<table>
<thead>
<tr>
<th>TYPES OF HAZARD/EXPOSURE</th>
<th>ACUTE HAZARDS/SYMPTOMS</th>
<th>PREVENTION</th>
<th>FIRST AID/FIRE FIGHTING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRE</strong></td>
<td>Extremely flammable.</td>
<td>NO open flames, NO sparks, and NO smoking.</td>
<td>Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out; in other cases extinguish with water spray, powder, carbon dioxide.</td>
</tr>
<tr>
<td><strong>EXPLOSION</strong></td>
<td>Gas/air mixtures are explosive.</td>
<td>Closed system, ventilation, explosion-proof electrical equipment and lighting. Use non-sparking handtools.</td>
<td>In case of fire: keep cylinder cool by spraying with water. Combat fire from a sheltered position.</td>
</tr>
</tbody>
</table>

**EXPOSURE**

| **Inhalation** | Suffocation. See Notes. | Ventilation. Breathing protection if high concentration. | Fresh air, rest. Artificial respiration if indicated. Refer for medical attention. |
| **Skin**       | ON CONTACT WITH LIQUID: FROSTBITE. | Cold-insulating gloves. | ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Refer for medical attention. |
| **Eyes**       | ON CONTACT WITH LIQUID: FROSTBITE. | Safety goggles. | First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor. |
| **Ingestion**  |                         |                           |                                         |

**SPILLAGE DISPOSAL**


**PACKAGING & LABELLING**

<table>
<thead>
<tr>
<th>EU classification</th>
<th>F+ Symbol</th>
<th>R: 12</th>
<th>S: (2-)9-16-33</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN classification</td>
<td>UN Hazard Class: 2.1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**EMERGENCY RESPONSE**

Transport Emergency Card: TEC (R)-20G1F NFPA Code: H 1; F 4; R 0

**SAFE STORAGE**

Fireproof. Cool. Ventilation along the floor and ceiling.
### IMPORTANT DATA

**Physical State; Appearance**  
COLOURLESS, COMPRESSED OR LIQUEFIED GAS, WITH NO ODOUR.

**Physical dangers**  
The gas is lighter than air.

**Occupational exposure limits**  
TLV: (aliphatic hydrocarbons gases, Alkane C1-C4) 1000 ppm (as TWA) (ACGIH 2005).  
MAK not established.

**Routes of exposure**  
The substance can be absorbed into the body by inhalation.

**Inhalation risk**  
On loss of containment this gas can cause suffocation by lowering the oxygen content of the air in confined areas.

**Effects of short-term exposure**  
Rapid evaporation of the liquid may cause frostbite.

### PHYSICAL PROPERTIES

- Boiling point: -161°C
- Melting point: -183°C
- Solubility in water, ml/100 ml at 20°C: 3.3
- Relative vapour density (air = 1): 0.6

**Flash point:** Flammable Gas

**Auto-ignition temperature:** 537°C

**Explosive limits, vol% in air:** 5-15

**Octanol/water partition coefficient as log Pow:** 1.09

### ENVIRONMENTAL DATA

### NOTES

- Density of the liquid at boiling point: 0.42 kg/l.
- High concentrations in the air cause a deficiency of oxygen with the risk of unconsciousness or death.
- Check oxygen content before entering area.
- Turn leaking cylinder with the leak up to prevent escape of gas in liquid state.
- After use for welding, turn valve off; regularly check tubing, etc., and test for leaks with soap and water.
- The measures mentioned in section PREVENTION are applicable to production, filling of cylinders, and storage of the gas.
- Other UN number: 1972 (refridgerated liquid), Hazard class: 2.1.
- Card has been partly updated in October 2005. See section Emergency Response.

### ADDITIONAL INFORMATION

---

**LEGAL NOTICE**  
Neither the EC nor the IPCS nor any person acting on behalf of the EC or the IPCS is responsible for the use which might be made of this information

©IPCS 2006