


|   |                         |                           |
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| <b>Hexafluoro - 1, 3 - Butadiene</b>  |                         | <b>MTGxxx</b>             |

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

### 1.1. Product identifier

|                      |  |
|----------------------|--|
| Trade name           | Hexafluoro - 1, 3 - Butadiène  |
| Chemical description | Hexafluoro - 1, 3 – Butadiène; 1,1,2,3,4,4-hexafluorobuta-1,3-diene ; hexafluorobuta-1,3-diene |
| CAS N°               | 685-63-2   |
| CE N°                | 211-681-0  |
| Index N°             | -  |
| Registration n°      | Not available  |
| Chemical formula     | C <sub>4</sub> F <sub>6</sub>  |

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

|                          |  |
|--------------------------|--|
| Relevant identified uses | Industrial and professional<br>Test or calibration gas<br>Laboratory use<br>Chemical reaction / synthesis<br>Contact supplier for more information on uses |
| Uses advised against     | For use by industrial or professional users only   |

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

|                        |   |
|------------------------|---|
| Company identification | MULTIGAS<br>Route de l'Industrie 102<br>CH-1564 Domdidier |
| Phone number           | +41 (0) 26 676 94 94                                      |
| E-mail address         | <a href="mailto:info@multigas.ch">info@multigas.ch</a>    |

### 1.4. Emergency telephone numbers


145 (Toxicology Centre Zurich) or +41 (0) 44 251 51 51  
+41 (0) 26 676 94 94 (Multigas)

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

|                                      |      |
|--------------------------------------|------|
| Flammable gases, Category 1          | H220 |
| Gases under pressure : Liquefied gas | H280 |
| Acute toxicity - inhalation Cat. 3   | H331 |

|   |                         |                           |
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For the complete H-sentences texts mentioned in that chapter, refer to Section 16

## 2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

|                   |  |
|-------------------|--|
| Hazard pictograms |    |
|                   | GHS02      GHS04      GHS06  |
| Signal word       | Danger   |

### Hazard statements

|      |  |
|------|--|
| H220 | Extremely flammable gas                            |
| H280 | Contains gas under pressure; may explode if heated |
| H331 | Toxic if inhaled                                   |

### Precautionary statements

|                |  |
|----------------|--|
| P210           | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  |
| P260           | Do not breathe dust/fume/gas/mist/vapours/spray  |
| P304+P340+P315 | INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice/attention |
| P377           | Leaking gas fire: Do not extinguish, unless leak can be stopped safely   |
| P381           | In case of leakage, eliminate all ignition sources   |
| P410+403       | Protect from sunlight. Store in a well-ventilated place  |
| P405           | Store locked up  |

## 2.3. Other hazards

Contact with liquid may cause cold burns/frostbite

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

| Name                          | Product identifier   | Concentration | Classification   |
|-------------------------------|--|---------------|--|
| Hexafluoro - 1, 3 - butadiene | (CAS-No.) 685-63-2<br>(EC-No.) 211-681-0<br>(EC Index-No.) -<br>(Registration-No.) - | 100%          | Flam. Gas 1, H220<br>Acute Tox. 3, H331<br>Press. Gas (Liq.), H280 |

For the complete H-sentences texts mentioned in that chapter, refer to Section 16

Contains no other components or impurities which will influence the classification of the product

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### 3.2. Mixtures

Not established

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

|                                |   |
|--------------------------------|---|
| <b>General advice</b>          | See a doctor. Show this safety data sheet to the attending physician  |
| <b>In case of inhalation</b>   | In case of inhalation, remove the person from the contaminated area. In case of respiratory arrest, give artificial respiration. See a doctor |
| <b>In case of skin contact</b> | Remove contaminated clothing and shoes immediately. Wash with soap and plenty of water. Take victim immediately to hospital. See a doctor     |
| <b>In case of eyes contact</b> | Rinse thoroughly with plenty of water for at least 15 minutes and consult a doctor  |
| <b>In case of ingestion</b>    | Ingestion is not considered a possible route of exposure  |

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

Refer to section 11

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

May be fatal if inhaled  
Treat with a corticosteroid spray as soon as possible after inhalation  
Consult a doctor immediately

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

|                                       |  |
|---------------------------------------|--|
| <b>Suitable extinguishing media</b>   | Water spray or water mist. Dry powder. Foam          |
| <b>Unsuitable extinguishing media</b> | Carbon dioxide<br>Do not use water jet to extinguish |

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

|                                      |  |
|--------------------------------------|--|
| <b>Specific hazards</b>              | In case of fire or excessive heat, hazardous combustion products may be produced<br>Exposure to fire may cause containers to rupture/explode |
| <b>Hazardous combustion products</b> | In case of fire or excessive heat, hazardous combustion products may be produced such as : carbon monoxide, halogenated compounds            |

### 5.3. Additional information

Cool endangered receptacles with water spray jet from a protected position

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**SECTION 6: Accidental release measures**

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

Avoid breathing vapours, spray mists or gases  
 Provide adequate ventilation  
 Evacuate personnel to a safe place  
 Personal protective equipment, see section 8

**6.2. Environmental precautions**

Try to stop the leak  
 Decrease vapour by water spray in the form of fog or fine droplets

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

Ventilate the area  
 Keep area evacuated and free from ignition sources until any spilled liquid has evaporated (ground free from frost)

**6.4. Reference to other sections**

See also sections 8 and 13

**SECTION 7: Handling and storage**

**7.1. Precautions for safe handling**

Avoid contact with skin and eyes  
 Avoid breathing vapour or mist  
 Keep away from sources of ignition - No smoking  
 For precautions, see section 2.2

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

Store in a cool place. Keep container tightly closed in a dry and well-ventilated place  
 Content under pressure

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

None

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**SECTION 8: Exposure controls/personal protection**
**8.1. Control parameters**
**Components with occupational exposure limits**

| Component                | CAS N°   | Exposure value type | Control parameter | Source                               |
|--------------------------|----------|---------------------|-------------------|--------------------------------------|
| Hexafluoro-1,3-butadiene | 685-63-2 | TWA                 | -                 | No occupational exposure limit value |
|                          |          |                     | -                 |                                      |
|                          |          | OEL                 | -                 |                                      |
|                          |          |                     | -                 |                                      |

**8.2. Exposure controls**
**8.2.1. Appropriate engineering controls**

Provide adequate general and local exhaust ventilation  
Gas detectors should be used when flammable gases may be released

**8.2.2. Individual protection measures, e.g. personal protective equipment**
**Eye/face protection**

Wear goggles and a face shield when transfilling or breaking transfer connections. Standard EN 166

**Skin / hand protection**

Wear protective gloves when handling gas cylinders. Standard EN 388- Protective gloves against mechanical hazards  
Wear cold insulating gloves when transferring or disconnecting transfer lines Standard EN 511 - Insulating gloves against cold  
Wearing chemical resistant gloves Standard EN 374-Protective gloves against chemicals

**For short-term use**

Material: Fluoropren rubber

Glove thickness: 0.4 mm

Penetration time: 30 min

**For long-term use**

Material: Fluoroelastomer.

Glove thickness: 0.7 mm

Penetration time: 480 min

Have appropriate, chemical-resistant protective clothing ready for use in emergencies

**Respiratory protection**

Self-contained breathing apparatus (SCBA) or mask with positive pressure air supply must be used in oxygenated atmospheres. Standard EN 137

**8.2.3. Environmental exposure controls**

-

**Hexafluoro - 1, 3 - Butadiene**
**MTGxxx**
**SECTION 9: Physical and chemical properties**
**9.1. Information on basic physical and chemical properties**
**Appearance**

- **Physical state at 20°C / 101.3kPa** Gas
- **Colour** Colourless

**Odour** No data available

**Odour threshold** No data available

**pH** No data available

**Melting point / Freezing point** -132°C

**Boiling point** 6°C

**Flash point** No data available

**Evaporation rate** No data available

**Flammability (solid, gas)** No data available

**Explosive limits** 7 - 73 %

**Vapour pressure [20°C]** 1.94 bar

**Vapour pressure [50°C]** No data available

**Vapour density** No data available

**Relative density, liquid (water=1)** 1.4

**Relative density, gas (air=1)** 5.6

**Water solubility** No data available

**Partition coefficient** No data available

**n-octanol/water (Log Kow)**
**Auto-ignition temperature** No data available

**Decomposition temperature** No data available

**Viscosity** No data available

**Explosive properties** No data available

**Oxidising properties** No data available

**9.2. Other information**
**Molar mass** 162 g/mol

**Critical temperature [°C]** 139.6°C

**Relative vapour density** Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level

**Hexafluoro - 1, 3 - Butadiene**

**MTGxxx**

**SECTION 10: Stability and reactivity**

**10.1. Reactivity**

No reactivity hazard other than the effects described in sub-sections below

**10.2. Chemical stability**

Stable under recommended storage conditions

**10.3. Possibility of hazardous reactions**

Can form explosive mixture with air  
May react violently with oxidants

**10.4. Conditions to avoid**

Avoid moisture in the installation. Keep away from heat, hot surfaces, sparks, open flames and other sources of ignition. Do not smoke

**10.5. Incompatible materials**

Air, oxidizers  
For additional information on compatibility refer to ISO 11114

**10.6. Hazardous decomposition products**

Under normal conditions of storage and use, hazardous decomposition products should not be produced

**SECTION 11: Toxicological information**

**11.1. Chemical safety assessment**

|   |                           |
|---|---------------------------|
| <b>Acute toxicity</b>                         | No data available         |
| <b>Skin corrosion/irritation</b>              | No data available         |
| <b>Serious eye damage/irritation</b>          | No data available         |
| <b>Respiratory or skin sensitisation</b>      | No data available         |
| <b>Germ cell mutagenicity</b>                 | May cause genetic defects |
| <b>Carcinogenicity</b>                        | May cause cancer          |
| <b>Reproductive toxicity</b>                  | No data available         |
| <b>STOT-single exposure – Target organ(s)</b> | No data available         |
| <b>STOT-repeated exposure</b>                 | No data available         |
| <b>Ingestion hazard</b>                       | No data available         |

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### 11.2 Information on other hazards

The substance/mixture has no endocrine disrupting properties

## SECTION 12: Ecological information

### 12.1. Toxicity

**Assessment** Classification criteria are not met

### 12.2. Persistence and degradability

No data available

### 12.3. Bioaccumulative potential

No data available

### 12.4. Mobility in soil

No data available

### 12.5. Results of PBT and vPvB assessment

PBT / vPvB assessment is not available because the chemical safety assessment is not required / is not conducted

### 12.6. Endocrine-disrupting properties

The substance/mixture does not have endocrine disrupting properties

### 12.7. Other adverse effects

#### **Effect on the ozone layer**

Ozone depletion potential None

#### **Effect on global warming**

Global warming potential No known effects of this product

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

|                               |  |
|-------------------------------|--|
| <b>Product</b>                | Must not be discharged to atmosphere<br>Burn in a chemical incinerator equipped with an afterburner and scrubber |
| <b>Contaminated container</b> | Return unused product in original cylinder to supplier Contact the supplier if instructions are needed           |
| <b>OMoD Code</b>              | 16 05 04<br>Gases in pressurised containers (including halons) containing dangerous substances                   |



|   |                         |                           |
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**SECTION 14: Transport information**

**14.1. UN number**

| Transport par road/rail<br>ADR / RID | Transport by sea<br>IMDG | Transport by air<br>IATA |
|--------------------------------------|--------------------------|--------------------------|
| 3160                                 | 3160                     | 3160                     |

**14.2. UN proper shipping name**

| Transport par road/rail<br>ADR / RID   | Transport by sea<br>IMDG   | Transport by air<br>IATA   |
|--|--|--|
| LIQUEFIED GAS, TOXIC,<br>FLAMMABLE, N.O.S.(1,1,2,3,4,4-<br>Hexafluorobuta-1,3-diene) | LIQUEFIED GAS, TOXIC,<br>FLAMMABLE, N.O.S.(1,1,2,3,4,4-<br>Hexafluorobuta-1,3-diene) | LIQUEFIED GAS, TOXIC,<br>FLAMMABLE, N.O.S.(1,1,2,3,4,4-<br>Hexafluorobuta-1,3-diene) |

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

Labelling



ADR/RID  
IMDG  
IATA

2.1 : Flammable gases  
2.3: Toxic gases

**14.4. Packing group**

ADR/RID  
IMDG  
IATA

Not established

**14.5. Environmental hazards**

ADR/RID

None

IMDG

None

ICAO-TI / IATA-DGR

None

**14.6. Special precautions for user**

No data available

**14.7. Transport in bulk according to Annex II of Marpol and the IBC Code**

Not applicable

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**SECTION 15: Regulatory information**

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

This safety data sheet complies with the requirements of Regulation (CE) No. 1907/2006

**15.2. Chemical safety assessment**

No chemical risk assessment (CSA) has been done for this product

**SECTION 16: Other information**

|                                   |  |
|-----------------------------------|--|
| <b>Indication of changes</b>      | Revised safety data sheet in accordance with commission regulation (EU) No 2015/830  |
| <b>Abbreviations and acronyms</b> | <p>ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road</p> <p>CAS : Chemical Abstract Service number (USA)</p> <p>CLP : Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008</p> <p>CSA : Chemical Safety Assessment</p> <p>EIGA : European Industrial Gases Association</p> <p>EINECS : European Inventory of Existing Commercial Chemical Substances</p> <p>EN : European Standard</p> <p>ATE : Acute Toxicity Estimate</p> <p>IATA : International Air Transport Association</p> <p>IMDG Code : International Maritime Dangerous Goods Code</p> <p>LC50 : Lethal Concentration to 50 % of a test population</p> <p>OMoD : Swiss Ordinance on the movement of waste</p> <p>PBT : Persistent, Bioaccumulative and Toxic</p> <p>PPE: Personal Protection Equipment</p> <p>REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006</p> <p>RID : Regulations concerning the international carriage of dangerous goods by rail</p> <p>RMM : Risk Management Measures</p> <p>STOT-SE : Specific Target Organ Toxicity - Single Exposure</p> <p>UN : United Nations</p> <p>vPvB : Very Persistent and Very Bioaccumulative</p> <p>WGK: Water Hazards Class</p> |

**Full text of H, EUH and P statements used in sections 2 and 3**

**Hazard statements**

H220

Extremely flammable gas

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H280 Contains gas under pressure; may explode if heated

H331 Toxic if inhaled

**Precautionary statements**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

P260 Do not breathe dust/fume/gas/mist/vapours/spray

P304+P340+P315 INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice/attention

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely

P381 In case of leakage, eliminate all ignition sources

P410+403 Protect from sunlight. Store in a well-ventilated place

P405 Store locked up

**Disclaimer of liability**

Details given in this document have been prepared based on the most available reliable documents and are believed to be correct at the time of going to press

They do not claim to be exhaustive and should be considered as a guide