

**CAS No: 7782-50-5**  
**RTECS No: FO2100000**  
**UN No: 1017**  
**EC No: 017-001-00-7**

## MATERIAL SAFETY DATA SHEET

**Liquid Chlorine (Cl<sub>2</sub>)**  
Molecular mass: 70.9

| TYPES OF HAZARD / EXPOSURE | ACUTE HAZARDS / SYMPTOMS   | PREVENTION  | FIRST AID / FIRE FIGHTING   |
|----------------------------|--|---|---|
| <b>FIRE</b>                | Not combustible but enhances combustion of other substances. Many reactions may cause fire or explosion.   | NO contact with combustibles, acetylene, ethylene, hydrogen, ammonia and finely divided metals. | In case of fire in the surroundings: all extinguishing agents allowed.  |
| <b>EXPLOSION</b>           | Risk of fire and explosion on contact with combustible substances, ammonia and finely divided metals.  |   | In case of fire: keep cylinder cool by spraying with water but NO direct contact with water.                            |
| <b>EXPOSURE</b>            |  | <b>AVOID ALL CONTACT!</b>   | <b>IN ALL CASES CONSULT A DOCTOR!</b>   |
| <b>Inhalation</b>          | Corrosive. Burning sensation. Shortness of breath. Cough. Headache. Nausea. Dizziness. Laboured breathing. Sore throat. Symptoms may be delayed (see Notes). | Breathing protection. Closed system and ventilation.  | Fresh air, rest. Half-upright position. Artificial respiration if indicated. Refer for medical attention.               |
| <b>Skin</b>                | ON CONTACT WITH LIQUID: FROSTBITE. Corrosive. Skin burns. Pain.  | Cold-insulating gloves. Protective clothing.  | First rinse with plenty of water, then remove contaminated clothes and rinse again. Refer for medical attention.        |
| <b>Eyes</b>                | Corrosive. Pain. Blurred vision. Severe deep burns.  | Safety goggles or eye protection in combination with breathing protection.                      | First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor. |

| SPILLAGE DISPOSAL  | PACKAGING & LABELLING  |  |
|--|--|--|
| <p>Evacuate danger area! Consult an expert! Ventilation. NEVER direct water jet on liquid. Remove gas with fine water spray. (Extra personal protection: complete protective clothing including self-contained breathing apparatus). Do NOT let this chemical enter the environment.</p> | <p><u>T</u> Symbol<br/> <u>N</u> Symbol<br/> R: <a href="#">23-36/37/38-50</a><br/> S: <a href="#">(1/2-)9-45-61</a><br/> UN Hazard Class: 2.3<br/> UN Subsidiary Risks: 8</p> | <p>Special insulated cylinder. Marine pollutant.</p> |

| EMERGENCY RESPONSE   | STORAGE  |
|--|--|
| <p>Transport Emergency Card: TEC (R)-2<br/> NFPA Code: H 4; F 0; R 0; OX</p> | <p>Separated from strong bases, combustible and reducing substances.<br/> Cool. Dry. Keep in a well-ventilated room.</p> |

| IMPORTANT DATA   |  |
|--|--|
| <p><b>Physical State; Appearance</b><br/> GREENISH-YELLOW GAS, WITH PUNGENT ODOUR.</p> <p><b>Physical dangers</b><br/> The gas is heavier than air.</p> <p><b>Chemical dangers</b><br/> The solution in water is a strong acid, it reacts violently with bases and is corrosive. Reacts violently with many organic compounds, ammonia, hydrogen and finely divided metals causing fire and explosion hazard. Attacks many metals in presence of water. Attacks plastic, rubber and coatings.</p> <p><b>Occupational exposure limits</b><br/> TLV: 0.5 ppm; 1.5 mg/m<sup>3</sup> (as TWA)<br/> TLV: 1 ppm; 2.9 mg/m<sup>3</sup> (STEL) (ACGIH 1999).</p> | <p><b>Routes of exposure</b><br/> The substance can be absorbed into the body by inhalation.</p> <p><b>Inhalation risk</b><br/> A harmful concentration of this gas in the air will be reached very quickly on loss of containment.</p> <p><b>Effects of short-term exposure</b><br/> Tear drawing. The substance is corrosive to the eyes, the skin and the respiratory tract. Inhalation of gas may cause pneumonitis and lung oedema, resulting in reactive airways dysfunction syndrome (RADS) (see Notes). Rapid evaporation of the liquid may cause frostbite. Exposure far above the OEL may result in death. The effects may be delayed. Medical observation is indicated.</p> <p><b>Effects of long-term or repeated exposure</b></p> |

The substance may have effects on the lungs, resulting in chronic bronchitis. The substance may have effects on the teeth, resulting in erosion.

### PHYSICAL PROPERTIES

Boiling point: -34°C  
Melting point: -101°C  
Relative density (water = 1): 1.4 at 20°C, 6.86 atm (liquid)  
Solubility in water, g/100 ml at 20°C: 0.7  
Vapour pressure, kPa at 20°C: 673  
Relative vapour density (air = 1): 2.5

### ENVIRONMENTAL DATA

The substance is very toxic to aquatic organisms.

### NOTES

The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential.  
Immediate administration of an appropriate spray, by a doctor or a person authorized by him/her, should be considered.  
The odour warning when the exposure limit value is exceeded is insufficient.  
Do NOT use in the vicinity of a fire or a hot surface, or during welding.  
Do NOT spray water on leaking cylinder (to prevent corrosion of cylinder).  
Turn leaking cylinder with the leak up to prevent escape of gas in liquid state.

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