

## 1. MATERIAL AND SUPPLY COMPANY IDENTIFICATION

Product name: **CHLORINE**

**Synonyms**

LIQCHL-1000K

**Product Code**

-

**Bar Code**

-

**Recommended use:** Disinfection; water treatment; bleaching; metal recovery; neutralising agent; oxidant.

**Supplier:** DuluxGroup (PNG) Pte. Ltd.

**ABN:**

**Street Address:** Air Corps Road  
Lae, Morobe 411,  
Papua New Guinea

**Telephone:** +675 7444 9999

**Emergency Telephone number:** Australia +613 9663 2130

## 2. HAZARDS IDENTIFICATION

This material is hazardous according to criteria of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) 7<sup>th</sup> edition.



**Signal Word**

Danger

**Hazard Classifications**

Gases Under Pressure - Compressed Gas

Oxidising Gases - Category 1

Acute Toxicity - Inhalation - Category 3

Skin Corrosion/Irritation - Category 2

Eye Damage/Irritation - Category 2A

Specific Target Organ Toxicity (Single Exposure) - Category 3 Respiratory Tract Irritation

Acute Hazard to the Aquatic Environment - Category 1

**Hazard Statements**

- H270 May cause or intensify fire; oxidizer.
- H280 Contains gas under pressure; may explode if heated.
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H331 Toxic if inhaled.
- H335 May cause respiratory irritation.
- H400 Very toxic to aquatic life.

**Prevention Precautionary Statements**

- P102 Keep out of reach of children.
- P103 Read carefully and follow all instructions.
- P220 Keep/Store away from clothing/combustible materials.
- P244 Keep valves and fittings free from grease and oil.
- P261 Avoid breathing fume, gas, mist, vapours or spray.
- P264 Wash hands, face and all exposed skin thoroughly after handling.

# Safety Data Sheet



- P271 Use only outdoors or in a well-ventilated area.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/protective clothing including eye/face protection and suitable respirator.

## Response Precautionary Statements

- P101 If medical advice is needed, have product container or label at hand.  
P302+P352 IF ON SKIN: Wash with plenty of water and soap.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P311 Call a POISON CENTER/doctor.  
P332+P313 If skin irritation occurs: Get medical advice/attention.  
P337+P313 If eye irritation persists: Get medical advice/attention.  
P362+P364 Take off contaminated clothing and wash it before reuse  
P370+P376 In case of fire: Stop leak if safe to do so.  
P391 Collect spillage.

## Storage Precautionary Statements

- P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.  
P410+P403 Protect from sunlight. Store in a well-ventilated place.

## Disposal Precautionary Statement

- P501 Dispose of contents/container in accordance with local, regional, national and international regulations.

## DANGEROUS GOOD CLASSIFICATION

Classified as Dangerous Goods by the criteria of the United Nations "Recommendations on the Transport of Dangerous Goods."

- Dangerous Goods Class:** 2.3  
**Subrisk 1:** 5.1  
**Subrisk 2:** 8

## 3. COMPOSITION INFORMATION

CHEMICAL ENTITY	CAS NO	PROPORTION
Chlorine	7782-50-5	>= 99.8 %
Ingredients determined to be Non-Hazardous	-	Balance
		100%

## 4. FIRST AID MEASURES

**Inhalation:** Remove victim from exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If breathing laboured and patient cyanotic (blue), ensure airways are clear and have a qualified person give oxygen through a facemask. If breathing has stopped apply artificial respiration at once. In the event of cardiac arrest, apply external cardiac massage. Seek immediate medical advice.

**Skin Contact:** If skin or hair contact occurs, immediately remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre or a Doctor; or for 15 minutes and transport to Doctor or Hospital. For freeze burns, immediately flood burnt area with plenty of warm water (40 - 44°C) and cover with a clean, dry dressing. Seek immediate medical assistance.

# Safety Data Sheet



**Eye contact:** If in eyes, hold eyelids apart and flush the eyes continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre or a Doctor; or for at least 15 minutes and transport to Doctor or Hospital. For freeze burns, Immediately irrigate with copious quantities of warm (40 - 44 °C) water for at least 15 minutes. Eyelids to be held open. Remove clothing if contaminated and wash skin. Urgently seek medical assistance. Transport to hospital or medical centre.

**Ingestion:** Rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water to drink. Never give anything by the mouth to an unconscious patient. If vomiting occurs give further water. Seek medical advice.

**PPE for First Aiders:** Wear safety shoes, overalls, gloves, apron, face shield, air mask. Use with adequate ventilation. If inhalation risk exists, wear air-supplied mask meeting the requirements of AS/NZS 1715 and AS/NZS 1716. Available information suggests that gloves made from teflon should be suitable for intermittent contact. However, due to variations in glove construction and local conditions, the user should make a final assessment. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

**Notes to physician:** Treat symptomatically.

## 5. FIRE FIGHTING MEASURES

**Suitable extinguishing media:** If material is involved in a fire use water fog (or if unavailable fine water spray), alcohol resistant foam, standard foam, dry agent (carbon dioxide, dry chemical powder).

**Specific hazards:** May cause or intensify fire; oxidiser. Contains gas under pressure; may explode if heated.

**Fire fighting further advice:** Heating can cause expansion or decomposition leading to violent rupture of containers. If safe to do so, remove containers from path of fire. Keep containers cool with water spray. On burning or decomposing may emit toxic fumes. Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapour or products of combustion or decomposition.

**CAUTION:** If chlorine gas contacts water it forms highly corrosive hydrochloric acid which can quickly corrode metal such as pipework, fittings, metal on emergency vehicles, etc. Never use water directly on a leaking cylinder or pipework as this will make the leak worse. Water fog may be used to knock down a gas cloud and the resultant acidic solution diluted with large amounts of water.

## 6. ACCIDENTAL RELEASE MEASURES

### SMALL SPILLS

Wear protective equipment to prevent skin and eye contamination. Avoid inhalation of gas. If safe to do so, isolate the leak. Increase ventilation to assist with dispersion.

### LARGE SPILLS

Note: Chlorine gas only becomes visible at high concentrations. Shut off leak if possible without risk. Use fire hoses equipped with fog nozzles to disperse gas downwind. DO NOT spray water directly on the leak, liquid chlorine or chlorine container. If safe to do so, rotate container so that gas and not liquid escapes.

For liquid: Contain - prevent run off into drains and waterways. Use fog nozzles as before to disperse any gas. Do NOT allow any water to fall onto a pool of liquid chlorine as this will increase gas cloud. If safe to do so, cover with large plastic sheet. Where possible vapour knock down water should be contained.

**Dangerous Goods - Initial Emergency Response Guide No:** 12

## 7. HANDLING AND STORAGE

**Handling:** Avoid eye contact and skin contact. Avoid inhalation of vapour, mist or aerosols.



**Storage:** Cylinders should be securely restrained so that they are kept upright at all times. Tanks should be stored horizontally. Keep containers closed when not in use - check regularly for leaks. Store in a cool, dry, well-ventilated area – reacts with water. Do not expose to temperatures exceeding 50°C. Store away from foodstuffs, combustible materials and incompatible materials.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### National occupational exposure limits:

	TWA		STEL		NOTICES
	ppm	mg/m3	ppm	mg/m3	
Chlorine	1 Peak limitation	3 Peak limitation	-	-	-

As published by Safe Work Australia.

TWA - The time-weighted average airborne concentration over an eight-hour working day, for a five-day working week over an entire working life.

STEL (Short Term Exposure Limit) - the average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.

These Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

If the directions for use on the product label are followed, exposure of individuals using the product should not exceed the above standard. The standard was created for workers who are routinely, potentially exposed during product manufacture.

**Biological Limit Values:** As per the "National Model Regulations for the Control of Workplace Hazardous Substances (Safe Work Australia)" the ingredients in this material do not have a Biological Limit Allocated.

**Engineering Measures:** Ensure ventilation is adequate to maintain air concentrations below Exposure Standards. Use only in well ventilated areas. Use with local exhaust ventilation or while wearing appropriate respirator. Vapour heavier than air - prevent concentration in hollows or sumps. Do NOT enter confined spaces where vapour may have collected.

**Personal Protection Equipment:** SAFETY SHOES, OVERALLS, GLOVES, APRON, FACE SHIELD, AIR MASK.

Wear safety shoes, overalls, gloves, apron, face shield, air mask. Use with adequate ventilation. If inhalation risk exists, wear air-supplied mask meeting the requirements of AS/NZS 1715 and AS/NZS 1716. Available information suggests that gloves made from teflon should be suitable for intermittent contact. However, due to variations in glove construction and local conditions, the user should make a final assessment. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

**Hygiene measures:** Keep away from food, drink and animal feeding stuffs. When using do not eat, drink or smoke. Wash hands prior to eating, drinking or smoking. Avoid contact with clothing. Avoid eye contact and skin contact. Avoid inhalation of vapour, mist or aerosols. Ensure that eyewash stations and safety showers are close to the workstation location.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

# Safety Data Sheet



**Form:** Gas  
**Colour:** Greenish-yellow (high concentrations), clear (low concentrations)  
**Odour:** Pungent

**Solubility:** Soluble in water  
**Specific Gravity:** 1.468 (liquid), 1.56 @ -35°C  
**Density:** N Av  
**Relative Vapour Density (air=1):** 2.4  
**Vapour Pressure (20 °C):** 666 kPa @ 20°C  
**Flash Point (°C):** N App  
**Flammability Limits (%):** N App  
**Autoignition Temperature (°C):** N App  
**Melting Point/Range (°C):** N Av  
**Boiling Point/Range (°C):** -34  
**pH:** N App  
**Viscosity:** N App  
**Odour Threshold:** Approx. 1 ppm

(Typical values only - consult specification sheet)  
N Av = Not available, N App = Not applicable

## 10. STABILITY AND REACTIVITY

**Chemical stability:** Reactive chemical. Corrosive in the presence of moisture.

**Conditions to avoid:** Avoid exposure to heat, sources of ignition, and open flame. Avoid contact with combustible substances. Do not allow water to come into contact with liquid chlorine.

**Incompatible materials:** Combustible materials and reducing agents.

**Hazardous decomposition products:** Oxides of chlorine and chlorine compounds.

**Hazardous reactions:** Reacts violently with many organic chemicals (e.g. mineral oils, greases), hydrocarbons, silicones, and finely divided metals. Forms explosive mixtures with alcohols, glycols, ammonia and its compounds, and hydrogen over a wide range of concentrations. Oxidising agent. Supports combustion of other materials and increases intensity of a fire. Corrosive to some metals in the presence of moisture (brass, copper, lead, nickel, steel and stainless steel). Heating can cause expansion or decomposition of the material, which can lead to the containers exploding. Can react with acids and some nitrogen or phosphorous compounds. Hazardous polymerisation will not occur.

## 11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

### Acute Effects

**Inhalation:** Toxic if inhaled. Material is an irritant to mucous membranes and respiratory tract.

**Skin contact:** Contact with skin will result in irritation. Liquid splashes or spray may cause freeze burns.

**Ingestion:** Swallowing can result in nausea, vomiting and irritation of the gastrointestinal tract.

**Eye contact:** An eye irritant. Liquid splashes or spray may cause freeze burns to the eye.

### Acute toxicity

**Inhalation:** This material has been classified as a Category 3 Hazard. Acute toxicity estimate (based on

# Safety Data Sheet



ingredients):  $500 < LC50 \leq 2,500$  ppm

**Skin contact:** This material has been classified as non-hazardous. Acute toxicity estimate (based on ingredients):  $>2,000$  mg/Kg bw

**Ingestion:** This material has been classified as non-hazardous. Acute toxicity estimate (based on ingredients):  $>2,000$  mg/Kg bw

**Corrosion/Irritancy:** Eye: this material has been classified as not corrosive or irritating to eyes. Skin: this material has been classified as a Category 2 Hazard (reversible effects to skin).

**Sensitisation:** Inhalation: this material has been classified as not a respiratory sensitiser. Skin: this material has been classified as not a skin sensitiser.

**Aspiration hazard:** This material has been classified as non-hazardous.

**Specific target organ toxicity (single exposure):** This material has been classified as a Category 3 Hazard. Exposure via inhalation may result in respiratory irritation.

## Chronic Toxicity

**Mutagenicity:** This material has been classified as non-hazardous.

**Carcinogenicity:** This material has been classified as non-hazardous.

**Reproductive toxicity (including via lactation):** This material has been classified as non-hazardous.

**Specific target organ toxicity (repeat exposure):** This material has been classified as non-hazardous.

## 12. ECOLOGICAL INFORMATION

Avoid contaminating waterways.

**Acute aquatic hazard:** This material has been classified as a Category Acute 1 Hazard. Acute toxicity estimate (based on ingredients):  $<1$  mg/L

**Long-term aquatic hazard:** This material has been classified as non-hazardous. Non-rapidly or rapidly degradable substance for which there are adequate chronic toxicity data available OR in the absence of chronic toxicity data, Acute toxicity estimate (based on ingredients):  $>100$  mg/L, where the substance is not rapidly degradable and/or  $BCF < 500$  and/or  $\log K_{ow} < 4$ .

**Ecotoxicity:** No information available.

**Persistence and degradability:** No information available.

**Bioaccumulative potential:** No information available.

**Mobility:** No information available.

## 13. DISPOSAL CONSIDERATIONS

Persons conducting disposal, recycling or reclamation activities should ensure that appropriate personal protection equipment is used, see "Section 8. Exposure Controls and Personal Protection" of this SDS.

If possible material and its container should be recycled. If material or container cannot be recycled, dispose in accordance with local, regional, national and international Regulations.

## 14. TRANSPORT INFORMATION

### ROAD AND RAIL TRANSPORT

Classified as Dangerous Goods by the criteria of the United Nations "Recommendations on the Transport of Dangerous Goods."



**UN No:** 1017  
**Dangerous Goods Class:** 2.3  
**Subrisk 1:** 5.1  
**Subrisk 2:** 8  
**Packing Group:** None  
**Emergency Response Guide No:** 12

**Proper Shipping Name:** CHLORINE

**Segregation Dangerous Goods:** Not to be loaded with explosives (Class 1), flammable liquids (Class 3), spontaneously combustible substances (Class 4.2), oxidising agents (Class 5.1), organic peroxides (Class 5.2), food and food packaging in any quantity. Exemptions may apply.

### MARINE TRANSPORT

Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea. This material is classified as a Marine Pollutant (P) according to the International Maritime Dangerous Goods Code.



**UN No:** 1017  
**Dangerous Goods Class:** 2.3  
**Subrisk 1:** 5.1  
**Subrisk 2:** 8  
**Packing Group:** None

**Proper Shipping Name:** CHLORINE

### AIR TRANSPORT

Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.

TRANSPORT PROHIBITED under the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air in passenger and cargo aircraft.



**UN No:** 1017  
**Dangerous Goods Class:** 2.3  
**Subrisk 1:** 5.1  
**Subrisk 2:** 8  
**Packing Group:** None

# Safety Data Sheet



Proper Shipping Name: CHLORINE

## 15. REGULATORY INFORMATION

**This material is not subject to the following international agreements:**

Montreal Protocol (Ozone depleting substances)  
The Stockholm Convention (Persistent Organic Pollutants)  
The Rotterdam Convention (Prior Informed Consent)  
Basel Convention (Hazardous Waste)  
International Convention for the Prevention of Pollution from Ships (MARPOL)

## 16. OTHER INFORMATION

Reason for issue: Revised. Change to transport information.

This Safety Data Sheet has been prepared by Chemical Data Services Pty Ltd ([chemdata.com.au](http://chemdata.com.au)) on behalf of its client.

Safety Data Sheets are updated frequently. Please ensure that you have a current copy.

This SDS summarises at the date of issue our best knowledge of the health and safety hazard information of the product, and in particular how to safely handle and use the product in the workplace. Since DuluxGroup (Australia) Pty Ltd and DuluxGroup (New Zealand) Pty Ltd cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, review this SDS in the context of how the user intends to handle and use the product in the workplace.

If clarification or further information is needed to ensure that an appropriate assessment can be made, the user should contact this company.

Our responsibility for product as sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available upon request.