


Requirements	Description
<p>4. FIRST AID MEASURES</p>	<p>First Aid Measures</p> <p>-Inhalation : Continuous inhalation of concentrations higher than 75% may cause nausea, dizziness, respiratory difficulty and convulsion. Remove victim to uncontaminated area.</p> <p>-Eye/Skin Contact</p> <ul style="list-style-type: none"> • Immediately flush eyes thoroughly with water for at least 15 minutes. In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance. • Adverse effects note expected from this product. <p>- Ingestion : Ingestion is not considered a potential route of exposure.</p>
<p>5. FIRE-FIGHTING MEASURES</p>	<p>Suitable extinguishing media:</p> <ul style="list-style-type: none"> • All known extinguishants can be used. <p>Specific hazards:</p> <ul style="list-style-type: none"> • Exposure to fire may cause containers to rupture/explode. <p>Hazardous combustion products:</p> <ul style="list-style-type: none"> • None <p>Specific methods:</p> <ul style="list-style-type: none"> • If possible, stop flow of product • Coordinate fire measure to the surrounding fire. Cool endangered containers with water spray jet from a protected position. Do not empty contaminated fire water into drains. • Move away from the container and cool with water from a protected position. • If leaking do not spray water on to container. Water surrounding area (from protected position) to contain fire. <p>Special protective equipment for fire fighters:</p> <ul style="list-style-type: none"> • None
<p>6. ACCIDENTAL RELEASE MEASURES</p>	<p>Personal Precautions:</p> <ul style="list-style-type: none"> • Try to stop release. • Evacuate area. • Ensure adequate air ventilation. • Use protective clothing. • Eliminate ignition sources. <p>Environmental Precautions:</p> <ul style="list-style-type: none"> • Try to stop release. • Prevent from entering sewers, basements and work pits, or any place where its accumulation can be dangerous. <p>Clean Up Methods:</p> <ul style="list-style-type: none"> • Ventilate area. • Keep area evacuated and free from ignition sources until any spilled liquid has evaporated. (Ground free from frost).
<p>7. STORAGE AND HANDLING</p>	<p>Safe use of the product:</p> <ul style="list-style-type: none"> • Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. • Only experienced and properly instructed persons should handle gases under pressure. The product must be handled in accordance with good industrial hygiene and safety procedures. • Do not smoke while handling product. • Ensure the complete gas system was (or is regularly) checked for leaks before use. <p>Safe Handling of the gas receptacle:</p> <ul style="list-style-type: none"> • Refer to supplier's container handling instructions. • Do not allow back feed into the container. • Protect cylinders from physical damage; do not drag, roll, slide or drop. • When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. • 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.

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	<ul style="list-style-type: none"> • If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. • Never attempt to repair or modify container valves or safety relief devices. • Damaged valves should be reported immediately to the supplier. • Keep container valve outlets clean and free from contaminants particularly oil and water. • Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment. • Close container valve after each use and when empty, even if still connected to equipment. Never attempt to transfer gases from one cylinder/container to another. • Never use direct flame or electrical heating devices to raise the pressure of a container. • Do not remove or deface labels provided by the supplier for the identification of the cylinder contents. <p>Handling:</p> <ul style="list-style-type: none"> • Use no oil or grease. • Open valve slowly to avoid pressure shock. • Suck back of water into the container must be prevented. • Do not allow back feed into the container. • Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. • Refer to supplier's container handling instructions. • Keep a way from ignition sources (including static discharges). <p>Conditions for safe storage, including any incompatibilities:</p> <ul style="list-style-type: none"> • Keep container below 50°C in a well ventilated place. • Keep away from combustible materials. • Observe all regulations and local requirements regarding storage of containers. • Containers should not be stored in conditions likely to encourage corrosion. • Containers should be stored in the vertical position and properly secured to prevent toppling. • Stored containers should be periodically checked for general condition 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. • Segregate from flammable gases and other flammable materials in store.
<p>8. EXPOSURE CONTROLS / PERSONAL PROTECTION</p>	<p>Appropriate engineering Controls:</p> <ul style="list-style-type: none"> • Systems under pressure should be regularly checked for leakages. • Provide adequate general and local exhaust ventilation. • Consider work permit system e.g. for maintenance activities. <p>Personal Protection / Protective equipment:</p> <ul style="list-style-type: none"> • 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. • Wear safety glasses with side shields. • Wear leather safety gloves and safety shoes when handling cylinders. • Ensure adequate ventilation. • Protect eyes, face and skin from liquid splashes. • Do not smoke while handling product. • Avoid oxygen rich (>21%) atmospheres. <p>Other Environmental exposure controls:</p> <ul style="list-style-type: none"> • Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

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<p>9. PHYSICAL AND CHEMICAL PROPERTIES</p>	<p>Information on basic physical and chemical properties</p> <p>Appearance</p> <p>Physical state at 20°C /101.3kPa : Gas</p> <p>Colour : Bluish liquid.</p> <p>Odour : No odour warning properties.</p> <p>Odour threshold : Odour threshold is subjective and in adequate to warn for over exposure.</p> <p>pH : Not applicable for gas-mixtures.</p> <p>Molar mass [g/mol] : 31.998</p> <p>Melting point [°C] : -219</p> <p>Boiling point [°C] : -183</p> <p>Critical Temperature [°C] : -118</p> <p>Flash point [°C] : Not flammable</p> <p>Evaporation rate (ether=1) : Not applicable for gas-mixtures.</p> <p>Flammability rang [2vol% / in air] : Oxidizer</p> <p>Vapour pressure [20°C] : Not applicable</p> <p>Relative density, liquid (water=1) : 1.1</p> <p>Relative density, gas (air=1) : 1.1</p> <p>Solubility in water [mg/l] : 39</p> <p>Partition coefficient n-octanol/water : Not applicable for gas-mixtures.</p> <p>Viscosity at 20°C [mPa.s] : Not applicable</p> <p>Explosive Properties : Not applicable</p> <p>Molecular Weight : 32</p> <p>Dew Point °F : - 80</p> <p><u>Other information</u></p> <p>Other data: Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.</p>
<p>10. STABILITY AND REACTIVITY</p>	<p>Stability and Reactivity :</p> <ul style="list-style-type: none"> No reactivity hazard other than the effects described in sub-sections below. May react violently with combustible materials. May react violently with reducing agents. Violently oxidizes organic material. Liquid spillages can cause embrittlement of structural materials. Risk of explosion if spilt on organic structural materials (e.g. wood or asphalt). Consider the potential toxicity hazard due to the presence of chlorinated or fluorinated polymers in high pressure (>30bars) oxygen lines in case of combustion. <p>Stability and Reactivity :</p> <ul style="list-style-type: none"> Stable under normal conditions. <p>Possibility of hazardous reactions :</p> <ul style="list-style-type: none"> Oxidant. Strongly supports combustion. May react violently with combustible materials. Keep equipment free from oil and grease. <p>Incompatible materials :</p> <ul style="list-style-type: none"> Reducing agents (combustible). Combustible materials. <p>Hazardous decomposition products :</p> <ul style="list-style-type: none"> Under normal conditions of storage and use, hazardous decomposition products should not be produced.
<p>11. TOXICOLOGICAL INFORMATION</p>	<p>Toxicology Information: No known toxicological effects from this product.</p>
<p>12. ECOLOGICAL INFORMATION</p>	<p>Ecological Effects Information: Can cause frost damage to vegetation.</p>

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<p>13. DISPOSAL CONSIDERATIONS</p>	<p>Waste treatment methods</p> <ul style="list-style-type: none"> • May be vented to atmosphere in a well ventilated place. • Do not discharge into any place where its accumulation could be dangerous. • Refer to the code of practice of EIGA (Doc. 30/10"Disposal of Gases, down loadable at http://www.eiga.org) for more guidance on suitable disposal methods. • Contact supplier if guidance is required. <p>General</p> <ul style="list-style-type: none"> • Do not discharge in to any place where its accumulation could be dangerous. • Contact supplier if guidance is required.
<p>14. TRANSPORT INFORMATION</p>	<p>UN number: UN 1073 HS Code : 29224990 Labeling</p> <div style="text-align: center;">  </div> <p>: 2.2: Non Flammable, non toxic gas. : 5.1: Oxidizing substances.</p> <p><u>Land transport</u> UN proper shipping name : OXYGEN, REFRIGERATION LIQUID Transportation hazard class(es) : 2 Classification code : 3 O Packing Instruction(s) : P203 Tunnel Restriction : C/E Tank carriage: Passage forbidden through tunnels of category C, D and E: Other carriage: Passage forbidden through tunnels category E. HAZCHEM – Emergency Action Code: 2P 2 = Fine water spray. P=Risk of violent reaction or explosion. Recommended personal protective equipment: Full fire kit and breathing apparatus. Appropriate measures: dilute</p> <p><u>Sea transport</u> Proper shipping name : OXYGEN, REFRIGERATION LIQUID Hazard class(es) : 2.2 Emergency Schedule (EmS) - Fire : F-C Emergency Schedule (EmS) - Spillage : S-W Packing Instruction(s) : P203</p> <p><u>Air transport</u> Proper shipping name : OXYGEN, REFRIGERATION LIQUID Hazard class(es) : 2.2 Passenger and Cargo Aircraft: Do not load in passenger aircraft. Cargo Aircraft only: For bidden.</p> <p><u>Special precautions for user / Other transport information</u></p> <ul style="list-style-type: none"> • 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 there is adequate ventilation. • Ensure that containers are firmly secured. • Ensure cylinder valve is closed and not leaking. • Ensure valve outlet cap nut or plug (where provided) is correctly fitted. • Ensure valve protection device (where provided) is correctly fitted. • Compliance with applicable regulations.

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<p>15. REGULATORY INFORMATION</p>	<p><u>Safety, health and environmental regulations/legislation specific for the substance or mixture</u></p> <ul style="list-style-type: none"> • EU Legislation / Seveso directive 96/82/EC : Not covered • National legislation: Ensure all national/local regulations are observed. • Chemical safety Assessment: A CSA does not need to be carried out for this product. <p>Risk Phrases : May cause frostbite : Contact with combustible material may cause fire.</p> <p>Safety Phrases: Keep container in well-ventilated place. : Use suitable protective equipment. : Keep away from combustible material.</p>
<p>16. OTHER INFORMATION</p>	<p>Indication of changes / Training Advice</p> <ul style="list-style-type: none"> • Revised safety data sheet in accordance with commission regulation (EU) No 453/2010. • May cause frostbite. • Ensure all national/local regulations are observed. • Ensure operators understand the hazard of oxygen enrichment. • Receptacle under pressure. <p>List of full text of H-statements in section 3.</p> <ul style="list-style-type: none"> • H281 – Contains refrigerated gas; may cause cryogenic burns or injury. • H270 – May cause or intensify fire: oxidizer. <p>Further information</p> <ul style="list-style-type: none"> • Classification in accordance with calculation methods of regulation (EC) 1272/2008CLP/ (EC) 1999/45DPD. <p>This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.</p>

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