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

1.1 Product identifier
   
   **Product name:** C2H4F2 18.587 %; C2HClF4 23.527 %; CHClF2 57.885 %
   
   **Other Name:** HFC-152a 13 (w/w) %; HCFC-124 34 (w/w) %; HCFC-22 53 (w/w) %; R 401A

1.2 Relevant identified uses of the substance or mixture and uses advised against
   
   **Identified uses:** Industrial and professional. Perform risk assessment prior to use.
   **Uses advised against:** Consumer use.

1.3 Details of the supplier of the safety data sheet
   
   **Supplier:** BOC
   Priestley Road, Worsley
   M28 2UT Manchester
   
   **Telephone:** 0800 111 333
   
   **E-mail:** ReachSDS@boc.com

1.4 Emergency telephone number: 0800 111 333

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

   **Classification according to Directive 67/548/EEC or 1999/45/EC as amended.**
   
   N; R59

   The full text for all R-phrases is displayed in section 16.

   **Classification according to Regulation (EC) No 1272/2008 as amended.**

   **Physical Hazards**
   - Gases under pressure
   - Liquefied gas
   - H280: Contains gas under pressure; may explode if heated.

   **Environmental Hazards**
   - Hazardous to the ozone layer
   - Category 1
   - H420: Harms public health and the environment by destroying ozone in the upper atmosphere.

2.2 Label Elements

   **Signal Words:** Warning

SDS_GB - 000010030456
Hazard Statement(s): H280: Contains gas under pressure; may explode if heated.  
H420: Harms public health and the environment by destroying ozone in the upper atmosphere.

Precautionary Statements

Prevention: None.

Response: None.

Storage: P403: Store in a well-ventilated place.

Disposal: None.

Supplemental label information

EI GA-0783: Contains fluorinated greenhouse gases 
EI GA-As: Asphyxi ant in high concentrations.

2.3 Other hazards: Contact with evaporating liquid may cause frostbite or freezing of skin.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Chemical formula</th>
<th>Concentration</th>
<th>CAS-No.</th>
<th>EC No.</th>
<th>REACH Registration No.</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Chloro-1,2,2,2-tetrafluoroethane</td>
<td>C2HClF4</td>
<td>23.5270%</td>
<td>2837-89-0</td>
<td>220-629-6</td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td>1,1-Difluoroethane</td>
<td>C2H4F2</td>
<td>18.5870%</td>
<td>75-37-6</td>
<td>200-866-1</td>
<td>01-2119474440-43</td>
<td></td>
</tr>
<tr>
<td>Chlorodifluoromethane</td>
<td>CHClF2</td>
<td>57.8850%</td>
<td>75-45-6</td>
<td>200-871-9</td>
<td>01-2119517587-31</td>
<td>#</td>
</tr>
</tbody>
</table>

The concentrations of the components in the SDS header, product name on page one and in section 3.2 are in mol due to regulatory requirements.

All concentrations are nominal.

# This substance has workplace exposure limit(s).

PBT: persistent, bioaccumulative and toxic substance.

vPvB: very persistent and very bioaccumulative substance.

Classification

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Classification</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Chloro-1,2,2,2-tetrafluoroethane</td>
<td>DSD: N, R59</td>
<td></td>
</tr>
<tr>
<td>CLP: Press. Gas Liquef. Gas; H280, Ozone 1, H420</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,1-Difluoroethane</td>
<td>DSD: F++; R12</td>
<td></td>
</tr>
<tr>
<td>Chlorodifluoromethane</td>
<td>DSD: N, R59</td>
<td></td>
</tr>
<tr>
<td>CLP: Ozone 1, H420, Press. Gas Liquef. Gas; H280</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DSD: Directive 67/548/EEC.  

The full text for all R-phrases and H-statements is displayed in section 16.
SECTION 4: First Aid Measures

General: In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

4.1 Description of first aid measures
Inhalation: In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

Eye contact: Rinse the eye with water immediately. Remove contact lenses, if present and easy to do. Continue rinsing. Flush thoroughly with water for at least 15 minutes. Get immediate medical assistance. If medical assistance is not immediately available, flush an additional 15 minutes.

Skin Contact: Contact with evaporating liquid may cause frostbite or freezing of skin.

Ingestion: Ingestion is not considered a potential route of exposure.

4.2 Most important symptoms and effects, both acute and delayed: Respiratory arrest. Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling.

4.3 Indication of any immediate medical attention and special treatment needed
Hazards: Respiratory arrest. Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling.

Treatment: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.

SECTION 5: Firefighting Measures

General Fire Hazards: Heat may cause the containers to explode.

5.1 Extinguishing media
Suitable extinguishing media: Material will not burn. In case of fire in the surroundings: use appropriate extinguishing agent.

Unsuitable extinguishing media: None.

5.2 Special hazards arising from the substance or mixture: No data available.
SAFETY DATA SHEET
C2H4F2 18.587 %; C2HClF4 23.527 %; CHClF2 57.885 %

Issue Date: 08.02.2016  Version: 1.1  SDS No.: 000010030456
Last revised date: 22.05.2017  4/15

Hazardous Combustion Products: If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: Hydrogen fluoride
; Hydrogen chloride
; carbon monoxide
; phosgene; carbonyl chloride
; Carbonyl difluoride

5.3 Advice for firefighters
Special fire fighting procedures: In case of fire: Stop leak if safe to do so. Continue water spray from protected position until container stays cool. Use extinguishants to contain the fire. Isolate the source of the fire or let it burn out.

Special protective equipment for firefighters: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Guideline: EN 469 Protective clothing for firefighters. Performance requirements for protective clothing for firefighting. EN 15090 Footwear for firefighters. EN 659 Protective gloves for firefighters. EN 443 Helmets for fire fighting in buildings and other structures. EN 137 Respiratory protective devices - Self-contained open-circuit compressed air breathing apparatus with full face mask - Requirements, testing, marking.

SECTION 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures: Evacuate area. Provide adequate ventilation. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. EN 137 Respiratory protective devices - Self-contained open-circuit compressed air breathing apparatus with full face mask - Requirements, testing, marking.

6.2 Environmental Precautions: Prevent further leakage or spillage if safe to do so.

6.3 Methods and material for containment and cleaning up: Provide adequate ventilation.

6.4 Reference to other sections: Refer to sections 8 and 13.
SAFETY DATA SHEET

C2H4F2 18.587 %; C2HClF4 23.527 %; CHClF2 57.885 %

Issue Date: 08.02.2016  Last revised date: 22.05.2017
Version: 1.1  SDS No.: 000010030456

SECTION 7: Handling and Storage:

7.1 Precautions for safe handling: Only experienced and properly instructed persons should handle gases under pressure. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Refer to supplier’s handling instructions. The substance must be handled in accordance with good industrial hygiene and safety procedures. Protect containers from physical damage; do not drag, roll, slide or drop. Do not remove or deface labels provided by the supplier for the identification of the container contents. When moving containers, even for short distances, use appropriate equipment eg. trolley, hand truck, fork truck etc. Secure cylinders in an upright position at all times, close all valves when not in use. Provide adequate ventilation. Suck back of water into the container must be prevented. Do not allow backfeed into the container. Avoid suckback of water, acid and alkalies. Keep container below 50°C in a well-ventilated place. Observe all regulations and local requirements regarding storage of containers. When using do not eat, drink or smoke. Store in accordance with local/regional/national/international regulations. Never use direct flame or electrical heating devices to raise the pressure of a container. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. Damaged valves should be reported immediately to the supplier. Close container valve after each use and when empty, even if still connected to equipment. Never attempt to repair or modify container valves or safety relief devices. Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment. Keep container valve outlets clean and free from contaminates particularly oil and water. If user experiences any difficulty operating container valve discontinue use and contact supplier. Never attempt to transfer gases from one container to another. Container valve guards or caps should be in place.

7.2 Conditions for safe storage, including any incompatibilities: Containers should not be stored in conditions likely to encourage corrosion. Stored containers should be periodically checked for general conditions and leakage. Container valve guards or caps should be in place. Store containers in location free from fire risk and away from sources of heat and ignition. Keep away from combustible material.

7.3 Specific end use(s): None.

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>type</th>
<th>Exposure Limit Values</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorodifluoromethane</td>
<td>TWA</td>
<td>1,000 ppm 3,590 mg/m³</td>
<td>UK. EH40 Workplace Exposure Limits (WELs) (2011)</td>
</tr>
</tbody>
</table>
8.2 Exposure controls

**Appropriate engineering controls:**
Consider a work permit system e.g. for maintenance activities. Ensure adequate air ventilation. Oxygen detectors should be used when asphyxiating gases may be released. Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded. Systems under pressure should be regularly checked for leakages. Preferably use permanent leak tight connections (e.g. welded pipes). Do not eat, drink or smoke when using the product.

**Individual protection measures, such as personal protective equipment**

**General information:**
A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered. Keep self contained breathing apparatus readily available for emergency use. Personal protective equipment for the body should be selected based on the task being performed and the risks involved.

**Eye/face protection:**
Safety eyewear, goggles or face-shield to EN166 should be used to avoid exposure to liquid splashes. Wear eye protection to EN 166 when using gases. Guideline: EN 166 Personal Eye Protection.
SAFETY DATA SHEET
C2H4F2 18,587 %; C2HClF4 23,527 %; CHClF2 57,885 %

Issue Date: 08.02.2016  Last revised date: 22.05.2017  Version: 1.1  SDS No.: 000010030456 7/15

Skin protection
Hand Protection: Wear working gloves while handling containers
Guideline: EN 388 Protective gloves against mechanical risks.

Body protection: No special precautions.

Other: Wear safety shoes while handling containers
Guideline: ISO 20345 Personal protective equipment - Safety footwear.

Respiratory Protection: Not required.

Thermal hazards: No precautionary measures are necessary.

Hygiene measures: Specific risk management measures are not required beyond good industrial hygiene and safety procedures. Do not eat, drink or smoke when using the product.

Environmental exposure controls: For waste disposal, see section 13.

SECTION 9: Physical And Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance
Physical state: Gas
Form: Liquefied gas
Colour: C2HClF4, CHClF3: Colorless
C2H4F2, C2H4F2 (Structure: CH3CHF2): Colorless
CHClF2: Colorless

Odour: C2HClF4, CHClF3: Ethereal odor
C2H4F2, C2H4F2 (Structure: CH3CHF2): Odorless
CHClF2: Faint sweetish odor

Odour Threshold: Odour threshold is subjective and is inadequate to warn of over exposure.

pH: not applicable.

Melting Point: No data available.
Boiling Point: -33.1 °C
Sublimation Point: not applicable.
Critical Temp. (°C): No data available.
Flash Point: Not applicable to gases and gas mixtures.
Evaporation Rate: Not applicable to gases and gas mixtures.

Flammability (solid, gas): Non-Flammable Gas
Flammability limit – upper (%): not applicable.
Flammability limit – lower(%): not applicable.

Vapour pressure: 5.7 bar
Vapour density (air=1): 3.32 (calculated) (15 °C)

Relative density: No data available.

Solubility(ies)

SDS_GB - 000010030456
SAFETY DATA SHEET
C2H4F2 18.587 %; C2HClF4 23.527 %; CHClF2 57.885 %

Issue Date: 08.02.2016  Version: 1.1  Last revised date: 22.05.2017  SDS No.: 000010030456  8/15

Solubility in Water: No data available.
Partition coefficient (n-octanol/water): Not known.
Autoignition Temperature: Not applicable.
Decomposition Temperature: Not known.
Viscosity
  Kinematic viscosity: No data available.
  Dynamic viscosity: No data available.
Explosive properties: Not applicable.
Oxidising Properties: Not applicable.

9.2 Other information: Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

SECTION 10: Stability and Reactivity

10.1 Reactivity: No reactivity hazard other than the effects described in sub-section below.
10.2 Chemical Stability: Stable under normal conditions.
10.3 Possibility of Hazardous Reactions: May react with aluminium.
10.4 Conditions to Avoid: None.
10.5 Incompatible Materials: Alkali metals.
10.6 Hazardous Decomposition Products: Under normal conditions of storage and use, hazardous decomposition products should not be produced. Thermal decomposition yields toxic products which can be corrosive in the presence of moisture.

SECTION 11: Toxicological Information

General information: None.

11.1 Information on toxicological effects

Acute toxicity - Oral Product  Based on available data, the classification criteria are not met.

Acute toxicity - Dermal Product  Based on available data, the classification criteria are not met.

Acute toxicity - Inhalation Product  Based on available data, the classification criteria are not met.

Component information
1,1-Difluoroethane  LC 50 (Rat, 4 h): > 437500 ppm Remarks: Gas Experimental result, Key study
SAFETY DATA SHEET
C2H4F2 18.587 %; C2HClF4 23.527 %; CHClF2 57.885 %

Issue Date: 08.02.2016  Version: 1.1  SDS No.: 000010030456
Last revised date: 22.05.2017  9/15

Chlorodifluoromethane

Repeated dose toxicity
Component information
1,1-Difluoroethane

NOAEL (Rat(Female, Male), Inhalation, 104 Weeks): 2.5 % (m) inhalation
Experimental result, Key study

Skin Corrosion/Irritation
Product

Based on available data, the classification criteria are not met.

Serious Eye Damage/Eye Irritation
Product

Based on available data, the classification criteria are not met.

Component information
Chlorodifluoromethane
Not irritating

Respiratory or Skin Sensitisation
Product

Based on available data, the classification criteria are not met.

Germ Cell Mutagenicity
Product

Based on available data, the classification criteria are not met.

Carcinogenicity
Product

Based on available data, the classification criteria are not met.

Reproductive toxicity
Product

Based on available data, the classification criteria are not met.

Specific Target Organ Toxicity - Single Exposure
Product

Based on available data, the classification criteria are not met.

Specific Target Organ Toxicity - Repeated Exposure
Product

Based on available data, the classification criteria are not met.

Aspiration Hazard
Product

Not applicable to gases and gas mixtures.

Other Relevant Toxicity Information
Chlorodifluoromethane
Cardiac sensitisation threshold limit
50000 ppm
May produce irregular heart beat and nervous symptoms.
SECTION 12: Ecological Information

12.1 Toxicity

Acute toxicity
Product
No ecological damage caused by this product.

Acute toxicity - Fish
Component information
1,1-Difluoroethane LC 50 (Various, 96 h): 295.783 mg/l (QSAR) Remarks: QSAR QSAR, Key study
LC 50 (Fish, 96 h): 296 mg/l
Chlorodifluoromethane EC 50 (Fish, 96 h): 433 mg/l

Acute toxicity - Aquatic Invertebrates
Component information
1,1-Difluoroethane LC 50 (Daphnid, 48 h): 269.8 mg/l (QSAR) Remarks: QSAR QSAR, Supporting study
EC 50 (Water flea (Daphnia magna), 48 h): 147 mg/l
Chlorodifluoromethane EC 50 (Water flea (Daphnia magna), 48 h): 433 mg/l

Toxicity to aquatic plants
Component information
Chlorodifluoromethane EC 50 (Alga, 72 h): 3,776 mg/l

12.2 Persistence and Degradability
Product
Not applicable to gases and gas mixtures.

12.3 Bioaccumulative Potential
Product
The subject product is expected to biodegrade and is not expected to persist for long periods in an aquatic environment.

12.4 Mobility in Soil
Product
Because of its high volatility, the product is unlikely to cause ground or water pollution.

Component information
1-Chloro-1,2,2,2-tetrafluoroethane Henry's Law Constant: 7.851 MPa
Chlorodifluoromethane Henry's Law Constant: 227.7 MPa (22 °C)

12.5 Results of PBT and vPvB assessment
Product
Not classified as PBT or vPvB.
12.6 Other Adverse Effects:

Global Warming Potential

Global warming potential: 1,182.4
Contains fluorinated greenhouse gases. When discharged in large quantities may contribute to the greenhouse effect. For GWP value of mixture and quantities, refer to container label.

Component information

1,1-Difluoroethane
EU Annexes I, II (F-gases subject to emission limits/reporting), IV (GWPs for mixture calculations), Reg. 517/2014/EU on fluorinated greenhouse gases
- Global warming potential: 124 Annex 1. Fluorinated greenhouse gases referred to in Point 1 of Article 2; Section 1: Hydrofluorocarbons (HFCs) and its mixtures

1-Chloro-1,2,2,2-tetrafluoroethane
UN / IPCC, Greenhouse Gas Global Warming Potentials (IPCC Fourth Assessment Report, Climate Change, Table 15.2)
- Global warming potential: 609 100-yr

Chlorodifluoromethane
UN / IPCC, Greenhouse Gas Global Warming Potentials (IPCC Fourth Assessment Report, Climate Change, Table 15.2)
- Global warming potential: 1810 100-yr

Ozone Depleting Potential

May have a damaging effect on the ozone layer.

Component information

1-Chloro-1,2,2,2-tetrafluoroethane
EU Regulation 1005/2009/EC on substances that deplete the ozone layer, Annex I, Controlled Substances
- Ozone Depletion Potential: 0.022 Group VIII

Chlorodifluoromethane
EU Regulation 1005/2009/EC on substances that deplete the ozone layer, Annex I, Controlled Substances
- Ozone Depletion Potential: 0.055 Group VIII

SECTION 13: Disposal Considerations

13.1 Waste treatment methods

General information:
Must not be discharged to atmosphere. Refer to manufacturer/supplier for information on recovery/recycling.

Disposal methods:
Refer to the EIGA code of practice (Doc.30 “Disposal of Gases”, downloadable at http://www.eiga.org) for more guidance on suitable disposal methods. Dispose of container via supplier only. Discharge, treatment, or disposal may be subject to national, state, or local laws.

European Waste Codes

Container: 14 06 01*: chlorofluorocarbons, HCFC, HFC
SAFETY DATA SHEET
C2H4F2 18.587 %; C2HClF4 23.527 %; CHClF2 57.885 %

Issue Date: 08.02.2016  Version: 1.1  SDS No.: 000010030456
Last revised date: 22.05.2017  12/15

SECTION 14: Transport Information

ADR
14.1 UN Number: UN 3163
14.2 UN Proper Shipping Name: LIQUEFIED GAS, N.O.S. (Chlorodifluoromethane, 1,1-Difluoroethane)
14.3 Transport Hazard Class(es)
   Class: 2
   Label(s): 2.2
   Hazard No. (ADR): 20
   Tunnel restriction code: (C/E)
14.4 Packing Group: –
14.5 Environmental hazards: not applicable
14.6 Special precautions for user: –

RID
14.1 UN Number: UN 3163
14.2 UN Proper Shipping Name: LIQUEFIED GAS, N.O.S. (Chlorodifluoromethane, 1,1-Difluoroethane)
14.3 Transport Hazard Class(es)
   Class: 2
   Label(s): 2.2
14.4 Packing Group: –
14.5 Environmental hazards: not applicable
14.6 Special precautions for user: –

IMDG
14.1 UN Number: UN 3163
14.2 UN Proper Shipping Name: LIQUEFIED GAS, N.O.S. (Chlorodifluoromethane, 1,1-Difluoroethane)
14.3 Transport Hazard Class(es)
   Class: 2.2
   Label(s): 2.2
   EmS No.: F-C, S-V
14.3 Packing Group: –
14.5 Environmental hazards: not applicable
14.6 Special precautions for user: –

IATA
14.1 UN Number: UN 3163
14.2 Proper Shipping Name: Liquefied gas, n.o.s. (Chlorodifluoromethane, 1,1-Difluoroethane)
14.3 Transport Hazard Class(es):
   Class: 2.2
   Label(s): 2.2
14.4 Packing Group: –
14.5 Environmental hazards: not applicable
14.6 Special precautions for user:
   Other Information
   Passenger and cargo aircraft: Allowed.
   Cargo aircraft only: Allowed.

SDS_GB - 000010030456
14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code: not applicable

Additional identification: Avoid transport on vehicles where the load space is not separated from the driver’s compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers ensure that they are firmly secured. Ensure that the container valve is closed and not leaking. Container valve guards or caps should be in place. Ensure adequate air ventilation.

SECTION 15: Regulatory information

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

EU Regulations

Regulation (EC) No. 2037/2000 Substances that deplete the ozone layer:

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorodifluoromethane</td>
<td>75-45-6</td>
<td>50 - 60%</td>
</tr>
<tr>
<td>1-Chloro-1,2,2,2-tetrafluoroethane</td>
<td>2837-89-0</td>
<td>20 - 30%</td>
</tr>
</tbody>
</table>

Directive 96/61/EC: concerning integrated pollution prevention and control (IPPC): Article 15, European Pollution Emission Registry (EPER):

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorodifluoromethane</td>
<td>75-45-6</td>
<td>50 - 60%</td>
</tr>
<tr>
<td>1-Chloro-1,2,2,2-tetrafluoroethane</td>
<td>2837-89-0</td>
<td>20 - 30%</td>
</tr>
</tbody>
</table>

National Regulations


This Safety Data Sheet has been produced to comply with Regulation (EU) 453/2010.

15.2 Chemical safety assessment: No Chemical Safety Assessment has been carried out.
SAFETY DATA SHEET
C2H4F2 18.587 %; C2HClF4 23.527 %; CHClF2 57.885 %

Issue Date: 08.02.2016  Version: 1.1  SDS No.: 000010030456
Last revised date: 22.05.2017  14/15

SECTION 16: Other Information

Revision Information: Not relevant.

Key literature references and sources for data:
Various sources of data have been used in the compilation of this SDS, they include but are not exclusive to:
- Agency for Toxic Substances and Diseases Registry (ATSDR) (http://www.atsdr.cdc.gov/).
- European Industrial Gases Association (EiGA) Doc. 169 Classification and Labelling guide.
- International Programme on Chemical Safety (http://www.inchem.org/)
- ISO 10156:2010 Gases and gas mixtures - Determination of fire potential and oxidising ability for the selection of cylinder valve outlets.
- The ESIS (European chemical Substances Information System) platform of the former European Chemicals Bureau (ECB) ESIS (http://ecb.jrc.ec.europa.eu/esis/).
- The European Chemical Industry Council (CEFIC) ERICards.
- Threshold Limit Values (TLV) from the American Conference of Governmental Industrial Hygienists (ACGIH).
- Substance specific information from suppliers.
- Details given in this document are believed to be correct at the time of publication.
- EH40 (as amended) Workplace exposure limits.

Wording of the R-phrases and H-statements in sections 2 and 3

H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.
H420 Harms public health and the environment by destroying ozone in the upper atmosphere.
R12 Extremely flammable.
R59 Dangerous for the ozone layer.

Training information: Users of breathing apparatus must be trained. The hazard of asphyxiation is often overlooked and must be stressed during operator training. Ensure operators understand the hazards.

Classification according to Regulation (EC) No 1272/2008 as amended.
Press. Gas Liq. Gas, H280
Ozone 1, H420
SAFETY DATA SHEET
C2H4F2 18.587 %; C2HClF4 23.527 %; CHClF2 57.885 %

Issue Date: 08.02.2016
Last revised date: 22.05.2017

Other information:
Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out. Ensure adequate air ventilation. Ensure all national/local regulations are observed. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted. Note: When the Product Name appears in the SDS header the decimal sign and its position comply with rules for the structure and drafting of international standards, and is a comma on the line. As an example 2,000 is two (to three decimal places) and not two thousand, whilst 1.000 is one thousand and not one (to three decimal places).

Last revised date:
22.05.2017

Disclaimer:
This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.