

# Safety Data Sheet

Product :  
MSDS Nr : 354-00-0001BOC(A)

**Chlorine**  
Version : 1.05

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Date : 21/04/2009

## 1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

Product name	Chlorine
Chemical formula	Cl <sub>2</sub>
Company identification	see heading and/or footer
Emergency phone numbers	see heading and/or footer

## 2 COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Preparation	Substance.
Components/Impurities	Contains no other components or impurities which will influence the classification of the product.
CAS Nr	7782-50-5
EC Nr (from EINECS)	231-959-5

## 3 HAZARDS IDENTIFICATION

Hazards identification	Toxic by inhalation. Corrosive to eyes, respiratory system and skin. Oxidant. Strongly supports combustion. May react violently with combustible materials. Liquefied gas
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## 4 FIRST AID MEASURES

Inhalation	Toxic by inhalation. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped. Delayed adverse effects possible.
Skin/eye contact	May cause chemical burns to skin and cornea (with temporary disturbance to vision) Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contaminated clothing. Drench affected area with water for at least 15 minutes Obtain medical assistance
Ingestion	Ingestion is not considered a potential route of exposure.

## 5 FIRE FIGHTING MEASURES

Specific hazards	Non flammable Supports combustion. Exposure to fire may cause containers to rupture/explode.
Hazardous combustion products	None that are more toxic than the product itself.
Suitable extinguishing media	All known extinguishants can be used.
Specific methods	If possible, stop flow of product. Move away from the container and cool with water from a protected position.
Special protective equipment for fire fighters	Use self-contained breathing apparatus and chemically protective clothing.

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## 6 ACCIDENTAL RELEASE MEASURES

Personal precautions	Evacuate area. Ensure adequate air ventilation. Eliminate ignition sources. Use self-contained breathing apparatus and chemically protective clothing.
Environmental precautions	Try to stop release. Reduce vapour with fog or fine water spray. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
Clean up methods	Ventilate area. Wash contaminated equipment or sites of leaks with copious quantities of water. Hose down area with water.

## 7 HANDLING AND STORAGE

Handling and storage	Use no oil or grease. Open valve slowly to avoid pressure shock. Segregate from flammable gases and other flammable materials in store. Suck back of water into the container must be prevented. Do not allow backfeed 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 container below 50°C in a well ventilated place.
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## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit value for country	UK: Chlorine - STEL: 0.5ppm (EH40/2005) Short-term exposure limit (STEL): 15 minute reference period Germany: Chlorine - MAK:0.5ppm France: Chlorine - VLE:1ppm
Personal protection	Keep suitable chemically resistant protective clothing readily available for emergency use. Keep self contained breathing apparatus readily available for emergency use. Do not smoke while handling product. Ensure adequate ventilation. Protect eyes, face and skin from liquid splashes.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

Molecular weight	71
Melting point	-101 °C
Boiling point	-34 °C
Critical temperature	144 °C

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Relative density, gas	2.5 (air=1)
Relative density, liquid	1.6 (water=1)
Vapour Pressure 20°C	6.8 bar
Solubility mg/l water	8620 mg/l
Appearance/Colour	Greenish gas
Odour	Pungent
Flammability range	Oxidiser.
Autoignition temperature	Not applicable
Other data	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

## 10 STABILITY AND REACTIVITY

Stability and reactivity	May react violently with combustible materials May react violently with reducing agents. Violently oxidises organic material. Reacts with water to form corrosive acids. May react violently with alkalis. With water causes rapid corrosion of some metals.
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## 11 TOXICOLOGICAL INFORMATION

General	Severe corrosion to skin, eyes and respiratory tract at high concentrations. Delayed fatal pulmonary oedema possible.
LC50/1h (ppm)	293 ppm

## 12 ECOLOGICAL INFORMATION

General	May cause pH changes in aqueous ecological systems. Toxic to water organisms.
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## 13 DISPOSAL CONSIDERATIONS

General	Avoid discharge to atmosphere. Do not discharge into any place where its accumulation could be dangerous. Gas may be scrubbed in alkaline thiosulphate solution under controlled conditions to avoid violent reaction. Contact supplier if guidance is required.
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## 14 TRANSPORT INFORMATION

Proper shipping name	CHLORINE
UN Nr	1017
Class	2
ADR/RID Classification code	2TOC
ADR/RID Hazard Nr	265

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Packing group	None
Labelling ADR	Label 2.3: toxic substance. Label 5.1: fire intensifying risk. Label 8: corrosive substance.
IMDG EmS codes	F-C, S-W
IMDG Marine pollutant	Yes
IATA passenger packing instruction	Forbidden
IATA passenger max. quantity/pack	Forbidden
IATA cargo packing instruction	Forbidden
IATA cargo max. quantity/pack	Forbidden
Other transport information	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 and: - cylinder valve is closed and not leaking - valve outlet cap nut or plug (where provided) is correctly fitted - valve protection device (where provided) is correctly fitted - there is adequate ventilation. - compliance with applicable regulations.

## 15 REGULATORY INFORMATION

Number in Annex I of Dir 67/548	017-001-00-7.
EC Classification	T;R23[Xi;R36/37/38]N;R50
-Symbols	T: Toxic N: Dangerous for the environment
Labelling of cylinders	
-Symbols	Label 2.3: toxic substance. Label 5.1: fire intensifying risk. Label 8: corrosive substance.
-Risk phrases	R23 Toxic by inhalation. R36/37/38 Irritating to eyes, respiratory system and skin. R50 Very toxic to aquatic organisms.
-Safety phrases	S1 Keep locked up. S2 Keep out of the reach of the children. S9 Keep container in well ventilated place. S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

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## 16 OTHER INFORMATION

Ensure all national/local regulations are observed.

Users of breathing apparatus must be trained.

Ensure operators understand the toxicity hazard.

Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

Details given in this document are believed to be correct at the time of going to press. 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.

This Safety Data Sheet has been established in accordance with the applicable European Directives and applies to all countries that have translated the Directives in their national laws.

**End of document.**

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