

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

### 1.1. Product identifier

**Product name:** PERFLUOROBUT-2-ENE (FC-1318MY) 97%  
**CAS number:** 360-89-4  
**EINECS number:** 206-640-9  
**Product code:** PC5904  
**Synonyms:** OCTAFLUOROBUT-2-ENE

### 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:** Press. Gas: H280; Acute Tox. 4: H332; -: EUH044  
**Most important adverse effects:** Contains gas under pressure; may explode if heated. Harmful if inhaled. Risk of explosion if heated under confinement.

### 2.2. Label elements

**Label elements:**  
**Hazard statements:** H280: Contains gas under pressure; may explode if heated.  
H332: Harmful if inhaled.  
EUH044: Risk of explosion if heated under confinement.  
**Signal words:** Warning  
**Hazard pictograms:** GHS04: Gas cylinder  
GHS07: Exclamation mark

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**Precautionary statements:** P251: Do not pierce or burn, even after use.  
P260: Do not breathe vapours.  
P271: Use only outdoors or in a well-ventilated area.

## 2.3. Other hazards

**Other hazards:** Risk of explosion if heated under confinement.  
**PBT:** This product is not identified as a PBT/vPvB substance.

## Section 3: Composition/information on ingredients

### 3.1. Substances

**Chemical identity:** PERFLUOROBUT-2-ENE (FC-1318MY) 97%  
**CAS number:** 360-89-4  
**EINECS number:** 206-640-9

## Section 4: First aid measures

### 4.1. Description of first aid measures

**Skin contact:** Wash immediately with plenty of soap and water. Consult a doctor.  
**Eye contact:** Bathe the eye with running water for 15 minutes. Consult a doctor.  
**Ingestion:** Not applicable.  
**Inhalation:** Remove casualty from exposure ensuring one's own safety whilst doing so. Consult a doctor.

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

**Skin contact:** There may be mild irritation at the site of contact.  
**Eye contact:** There may be irritation and redness.  
**Ingestion:** It is unlikely that this substance will be swallowed due to its physical properties.  
**Inhalation:** There may be shortness of breath with a burning sensation in the throat. Exposure may cause coughing or wheezing. Drowsiness or mental confusion may occur. Convulsions may occur. There may be loss of consciousness.

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

**Immediate / special treatment:** Immediate medical attention is required. 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.

[cont...]

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

**Exposure hazards:** Harmful. 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. Cylinder may explode under conditions of fire.

**Section 6: Accidental release measures**

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

**Personal precautions:** Evacuate the area immediately. 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.

**6.2. Environmental precautions**

**Environmental precautions:** Alert the neighbourhood to the presence of fumes or gas.

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

**Clean-up procedures:** Ventilate area.

**6.4. Reference to other sections**

**Reference to other sections:** Refer to section 8 of SDS.

**Section 7: Handling and storage**

**7.1. Precautions for safe handling**

**Handling requirements:** Ensure there is sufficient ventilation of the area. Ensure there is exhaust ventilation of the area. Pressurised container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Fire or intense heat may cause violent rupture.

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

**Storage conditions:** Store in a cool, well ventilated area. Keep container tightly closed. Contents under pressure.

**Suitable packaging:** Must only be kept in original packaging. Contents under pressure.

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

**Specific end use(s):** No data available.

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

**8.1. Control parameters**

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

[cont...]

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**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:** Protective gloves.

**Eye protection:** Safety glasses. Ensure eye bath is to hand.

**Skin protection:** Protective clothing.

**Section 9: Physical and chemical properties**

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

**State:** Pressurised gas

**Colour:** Colourless

**Boiling point/range°C:** 1.2

**Melting point/range°C:** -136 to -134

**Vapour pressure:** 15psia/21°C

**Relative density:** 1.5297

**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.

**10.3. Possibility of hazardous reactions**

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

Decomposition may occur on exposure to conditions or materials listed below.

**10.4. Conditions to avoid**

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

**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**

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## 11.1. Information on toxicological effects

### Toxicity values:

Route	Species	Test	Value	Units
GASES	RAT	4H LCLo	6100	ppmV

### Relevant hazards for substance:

Hazard	Route	Basis
Acute toxicity (ac. tox. 4)	INH	Hazardous: calculated

## Symptoms / routes of exposure

**Skin contact:** There may be mild irritation at the site of contact.

**Eye contact:** There may be irritation and redness.

**Ingestion:** It is unlikely that this substance will be swallowed due to its physical properties.

**Inhalation:** There may be shortness of breath with a burning sensation in the throat. Exposure may cause coughing or wheezing. Drowsiness or mental confusion may occur. Convulsions may occur. There may be loss of consciousness.

## Section 12: Ecological information

### 12.1. Toxicity

**Ecotoxicity values:** No data available.

### 12.2. Persistence and degradability

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

### 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

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

[cont...]

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**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: UN2422

### 14.2. UN proper shipping name

Shipping name: OCTAFLUOROBUT-2-ENE (R 1318)

### 14.3. Transport hazard class(es)

Transport class: 2

### 14.4. Packing group

### 14.5. Environmental hazards

Environmentally hazardous: No

Marine pollutant: No

### 14.6. Special precautions for user

Special precautions: No special precautions.

Tunnel code: C/E

Transport category: 3

## Section 15: Regulatory information

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

### 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.

\* 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>

~ Data predicted using computational software ACD/ToxSuite v 2.95.1 Copyright 1994-2009 ACD/labs, Copyright 2001-2009 Pharma Algorithms, Inc, Advanced Chemistry Development, Inc (ACD/Labs). [http://www.acdlabs.com/products/pc\\_admet/tox/tox/](http://www.acdlabs.com/products/pc_admet/tox/tox/)

**Phrases used in s.2 and s.3:** EUH044: Risk of explosion if heated under confinement.

H280: Contains gas under pressure; may explode if heated.

H332: Harmful if inhaled.

[cont...]

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