:** Stench.  
**PBT:** This product is not identified as a PBT/vPvB substance.

**Section 3: Composition/information on ingredients**

**3.1. Substances**

**Chemical identity:** HEPTAFLUOROBUTYRYL FLUORIDE  
**CAS number:** 335-42-2  
**EINECS number:** 206-390-0

**Section 4: First aid measures**

**4.1. Description of first aid measures**

**Skin contact:** Remove all contaminated clothes and footwear immediately unless stuck to skin. Drench the affected skin with running water for 10 minutes or longer if substance is still on skin. Transfer to hospital if there are burns or symptoms of poisoning.

**Eye contact:** Bathe the eye with running water for 15 minutes. Transfer to hospital for specialist examination.

**Ingestion:** Do not induce vomiting. If conscious, give half a litre of water to drink immediately. If unconscious, check for breathing and apply artificial respiration if necessary. If unconscious and breathing is OK, place in the recovery position. Transfer to hospital as soon as possible.

**Inhalation:** Remove casualty from exposure ensuring one's own safety whilst doing so. If conscious, ensure the casualty sits or lies down. If unconscious and breathing is OK, place in the recovery position. If unconscious, check for breathing and apply artificial respiration if necessary. If breathing becomes bubbly, have the casualty sit and provide oxygen if available. Transfer to hospital as soon as possible.

**4.2. Most important symptoms and effects, both acute and delayed**

**Skin contact:** Blistering may occur. Progressive ulceration will occur if treatment is not immediate. Absorption through the skin may be fatal.

**Eye contact:** Corneal burns may occur. May cause permanent damage.

**Ingestion:** Corrosive burns may appear around the lips. Blood may be vomited. There may be bleeding from the mouth or nose. Convulsions may occur. There may be loss of consciousness.

**Inhalation:** There may be shortness of breath with a burning sensation in the throat. Exposure may cause coughing or wheezing. Absorption through the lungs can occur causing

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symptoms similar to those of ingestion. Convulsions may occur. There may be loss of consciousness.

**Delayed / immediate effects:** Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin

**4.3. Indication of any immediate medical attention and special treatment needed**

**Immediate / special treatment:** Show this safety data sheet to the doctor in attendance.

**Section 5: Fire-fighting measures**

**5.1. Extinguishing media**

**Extinguishing media:** Carbon dioxide, dry chemical powder, foam. Suitable extinguishing media for the surrounding fire should be used. Use water spray to cool containers.

**5.2. Special hazards arising from the substance or mixture**

**Exposure hazards:** Toxic. Corrosive. In combustion emits toxic fumes of carbon dioxide / carbon monoxide. Hydrogen fluoride (HF).

**5.3. Advice for fire-fighters**

**Advice for fire-fighters:** Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

**Section 6: Accidental release measures**

**6.1. Personal precautions, protective equipment and emergency procedures**

**Personal precautions:** Notify the police and fire brigade immediately. If outside do not approach from downwind. If outside keep bystanders upwind and away from danger point. Mark out the contaminated area with signs and prevent access to unauthorised personnel. Do not attempt to take action without suitable protective clothing - see section 8 of SDS. Turn leaking containers leak-side up to prevent the escape of liquid.

**6.2. Environmental precautions**

**Environmental precautions:** Do not discharge into drains or rivers. Contain the spillage using bunding.

**6.3. Methods and material for containment and cleaning up**

**Clean-up procedures:** Clean-up should be dealt with only by qualified personnel familiar with the specific substance. Absorb into dry earth or sand. Transfer to a closable, labelled salvage container for disposal by an appropriate method.

**6.4. Reference to other sections**

**Section 7: Handling and storage**

**7.1. Precautions for safe handling**

**Handling requirements:** Avoid direct contact with the substance. Ensure there is exhaust ventilation of the area. Use only with closed system ventilation. Avoid the formation or spread of mists in the air.

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**7.2. Conditions for safe storage, including any incompatibilities**

**Storage conditions:** Store in tightly closed, airtight, moisture-proof cylinders in a cool, dry, well-ventilated area away from heat, sources of ignition and sparks. Protect the pressurised containers from physical damage. Keep at temperatures below 50°C. Moisture sensitive.

**Suitable packaging:** Must only be kept in original packaging.

**7.3. Specific end use(s)**

**Section 8: Exposure controls/personal protection**

**8.1. Control parameters**

**Workplace exposure limits:** No data available.

**DNEL/PNEC Values**

**DNEL / PNEC** No data available.

**8.2. Exposure controls**

**Engineering measures:** Ensure there is exhaust ventilation of the area.

**Respiratory protection:** Self-contained breathing apparatus must be used in handling.

**Hand protection:** Impermeable gloves. The selected protective gloves have to satisfy the specs of EU directive 89/686/EEC & the standard EN 374. Good laboratory practices should be adhered.

**Eye protection:** Tightly fitting safety goggles. Ensure eye bath is to hand.

**Skin protection:** Impermeable protective clothing. Protective clothing with elasticated cuffs and closed neck. Ensure safety shower is to hand.

**Section 9: Physical and chemical properties**

**9.1. Information on basic physical and chemical properties**

**State:** Liquified gas

**Odour:** STENCH

**Boiling point/range °C:** 7-9

**9.2. Other information**

**Other information:** No data available.

**Section 10: Stability and reactivity**

**10.1. Reactivity**

**Reactivity:** Stable under recommended transport or storage conditions.

**10.2. Chemical stability**

**Chemical stability:** Stable under normal conditions.

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**10.3. Possibility of hazardous reactions**

**Hazardous reactions:** Hazardous reactions will not occur under normal transport or storage conditions.

**10.4. Conditions to avoid**

**Conditions to avoid:** Heat. Hot surfaces. Flames. Moisture.

**10.5. Incompatible materials**

**Materials to avoid:** Strong oxidising agents. Strong acids.

**10.6. Hazardous decomposition products**

**Haz. decomp. products:** In combustion emits toxic fumes of carbon dioxide / carbon monoxide. Hydrogen fluoride (HF).

**Section 11: Toxicological information**

**11.1. Information on toxicological effects**

**Relevant hazards for substance:**

Hazard	Route	Basis
Acute toxicity (ac. tox. 3)	INH DRM ING	Hazardous: calculated
Skin corrosion/irritation	DRM	Hazardous: calculated
Serious eye damage/irritation	OPT	Hazardous: calculated

**Symptoms / routes of exposure**

**Skin contact:** Blistering may occur. Progressive ulceration will occur if treatment is not immediate. Absorption through the skin may be fatal.

**Eye contact:** Corneal burns may occur. May cause permanent damage.

**Ingestion:** Corrosive burns may appear around the lips. Blood may be vomited. There may be bleeding from the mouth or nose. Convulsions may occur. There may be loss of consciousness.

**Inhalation:** There may be shortness of breath with a burning sensation in the throat. Exposure may cause coughing or wheezing. Absorption through the lungs can occur causing symptoms similar to those of ingestion. Convulsions may occur. There may be loss of consciousness.

**Delayed / immediate effects:** Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin

**Section 12: Ecological information**

**12.1. Toxicity**

**Ecotoxicity values:** No data available.

**12.2. Persistence and degradability**

**Persistence and degradability:** No data available.

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**12.3. Bioaccumulative potential**

**Bioaccumulative potential:** No data available.

**12.4. Mobility in soil**

**Mobility:** No data available.

**12.5. Results of PBT and vPvB assessment**

**PBT identification:** This product is not identified as a PBT/vPvB substance.

**12.6. Other adverse effects**

**Other adverse effects:** No data available.

**Section 13: Disposal considerations**

**13.1. Waste treatment methods**

**Disposal operations:** MATERIAL SHOULD BE DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS Transfer to a suitable container and arrange for collection by specialised disposal company.

**Recovery operations:** Not applicable.

**Disposal of packaging:** Dispose of as special waste in compliance with local and national regulations Observe all federal, state and local environmental regulations.

**NB:** The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

**Section 14: Transport information**

**14.1. UN number**

**UN number:** UN3308

**14.2. UN proper shipping name**

**Shipping name:** LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.

**14.3. Transport hazard class(es)**

**Transport class:** 2 (8)

**14.4. Packing group**

**14.5. Environmental hazards**

**Environmentally hazardous:** No

**Marine pollutant:** No

**14.6. Special precautions for user**

**Tunnel code:** C/D

**Transport category:** 1

**Section 15: Regulatory information**

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

**Specific regulations:** Not applicable.

**15.2. Chemical Safety Assessment**

**Chemical safety assessment:** A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

**Section 16: Other information**

**Other information**

**Other information:** This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

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\* Data predicted using computational software. The OECD QSAR-Toolbox for grouping chemicals into categories. Developed by LMC bulgaria.

<http://echa.europa.eu/support/oeqd-qsar-toolbox>

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**Phrases used in s.2 and s.3:** H301+311+331: Toxic if swallowed, in contact with skin or if inhaled.

H314: Causes severe skin burns and eye damage.

**Legal disclaimer:** The material is intended for research purposes only and should be handled exclusively by those who have been fully trained in safety, laboratory and chemical handling procedures. The above information is believed to be correct to the best of our knowledge. The above information is believed to be correct to the best of our knowledge at the date of its publication, but should not be considered to be all inclusive. It should be used only as a guide for safe handling, storage, transportation and disposal. We cannot guarantee that the hazards detailed in this document are the only hazards that exist for this product. This is not a warranty and Apollo Scientific Ltd shall not be held liable for any damage resulting from handling or from contact with the above product.