

## 1: Identification of substance / mixture

## 1. Product Identifier

Substance

Product Name **1,4-Difluorobutane**  
 Product Code 010297  
 CAS Number 372-90-7  
 Other Names  
 IUPAC  
 MFCD Number MFCD01740905  
 EC/EINECS  
 REACH Number

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

Research and Development

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

Fluorochem Ltd  
 Unit 14, Graphite Way  
 Hadfield  
 Derbyshire  
 SK13 1QH  
 United Kingdom

Telephone: +44(0)1457 860111  
 Fax number: +44(0)1457 892799  
 Email: MSDS@fluorochem.co.uk



## 4. Emergency telephone number

07855 268577

## 2. Hazards Identification

## 1. Classification of the substance or mixture

H225	Flam Liq. 2	R10, R11
H315	Skin Irrit. 2	R38
H319	Eye Irrit. 2	R36
H335	STOT SE 3a	R37

\* The risk codes have been generated using Annex VII of directive 67/548/EEC. Risk code combinations are not included.

## 2. Label elements

Signal Word **Danger**

## Hazard Statements

H225	Highly flammable liquid and vapour.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

## Precautionary Phrases

P210	Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P370 + P378	In case of fire: Use CO <sub>2</sub> , powder or sand for extinction.

### 3. Other Hazards

Additional precautionary phrases are located throughout the safety data sheet

## 3.Composition / Information on Ingredients

### 1. Substances

1,4-Difluorobutane

Assay:100% CAS Number :372-90-7

### 2. Mixtures

Not Relevant

## 4.First Aid Measures

### 1.Description of first aid measures

<i>Skin Contact</i>	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/ attention.
<i>Eye Contact</i>	If eye irritation persists: Get medical advice/attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
<i>Ingestion</i>	Induce vomiting and call for medical help.
<i>Inhalation</i>	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

### 2.Most important symptoms and effects

There may be irritation and redness.

### 3.Indication of any immediate medical attention

No additional measures required

## 5.Firefighting measures

### 1.Extinguishing Media

<i>Suitable</i>	In case of fire: Use CO <sub>2</sub> , powder or sand Carbon dioxide. Dry chemical powder. sand
<i>Unsuitable</i>	Do not use water.

### 2.Special Hazards arising from the substance or mixture

Highly flammable.  
In combustion emits toxic fumes of carbon dioxide / carbon monoxide.

### 3.Advice for Fire Fighters

Wear self-contained breathing apparatus.  
Wear protective clothing to prevent contact with skin and eyes.

## 6.Accidental Release Measures

### 1.Personnal Precautions

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Refer to section 8 of SDS for personal protection details.  
Eliminate all sources of ignition.

## 2.Environmental Precautions

Do not discharge into drains or rivers.

## 3.Methods & Materials

Mix with sand or vermiculite.  
Never add water to this product.  
Clean-up should be dealt with only by qualified personnel familiar with the specific substance.  
Transfer to a closable, labelled salvage container for disposal by an appropriate method.

## 7.Handling and Storage

### 1.Personnal Precautions

*Safe Handling*                      Ensure there is sufficient ventilation of the area.  
Smoking is forbidden.  
Wash handsoughly after handling.

*Protection against  
explosions and fires*              Take off contaminated clothing and wash before reuse.  
Take precautionary measures against static discharge.  
Use explosion-proof electrical/ventilating/lighting/.  
Use only non-sparking tools.

### 2.Conditions for safe storage, including any incompatibilities

*Managing Storage Risks*              Store in cool, well ventilated area.  
Keep away from sources of ignition.  
Keep container tightly closed.  
Avoid contact with water or humidity.  
Prevent the build up of electrostatic charge in the immediate area.  
Avoid incompatible materials and conditions - see section 10 of SDS.

*Storage Controls*                      No special requirements

*Maintaining Integrity*              Keep away from heat/sparks/open flames/hot surfaces. – No smoking.  
Keep container tightly closed.  
Keep cool.

*Other advice*                              Store in a well-ventilated place. Keep container tightly closed.

### 3.Specific End Uses

The end use(s) have not been fully determined. The substance is supplied for Research and Development purposes by professionals only.

## 8.Exposure Controls/Personal Protection

### 1. Control Parameters

No Data Available

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## 2.Exposure Controls

<i>General protective and hygiene measures</i>	Wear protective gloves/protective clothing/eye protection/face protection. .
<i>Engineering measures</i>	Use only outdoors or in a well-ventilated area.
<i>Eye / Face Protection</i>	Safety Glasses with side-shields.
<i>Hand protection</i>	Protective gloves.
<i>Respiratory protection</i>	Do not breathe dust/fume/gas/mist/vapours/spray. . Use breathing protection with high concentrations
<i>Skin protection</i>	Handle with gloves. Wash and dry hands. Protective clothing.
<i>Other personal protection advice</i>	no data

## 9.Physical and Chemical Properties

### 1. Physical and Chemical Properties

Appearance	Clear colourless volatile, mobile liquid
Odour	Not Applicable
Odour threshold	Not Applicable
PH	Not Applicable
Melting point / Freezing point	77.8°C
Initial boiling point and boiling range	Not Applicable
Flash point	Not Applicable
Evaporation rate	Not Applicable
Flammability(solid,gas)	Not Applicable
Upper/lower flammability or explosive limits	Not Applicable
Vapour pressure	Not Applicable
Vapour density	Not Applicable
Relative density	0.977
Solubility(ies):	Not Applicable
Partition coefficient: n-octanol/water	Not Applicable
Auto-ignition temperature	Not Applicable
Decomposition temperature	Not Applicable
Viscosity	Not Applicable
Explosive properties	Not Applicable
Oxidising properties	Not Applicable

### 2.Other Information

No additional information available

## 10.Stability and Reactivity

### 1.Reactivity

no unusual reactivity

### 2.Stability

Stable under normal conditions.

### 3.Possibility of Hazardous Reactions

no hazardous reactions known

### 4.Conditions to Avoid

no specific conditions to avoid

### 5.Incompatible Materials

Acids.  
Oxidising agents.

### 6.Hazardous Decomposition Products

In combustion emits toxic fumes of carbon dioxide / carbon monoxide.  
In combustion emits toxic fumes of hydrogen fluoride.

## 11.Toxicology information

### 1.Information

<i>Acute Toxicity</i>	no data
<i>Skin corrosion/irritation</i>	irritant for skin and mucous membranes
<i>Serious eye Damage/irritation</i>	irritant effect
<i>Respiratory or skin sensitisation</i>	No sensitizing effect known
<i>Germ Cell mutagenicity</i>	not known
<i>Carcinogenicity</i>	not known
<i>Reproductive toxicity</i>	not known
<i>STOT-single exposure</i>	not known
<i>STOT-repeated exposure</i>	not known
<i>Aspiration hazard</i>	not known

### 2.Additional

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.  
No classification data on carcinogenic properties of this material is available from the EPA, IARC,NTP,OSHA or ACGIH

## 12.Ecological Information

### 1.Toxicity

not known

### 2.Persistence and degradability

not known

### 3.Bio-Accumulative Potential

not known

## 4. Mobility and Soil

not known

## 5. Results of PBT & vPvB assessment

not known

## 6. Other adverse effects

Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.

## 13. Disposal Considerations

### 1. Waste Treatment Methods

*Disposal Operations*

*Disposal of Packaging*      Disposal must be made according to official regulations.

## 14. Transport Information

### Air (ICAO)

1.                                      **UN Number:** 1993
2.                      **UN proper shipping name:** Flammable liquid, n.o.s. «
3.                      **Transport hazard class(es):** Class: 3      Sub Class :



4.                                      **Packing group:** II
5.                                      **Environmental hazards:**
6.                      **Special Precautions for user:**
7.                                      **Transport in bulk:**

### Road (ADR)

1.                                      **UN Number:** 1993
2.                      **UN proper shipping name:** FLAMMABLE LIQUID, N.O.S. (vapour pressure at 50 °C not more than 110 kPa)
3.                      **Transport hazard class(es):** Class: 3      Sub Class :



4.                                      **Packing group:** II
5.                                      **Environmental hazards:**
6.                      **Special Precautions for user:** For the purposes of documentation and package marking, the Proper Shipping Name shall be supplemented with the technical name (see 3.1.2.8.1).
7.                                      **Transport in bulk:**

### Sea (IMDG)

1.                                      **UN Number:** 1993
2.                      **UN proper shipping name:** Flammable liquid, n.o.s. «
3.                      **Transport hazard class(es):** Class: 3      Sub Class :



4. **Packing group:** II
5. **Environmental hazards:**
6. **Special Precautions for user:** This substance, when containing less alcohol, water or phlegmatizer than specified, shall not be transported, unless specifically authorized by the competent authority.
7. **Transport in bulk:** IBCINS: IBC02  
UNTANKINS: T7  
TANKPROV: TP1 TP8 TP28

## 15. Safety, health and environmental regulations

### 1. Safety, health and environmental regulations:

product is not subject to any additional regulations or provisions

### 2. Safety Assessment

No Chemical Safety Assessment

## 16. Other Information

### 1. Other Information:

ADR: Accord Europeen sur le transport des marchandises Dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by road)  
RID: Reglement International concernant le transport des marchandises dangereuses par chemin de fer (Regulations concerning the International transport of Dangerous Goods by Rail)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
IATA-DGR: Dangerous Goods Regulations by the International Air Transport Association  
ICAO: International Civil Aviation Organization  
ICAO-TI: Technical Instructions by the ICAO  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
CAS: Chemical Abstracts Service

### 2. Associated risk phrases according to european directive 67/548/EEC

R10	Flammable.
R11	Highly flammable.
R36	Irritating to eyes.
R37	Irritating to respiratory system.
R38	Irritating to skin.

### 3. Disclaimer

The product listed is for research and development purposes only and not for human or animal use. As such, in most cases, the toxicological, ecological and physicochemical properties have not been fully determined and the product should be treated with respect and always handled under suitable conditions by appropriately qualified personnel. The responsible party shall use this datasheet only in conjunction with other sources of information gathered by them, and should make an independent judgement of suitability, to ensure proper use and protect the health and safety of employees. This information is furnished without warranty and any use of the product not in conformance with this material safety data sheet, or in combination with any other product or process, is the responsibility of the user.