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

1.1 Product identifier

Product name: C3H8 2 %; CHClF2 38 %; C2HF5 60 %

Trade name: Gasart 543 R402A

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: Linde Gas GmbH
Carl-von-Linde-Platz 1
A-4651 Stadl-Paura

Telephone: +43 50 4273

E-mail: office@at.linde-gas.com

1.4 Emergency telephone number: Emergency number Linde: + 43 50 4273 (during business hours), Poisoning Information Center: +43 1 406 43 43

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.

F+; R12 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

| Flammable gas | Category 1 | H220: Extremely flammable gas. |
| Gases under pressure | Compressed 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: Danger

Hazard Statement(s): 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.

Precautionary Statement
Prevention: P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Response: P377: Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381: Eliminate all ignition sources if safe to do so.
Storage: P403: Store in a well-ventilated place.
Disposal: None.

Supplemental label information
EIGA-0783: Contains fluorinated greenhouse gases covered by the Kyoto protocol.

2.3 Other hazards: None.

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>Pentafluoroethane</td>
<td>C2HF5</td>
<td>60%</td>
<td>354-33-6</td>
<td>206-557-8</td>
<td>01-2119485636-25</td>
<td></td>
</tr>
<tr>
<td>Propane</td>
<td>C3H8</td>
<td>2%</td>
<td>74-98-6</td>
<td>200-827-9</td>
<td>01-2119486944-21</td>
<td>#</td>
</tr>
<tr>
<td>Chlorodifluoromethane</td>
<td>CHClF2</td>
<td>38%</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.
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: Adverse effects not expected from this product.

Skin Contact: Adverse effects not expected from this product.

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

4.2 Most important symptoms and effects, both acute and delayed: Respiratory arrest.

4.3 Indication of any immediate medical attention and special treatment needed

Hazards: None.

Treatment: None.
SECTION 5: Firefighting measures

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

5.1 Extinguishing media
Unsuitable extinguishing media: Carbon Dioxide.

5.2 Special hazards arising from the substance or mixture: Incomplete combustion may form carbon monoxide.

5.3 Advice for firefighters
Special fire fighting procedures: In case of fire: Stop leak if safe to do so. Do not extinguish flames at leak because possibility of uncontrolled explosive reignition exists. 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 fire-fighters: 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. Consider the risk of potentially explosive atmospheres. Eliminate all ignition sources if safe to do so. Monitor the concentration of the released product. 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. Eliminate sources of ignition.

6.4 Reference to other sections: Refer to sections 8 and 13.
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. Purge system with dry inert gas (e.g. helium or nitrogen) before gas is introduced and when system is placed out of service. Purge air from system before introducing gas. Containers, which contain or have contained flammable or explosive substances, must not be inerted with liquid carbon dioxide. Assess the risk of a potentially explosive atmosphere and the need for suitable equipment i.e. explosion-proof. Take precautionary measures against static discharges. Keep away from ignition sources (including static discharges). Provide electrical earthing of equipment and electrical equipment usable in explosive atmospheres. Use only non-sparking tools. Refer to supplier's handling instructions. The substance must be handled in accordance with good industrial hygiene and safety procedures. Ensure the complete system has been (or is regularly) checked for leaks before use. 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 alkalis. 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:

All electrical equipment in the storage areas should be compatible with the risk of a potentially explosive atmosphere. Segregate from oxidant gases and other oxidants being stored. 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></td>
<td>MAK</td>
<td>500 ppm 1.800 mg/m³</td>
<td>Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/ 2001 (09 2007)</td>
</tr>
<tr>
<td></td>
<td>MAK CEIL</td>
<td>1.000 ppm 3.600 mg/m³</td>
<td>Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/ 2001 (09 2007)</td>
</tr>
<tr>
<td>propane</td>
<td>MAK</td>
<td>1.000 ppm 1.800 mg/m³</td>
<td>Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/ 2001 (09 2007)</td>
</tr>
<tr>
<td></td>
<td>MAK CEIL</td>
<td>2.000 ppm 3.600 mg/m³</td>
<td>Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/ 2001 (09 2007)</td>
</tr>
</tbody>
</table>

DNEL-Values

<table>
<thead>
<tr>
<th>Critical component</th>
<th>type</th>
<th>Value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentafluoroethane</td>
<td>Worker - inhalative, long- term - systemic</td>
<td>16444 mg/m³</td>
<td>-</td>
</tr>
</tbody>
</table>
## PNEC-Values

<table>
<thead>
<tr>
<th>Critical component</th>
<th>type</th>
<th>Value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentfluoroethane</td>
<td>Aquatic (intermit. releases)</td>
<td>1 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aquatic (freshwater)</td>
<td>0,1 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sediment (freshwater)</td>
<td>0,6 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Chlorodifluoromethane</td>
<td>Aquatic (marine water)</td>
<td>0,038 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>freshwater</td>
<td>0,378 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aquatic (intermit. releases)</td>
<td>3,786 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>marine water</td>
<td>0,038 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sediment (freshwater)</td>
<td>0,134 mg/kg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>freshwater - intermittent</td>
<td>3,786 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aquatic (freshwater)</td>
<td>0,378 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>freshwater sediment</td>
<td>1,871 mg/kg dry weight</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Sediment (marine water)</td>
<td>0,187 mg/kg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>marine sediment</td>
<td>0,187 mg/kg dry weight</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Sediment (freshwater)</td>
<td>1,871 mg/kg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>soil</td>
<td>0,134 mg/kg dry weight</td>
<td>-</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. Provide adequate general and local exhaust ventilation. Keep concentrations well below lower explosion limits. Gas detectors should be used when quantities of flammable gases or vapours 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. Product to be handled in a closed system. Only use permanent leak tight installations (e.g. welded pipes). Take precautionary measures against static discharges.

**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. Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment. Do not eat, drink or smoke when using the product.
SAFETY DATA SHEET
C3H8 2 %;CHClF2 38 %;C2HF5 60 %


Skin protection


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 of the SDS.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state: Gas
Form: Compressed gas
Color:
- C2HF5, CHF2CF3: Colorless
- C3H8: Colorless
- CHOF2: Colorless

Odor:
- C2HF5, CHF2CF3: Ethereal odor
- C3H8: Odorless
- CHOF2: Faint sweetish odor

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

pH: not applicable.
Melting Point: No data available.
Boiling Point: No data available.
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): Flammable Gas

SDS_AT - 000010024739
SAFETY DATA SHEET  
C3H8 2 %; CHClF2 38 %; C2HF5 60 %

Issue Date: 11.06.2015  
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Version: 1.0  
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Flammability Limit - Upper (%): not applicable.  
Flammability Limit - Lower (%): not applicable.  
Vapor pressure: No reliable data available.  
Vapor density (air=1): 3.72 (calculated) (15 °C)  
Relative density: No data available.  
Solubility(ies)  
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.  
Oxidizing 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: Can form a potentially explosive atmosphere in air. May react violently with oxidants.  
10.4 Conditions to Avoid: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
10.5 Incompatible Materials: Air and oxidizers. For material compatibility see latest version of 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

General information: None.

11.1 Information on toxicological effects

Acute toxicity - Oral Product  
Based on available data, the classification criteria are not met.
SAFETY DATA SHEET
C3H8 2 %; CHClF2 38 %; C2HF5 60 %

Issue Date: 11.06.2015
Last revised date: 26.06.2015
Version: 1.0
SDS No.: 000010024739

Acute toxicity - Dermal
Product

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

Acute toxicity - Inhalation
Product

Not classified for acute toxicity based on available data.

Component Information
Chlorodifluoromethane
LC 50 (Rat, 4 h): >250000 ppm
Remarks: Inhalation

Repeated dose toxicity
Component Information
Pentafluoroethane
NOEC (Rabbit(Male)): 500 ppm
NOEC (Rabbit(Female)): 1000 ppm

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 Sensitization
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.
SAFETY DATA SHEET
C3H8 2 %; CHClF2 38 %; C2HF5 60 %

Issue Date: 11.06.2015
Last revised date: 26.06.2015
Version: 1.0
SDS No.: 000010024739 11/17

Other Relevant Toxicity Information
Pentafluoroethane Cardiac sensitisation threshold limit
75000 ppm
Beagle (dog)

Light hydrocarbons like this one have been associated with cardiac sensitization in abuse situations. Hypoxia or the injection of adrenaline-like substances enhances these effects.

SECTION 12: Ecological information

12.1 Toxicity

Acute toxicity
Product No ecological damage caused by this product.

Acute toxicity - Fish
Component Information
Pentafluoroethane LC 50 (Rainbow trout (Oncorhynchus mykiss), 96 h): 109 mg/l
propane LC50 (Fish, 96 h): 49.9 mg/l
Chlorodifluoromethane EC 50 (Fish, 96 h): 433 mg/l

Acute toxicity - Aquatic Invertebrates
Component Information
Pentafluoroethane EC 50 (Water flea (Daphnia magna), 48 h): >100 mg/l
propane EC50 (Water flea (Daphnia magna), 48 h): 27.1 mg/l
Chlorodifluoromethane EC 50 (Water flea (Daphnia magna), 48 h): 433 mg/l

Toxicity to microorganisms
Component Information
propane EC50 (Alga, 72 h): 11.9 mg/l

Toxicity to Aquatic Plants
Component Information
Pentafluoroethane EC 50 (Green Algae, 72 h): 142 mg/l
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 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
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: 2.945,7
Contains fluorinated greenhouse gases covered by the Kyoto protocol. When discharged in large quantities may contribute to the greenhouse effect. For GWP value of mixture and quantities, refer to container label.

Component Information
Pentafluoroethane
UN / IPCC. Greenhouse Gas Global Warming Potentials (IPCC Fourth Assessment Report, Climate Change, Table TS.2
- Global warming potential: 3500 100-yr
Chlorodifluoromethane
UN / IPCC. Greenhouse Gas Global Warming Potentials (IPCC Fourth Assessment Report, Climate Change, Table TS.2
- Global warming potential: 1810 100-yr
propane
Global warming potential: 3

Ozone Depleting Potential
May have a damaging effect on the ozone layer.

Component Information
Chlorodifluoromethane
EU. Regulation 1005/2009/ EC on substances that deplete the ozone layer, Annex I, Controlled Substances
- Ozone Depletion Potential: 0,055 Group VIII
SAFETY DATA SHEET
C3H8 2 %; CHClF2 38 %; C2HF5 60 %

Issue Date: 11.06.2015
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SDS No.: 000010024739

SECTION 13: Disposal considerations

13.1 Waste treatment methods

**General information:**
Do not discharge into any place where its accumulation could be dangerous. Consult supplier for specific recommendations. Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor.

**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:** 16 05 04*: Gases in pressure containers (including halons) containing dangerous substances.

SECTION 14: Transport information

**ADR**
- **14.1 UN Number:** UN 1954
- **14.2 UN Proper Shipping Name:** COMPRESSED GAS, FLAMMABLE, N.O.S.(Chlorodifluoromethane, Propane)
- **14.3 Transport Hazard Class(es)**
  - Class: 2
  - Label(s): 2.1
  - Hazard No. (ADR): 23
  - Tunnel restriction code: (B/ D)
- **14.4 Packing Group:** -
- **14.5 Environmental hazards:** not applicable
- **14.6 Special precautions for user:** -

**RID**
- **14.1 UN Number:** UN 1954
- **14.2 UN Proper Shipping Name**
  COMPRESSED GAS, FLAMMABLE, N.O.S.(Chlorodifluoromethane, Propane)
- **14.3 Transport Hazard Class(es)**
  - Class: 2
  - Label(s): 2.1
- **14.4 Packing Group:** -
- **14.5 Environmental hazards:** not applicable
- **14.6 Special precautions for user:** -
SAFETY DATA SHEET
C3H8 2 %; CHClF2 38 %; C2HF5 60 %

Issue Date: 11.06.2015  Last revised date: 26.06.2015  Version: 1.0  SDS No.: 000010024739

IMDG
14.1 UN Number: UN 1954
14.2 UN Proper Shipping Name: COMPRESSED GAS, FLAMMABLE, N.O.S. (Chlorodifluoromethane, Propane)
14.3 Transport Hazard Class(es):
   Class: 2.1
   Label(s): 2.1
   EmS No.: F-D, S-U
14.3 Packing Group: -
14.5 Environmental hazards: not applicable
14.6 Special precautions for user: -

IATA
14.1 UN Number: UN 1954
14.2 Proper Shipping Name: Compressed gas, flammable, n.o.s. (Chlorodifluoromethane, Propane)
14.3 Transport Hazard Class(es):
   Class: 2.1
   Label(s): 2.1
14.4 Packing Group: -
14.5 Environmental hazards: not applicable
14.6 Special precautions for user: -
   Other information:
   Passenger and cargo aircraft: Forbidden.
   Cargo aircraft only: Allowed.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 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>30 - 40%</td>
</tr>
</tbody>
</table>

Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use:
SAFETY DATA SHEET
C3H8 2 %;CHClF2 38 %;C2HF5 60 %

Issue Date: 11.06.2015
Last revised date: 26.06.2015
Version: 1.0
SDS No.: 000010024739

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>propane</td>
<td>74-98-6</td>
<td>1,0 - 10%</td>
</tr>
</tbody>
</table>

Directive 2004/ 37/ EC on the protection of workers from the risks related to exposure to carcinogens and mutagens at work:

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>propane</td>
<td>74-98-6</td>
<td>1,0 - 10%</td>
</tr>
</tbody>
</table>

Directive 92/ 85/ EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breast feeding:

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration</th>
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</thead>
<tbody>
<tr>
<td>propane</td>
<td>74-98-6</td>
<td>1,0 - 10%</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>Pentafluoroethane</td>
<td>354-33-6</td>
<td>60 - 70%</td>
</tr>
<tr>
<td>Chlorodifluoromethane</td>
<td>75-45-6</td>
<td>30 - 40%</td>
</tr>
</tbody>
</table>

Directive 96/ 82/ EC (Seveso II): on the control of major accident hazards involving dangerous substances:

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>propane</td>
<td>74-98-6</td>
<td>1,0 - 10%</td>
</tr>
</tbody>
</table>

Directive 98/ 24/ EC on the protection of workers from the risks related to chemical agents at work:

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>propane</td>
<td>74-98-6</td>
<td>1,0 - 10%</td>
</tr>
</tbody>
</table>

National Regulations

Council Directive 89/ 391/ EEC on the introduction of measures to encourage improvements in the safety and health of workers at work Directive 89/ 686/ EEC on personal protective equipment Directive 94/ 9/ EC on equipment and protective systems intended for use in potentially explosive atmospheres (ATEX) Only products that comply with the food regulations (EC) No. 1333/ 2008 and (EU) No. 231/ 2012 and are labelled as such may be used as food additives.

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.

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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 Chemical Agency: Guidance on the Compilation of Safety Data Sheets.
European Industrial Gases Association (ELGA) 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 oxidizing ability for the selection of cylinder valve outlets.
National Institute for Standards and Technology (NIST) Standard Reference Database Number 69.
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.

Wording of the R-phrases and H-statements in section 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. Ensure operators understand the flammability hazard.

Classification according to Regulation (EC) No 1272/2008 as amended.
Flam. Gas 1, H220
Ozone 1, H420
Press. Gas Compr. Gas, H280
SAFETY DATA SHEET
C3H8 2 %; CHClF2 38 %; C2HF5 60 %

Issue Date: 11.06.2015
Last revised date: 26.06.2015
Version: 1.0
SDS No.: 000010024739

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. Ensure equipment is adequately earthed. 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.

Last revised date: 26.06.2015
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.

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