Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 30.08.2017 Version number 8 Revision: 30.08.2017

· **Product identifier**

· **Trade name: CHLORINE LIQUID GAS**

· **Article number:** PG0001
· **CAS Number:** 7782-50-5
· **EC number:**
231-959-5
· **Index number:**
017-001-00-7
· **Relevant identified uses of the substance or mixture and uses advised against** For undustrial use only
· **Sector of Use** Chlorine is used primarly as a disinfectant in the treatment of water.
· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Johannesburg
1 Berrange Road
Wadeville, Germiston
Tel: 011-821 3300

Port Elizabeth
127 Grahamstown Road
Deal Party, Port Elizabeth
Tel: 041-403 1000

Cape Town
54 Killarney Avenue
Killarney Gardens, Milnerton, Cape Town
Tel: 021-550 8100

Jacobs
150 Quality Street,
Jacobs, Durban
Tel: 031-468 5424

Mobeni
90 Pendlebury Road,
Mobeni
Tel: 031-469 0165
only for information

· **Further information obtainable from:** Protea Chemicals
· **Emergency telephone number:**
08610 OMNIA or
08610 66642

2 Hazards identification

· **Classification of the substance or mixture**

flame over circle

Ox. Gas 1 H270 May cause or intensify fire; oxidiser.

skull and crossbones

Acute Tox. 3 H331 Toxic if inhaled.

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environment

Aquatic Acute 1 H400 Very toxic to aquatic life.

Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.
STOT SE 3 H335 May cause respiratory irritation.

· ***Label elements***
· ***GHS label elements***
The substance is classified and labelled according to the Globally Harmonised System (GHS).
· ***Hazard pictograms***

GHS03 GHS06 GHS09

· ***Signal word*** *Danger*
· ***Hazard statements***
May cause or intensify fire; oxidiser.
Toxic if inhaled.
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.
Very toxic to aquatic life.
· ***Precautionary statements***
Keep/Store away from clothing/combustible materials.
Avoid breathing dust/fume/gas/mist/vapours/spray.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see on this label).
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· ***Other hazards***
· ***Results of PBT and vPvB assessment***

· ***PBT:***
CHLORINE LIQUID GAS

· ***vPvB:*** *Not applicable.*

3 Composition/information on ingredients

· ***Chemical characterisation: Substances***
· ***CAS No. Description***
CHLORINE LIQUID GAS
· ***Identification number(s)***
· ***EC number:*** *231-959-5*

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· **Index number:** 017-001-00-7

4 First aid measures

· **Description of first aid measures**
· **After inhalation:**
Remove to fresh air.In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:**
Immediately wash with water and soap and rinse thoroughly. Remove contaminated clothing. Flush affected areas with plenty of water and soap.
· **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** If symptoms persist consult doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed**
Development of pulmonary edema may be delayed 48-72 hours
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Water or water spray only must be used.
· **Special hazards arising from the substance or mixture**
Containers are under pressure and may explode in heat or fire. Chlorine gas, which is heavier than air and will accumulate in depressions, excavations and other confined spaces.
· **Advice for firefighters** Wear self contained breathing apparatus for fire fighting if necessary.
· **Protective equipment:** Use breathing apparatus with independent air supply (Isolated)

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
The greenish-yellow colour of chlorine gas only becomes visible at levels many times greater than the danger level. Do not assume that you are safe because you cannot see any gas.
Ensure suitable personal protection (e.g. a fully encapsulating vapour-protective suit.)
· **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water. Should not be released into the environment.
· **Methods and material for containment and cleaning up:** Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
No special precautions are necessary if used correctly. Avoid contact with skin, eyes and clothing.

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· **Information about fire - and explosion protection:**
Put on appropriate personal protective equipment. Keep away from open flames, shut of the production of sources of ignition. Eelectricity: static electricity, electricity sparks, heat. Do not breathe vapor or mist. No smoking.

· **Conditions for safe storage, including any incompatibilities**
May react to cause fire and explosion upon contact with many organic compounds, ammonia, hydrogen, and many metals at elevated temperatures.
· **Storage:**
· **Requirements to be met by storerooms and receptacles:**
Store in a cool, dry location outdoors or in a well-ventilated area. Store away from sunlight and sources of heat and ignition. Prevent exposing cyliders to temperatures above 51C.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep container tightly sealed in a dry well-ventilated place.
· **Specific end use(s)** No information available

8 Exposure controls/personal protection

· **Additional information about design of technical facilities:**
Ensure eyewash stations and safety showers are close to the workstation location.

· **Control parameters**
· **Ingredients with limit values that require monitoring at the workplace:** Not required.
· **Additional information:** The lists valid during the making were used as basis.

· **Exposure controls**
Occupational Exposure Limits (OEL)

TWA OEL-RL	SHORT TERM OEL-RL
1.5mg/m3	3mg/3m3

· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
· **Respiratory protection:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
· **Protection of hands:**
Due to missing tests no recommendation to the glove material can be given for the product/the preparation/ the chemical mixture.

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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· **Eye protection:**
Safety glasses

Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquefied gas
Colour:	Colourless or pale greenish-yellow liquid
· **Odour:**	Chlorine-like
· **Odour threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/freezing point:	-101 °C
Initial boiling point and boiling range:	-34 °C
· **Flash point:**	Not applicable.
· **Flammability (solid, gas):**	Contact with combustible material may cause fire.
· **Ignition temperature:**	
Decomposition temperature:	Not determined.
· **Auto-ignition temperature:**	Not determined.
· **Explosive properties:**	Not determined.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapour pressure at 20 °C:**	6800 hPa
· **Density at 20 °C:**	2,486 at 0C g/cm³
· **Relative density**	Not determined.
· **Vapour density**	Not determined.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with**	
water at 20 °C:	0,7 g/l
· **Partition coefficient: n-octanol/water:**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.

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· ***Chemical stability***
· ***Thermal decomposition / conditions to be avoided:*** *No decomposition if used according to specifications.*
· ***Possibility of hazardous reactions*** *No dangerous reactions known.*
· ***Conditions to avoid*** *No further relevant information available.*
· ***Incompatible materials:***
Hydrocarbons, turpentine, acetylene, nitrogen compounds, ammonia, sodium hydroxide and water.
· ***Hazardous decomposition products:***
Ammonia and other nitrogen compounds react with chlorine to form highly explosive nitrogen trichloride.
Hydrochloric acid and hypochlorous acids may form from chlorine in the presence of water vapour.

11 Toxicological information

· ***Information on toxicological effects***
· ***Acute toxicity***

· ***LD/LC50 values relevant for classification:***		
Inhalative	*LC50/4 h*	*293 mg/l (rat)*

· ***Primary irritant effect:***
· ***Skin corrosion/irritation*** *Irritant to skin and mucous membranes.*
· ***Serious eye damage/irritation*** *Irritating effect.*
· ***Respiratory or skin sensitisation*** *No sensitising effects known.*

12 Ecological information

· ***Toxicity***
· ***Aquatic toxicity:*** *No further relevant information available.*
· ***Persistence and degradability*** *No further relevant information available.*
· ***Behaviour in environmental systems:***
· ***Bioaccumulative potential*** *No further relevant information available.*
· ***Mobility in soil*** *No further relevant information available.*
· ***Ecotoxical effects:***
· ***Remark:*** *Very toxic for fish*
· ***Additional ecological information:***
· ***General notes:***
Water hazard class 2 (German Regulation) (Assessment by list): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
Very toxic for aquatic organisms
· ***Results of PBT and vPvB assessment***
· ***PBT:*** *Not applicable.*
· ***vPvB:*** *Not applicable.*
· ***Other adverse effects*** *No further relevant information available.*

13 Disposal considerations

· ***Waste treatment methods***
· ***Recommendation***
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

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· ***Uncleaned packaging:***
· ***Recommendation:*** *Disposal must be made according to official regulations.*

14 Transport information

· ***UN-Number***	
· ***ADR, IMDG, IATA***	*UN1017*
· ***UN proper shipping name***	
· ***ADR***	*1017 CHLORINE, ENVIRONMENTALLY HAZARDOUS*
· ***IMDG***	*CHLORINE, MARINE POLLUTANT*
· ***IATA***	*CHLORINE*
· ***Transport hazard class(es)***	
· ***ADR***	
· ***Class***	*2.3*
· ***Label***	*2.3+8+5.1*
· ***IMDG***	
· ***Class***	*2.3*
· ***Label***	*2.3/8/5.1*
· ***IATA***	
· ***Label***	*Forbiddenbyairtransport*
· ***Subsidiary risk***	*8+5.1*
· ***Packing group***	
· ***ADR***	*Void*
· ***Environmental hazards:***	
· ***Marine pollutant:***	*Yes (P)* *Symbol (fish and tree)*
· ***Special precautions for user***	*Not applicable.*
· ***EMS Number:***	*F-C,S-U*
· ***Stowage Category***	*D*
· ***Stowage Code***	*SW2 Clear of living quarters.*
· ***Segregation Code***	*SG6 Segregation as for class 5.1* *SG19 Stow "separated from" class 7*
· ***ERG No.***	*124*
· ***Transport in bulk according to Annex II of Marpol and the IBC Code***	*Not applicable.*

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· **Transport/Additional information:**

· **ADR**	
· **Limited quantities (LQ)**	0
· **Excepted quantities (EQ)**	Code: E0 Not permitted as Excepted Quantity
· **Transport category**	1
· **Tunnel restriction code**	C/D
· **IMDG**	
· **Limited quantities (LQ)**	0
· **Excepted quantities (EQ)**	Code: E0 Not permitted as Excepted Quantity
· **UN "Model Regulation":**	UN 1017 CHLORINE, 2.3 (8+5.1), ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **GHS label elements**
The substance is classified and labelled according to the Globally Harmonised System (GHS).
· **Hazard pictograms**

GHS03 GHS06 GHS09

· **Signal word** Danger
· **Hazard statements**
May cause or intensify fire; oxidiser.
Toxic if inhaled.
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.
Very toxic to aquatic life.
· **Precautionary statements**
Keep/Store away from clothing/combustible materials.
Avoid breathing dust/fume/gas/mist/vapours/spray.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see on this label).
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Directive 2012/18/EU**
· **Named dangerous substances - ANNEX I** Substance is listed.
· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 10 t
· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 25 t
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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16 Other information

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.

· ***Contact:***
Packed at :
Protea Chemicals
Henry Street
Sasolburg
1947

· ***Abbreviations and acronyms:***
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
P: Marine Pollutant
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Ox. Gas 1: Oxidizing gases – Category 1
Acute Tox. 3: Acute toxicity – Category 3
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1