

Product Name **CHLORINE (COOGEE CHEMICALS)**

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

**Supplier Name** COOGEE CHEMICALS  
**Address** Cnr of Patterson and Kwinana Beach Roads, Kwinana, WA, AUSTRALIA, 6167  
**Telephone** (08) 9439 8200  
**Fax** (08) 9439 8300  
**Emergency** 1800 800 655  
**Email** businessrelations@coogee.com.au  
**Web Site** http://www.coogee.com.au

**Synonym(s)** 8170 - PRODUCT CODE • CHLORINE GAS • COOGEE CHLORINE LIQUID • LIQUEFIED COMPRESSED CHLORINE GAS • NUFARM CHLORINE LIQUID (FORMERLY)

**Use(s)** CHEMICAL PRODUCTION • SANITISING AGENT

## 2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO ASCC CRITERIA

### RISK PHRASES

R23 Toxic by inhalation.  
R36/37/38 Irritating to eyes, respiratory system and skin.

### SAFETY PHRASES

S44 If you feel unwell, contact a doctor or Poisons Information Centre immediately (show label where possible).  
S7/9 Keep container tightly closed and in a well ventilated place.

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

<b>UN No.</b>	1017	<b>DG Class</b>	2.3	<b>Subsidiary Risk(s)</b>	5.1 / 8
<b>Packing Group</b>	None Allocated	<b>Hazchem Code</b>	2XE	<b>EPG</b>	2B5

## 3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Formula	CAS No.	Content
CHLORINE	Cl <sub>2</sub>	7782-50-5	100%

## 4. FIRST AID MEASURES

**Eye** Cold burns: Immediately flush with tepid water or with sterile saline solution. Hold eyelids apart and irrigate for 15 minutes. Seek medical attention.

**Inhalation** If inhaled, remove from contaminated area. To protect rescuer, use an Air-line respirator or Self Contained Breathing Apparatus (SCBA). Be aware of possible explosive atmospheres. Apply artificial respiration if not breathing. Give oxygen if available.

**Skin** Cold burns: Remove contaminated clothing and gently flush affected areas with warm water (30°C) for 15 minutes. Apply sterile dressing and treat as for a thermal burn. For large burns, immerse in warm water for 15 minutes. DO NOT apply any form of direct heat. Seek immediate medical attention.

**Ingestion** Not considered a potential route of exposure.

**Advice to Doctor** Management of pulmonary oedema. Treatment for inhalation is of priority if patient also has skin or mucus membrane contact. Prolonged irrigation is required for eye contact. Local anaesthetic drops may be instilled (aqueous type). Care with administration of oils or oily ointment. Treatment for cold and chemical burns if contact with liquid.

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## 5. FIRE FIGHTING MEASURES

<b>Flammability</b>	Non flammable but acts as a strong oxidising agent and will vigorously accelerate fires. Protect from sources of heat, organic material and lubricants which may self ignite in combination with chlorine. Cylinders and manifolds should be located in areas with good natural ventilation or areas having adequate local ventilation.
<b>Fire and Explosion</b>	Temperatures in a fire may cause cylinders to rupture. Cool cylinders or containers exposed to fire by applying water from a protected location. Do not approach cylinders or containers suspected of being hot. Remove cool cylinders from the path of the fire. Evacuate area if unable to keep cylinders cool. Ensure work area is thoroughly ventilated before re-entry.
<b>Extinguishing</b>	Stop flow of gas if safe to do so, such as by slowly closing the cylinder valve. Await arrival of emergency services or manufacturer's advisor. Drench and cool cylinders with water spray from protected area at a safe distance.
<b>Hazchem Code</b>	2XE

## 6. ACCIDENTAL RELEASE MEASURES

<b>Spillage</b>	If the cylinder is leaking, evacuate area of personnel. Inform manufacturer/supplier of leak. Use personal protective equipment. Carefully move material to a well ventilated remote area, then allow to discharge. Do not attempt to repair leaking valve or cylinder safety devices.
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## 7. STORAGE AND HANDLING

<b>Storage</b>	Do not store near sources of ignition or incompatible materials. Cylinders should be stored below 45°C in a secure area, upright and restrained to prevent cylinders from falling. Cylinders should also be stored in a dry, well ventilated area constructed of non-combustible material with firm level floor (preferably concrete), away from areas of heavy traffic and emergency exits. Also store removed from metals, sulphur and combustible materials.
<b>Handling</b>	Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Do not drag, drop, slide or roll cylinders. The uncontrolled release of a gas under pressure may cause physical harm. Use a suitable hand truck for cylinder movement.

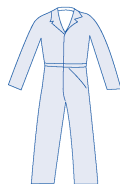
## 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Exposure Stds	Ingredient	Reference	TWA		STEL	
			ppm	mg/m3	ppm	mg/m3
	Chlorine (Peak limitation)	ASCC (AUS)	1.0	3.0	--	--

**Biological Limits** No biological limit allocated.

**Engineering Controls** Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. Maintain vapour levels below the recommended exposure standard.

**PPE** Wear safety boots, leather gloves, coveralls, a Type B (Inorganic gases and vapours) respirator and safety glasses. Only experienced and trained person should use this product. When using large quantities or where heavy contamination is likely, wear: impervious coveralls. At high vapour levels, wear: an Air-line respirator or self Contained Breathing Apparatus (SCBA).



## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b>	GREEN TO YELLOW LIQUID (LIQUEFIED UNDER PRESSURE)	<b>Solubility (Water)</b>	SOLUBLE
<b>Odour</b>	SLIGHT ODOUR	<b>Specific Gravity</b>	NOT AVAILABLE
<b>pH</b>	NOT AVAILABLE	<b>% Volatiles</b>	100 %
<b>Vapour Pressure</b>	638.4 kPa @ 20°C	<b>Flammability</b>	NON FLAMMABLE
<b>Vapour Density</b>	2.5 (Approximately) (Air = 1)	<b>Flash Point</b>	NOT RELEVANT

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Boiling Point	-33.97°C	Upper Explosion Limit	NOT RELEVANT
Melting Point	-100.98°C	Lower Explosion Limit	NOT RELEVANT
Evaporation Rate	NOT AVAILABLE		

## 10. STABILITY AND REACTIVITY

**Chemical Stability** Unstable. Reacts violently with water.

**Conditions to Avoid** Avoid moisture.

**Material to Avoid** Incompatible with oil, many organic materials and most lubricants. Moist chlorine requires special materials. Also incompatible with metals, sulphur and combustible materials.

**Decomposition** May evolve toxic gases if heated to decomposition.

**Hazardous Reactions** Polymerization will not occur.

## 11. TOXICOLOGICAL INFORMATION

**Health Hazard Summary** Highly corrosive - toxic. Over exposure to high concentrations causes rapid onset of pulmonary oedema which may have fatal termination. Olfactory fatigue may occur. Repeated or prolonged exposure at 5 ppm may result in respiratory effects, inflammation of the nose and corrosion of tooth enamel. No dose-response correlation was found between exposure to chlorine and the occurrence of colds, breathing difficulties, abnormal heartbeat or chest pain.

**Eye** Highly corrosive. Gas and liquid are extremely irritating and corrosive. Mild concentrations of vapour will cause irritation, higher concentrations may cause burns, inflammation and swelling of the eyes with possible loss of vision. Persons with potential exposure should not wear contact lenses.

**Inhalation** Toxic - corrosive. Slight itching of the nose can occur at 0.2 ppm. At 1 ppm, scratchiness and dryness of the throat, coughing and minor breathing difficulties can occur. Severe shortage of breath and violent headache can occur after exposure to 1 ppm for 30 minutes. Above 25 ppm, intense coughing, choking, chest pain and vomiting occur. Bronchitis and accumulation of fluid in the lungs may develop after severe exposure. A few breathes at 1,000 ppm can cause death.

**Skin** Irritant. Low temperature evaporating liquid can cause cold burns.

**Ingestion** Ingestion is considered unlikely due to product form. However, ingestion of liquid may result in burns to the mouth and throat.

**Toxicity Data** CHLORINE (7782-50-5)  
LC50 (Inhalation): 293 ppm/1 hour (rat)  
LCLo (Inhalation): 500 ppm/5 minutes (man)  
TCLo (Inhalation): 0.9 mg/m<sup>3</sup> (human)

## 12. ECOLOGICAL INFORMATION

**Environment** Chlorine has very low stability in natural water as it readily oxidises inorganic and organic compounds. Chlorine is highly toxic to all forms of aquatic life. There is no potential for bioaccumulation or bioconcentration.

## 13. DISPOSAL CONSIDERATIONS

**Waste Disposal** Cylinders should be returned to the manufacturer or supplier for disposal of contents.

**Legislation** Dispose of in accordance with relevant local legislation.

## 14. TRANSPORT INFORMATION

**Transport** Ensure cylinder is separated from driver and foodstuffs.



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<b>UN No.</b>	1017	<b>DG Class</b>	2.3	<b>Subsidiary Risk(s)</b> 5.1 / 8
<b>Packing Group</b>	None Allocated	<b>Hazchem Code</b>	2XE	<b>EPG</b> 2B5

**IATA**

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<b>Packing Group</b>	None Allocated			

**IMDG**

<b>Shipping Name</b>	CHLORINE			
<b>UN No.</b>	1017	<b>DG Class</b>	2.3	<b>Subsidiary Risk(s)</b> 5.1 / 8
<b>Packing Group</b>	None Allocated	<b>Marine Pollutant</b>		

**15. REGULATORY INFORMATION**

**Poison Schedule** Classified as a Schedule 7 (S7) Poison using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

**AICS** All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

**16. OTHER INFORMATION**

**Additional Information** Incompatible with acetylene (explosive reaction), alcohols (formation of explosive alkyl hypochlorites), alkyl isothiourea salts (formation of explosive nitrogen trichloride), ammonia (explodes when heated), antimony (ignition reaction), arsenic (spontaneous ignition), n-arylsulphinamides (possible violent reaction), benzene (explosive reaction catalysed by light), boron (ignites on contact), bromine pentafluoride (explosive reaction), calcium chlorite (forms explosive chlorine dioxide), calcium nitride (incandescent reaction), carbon activated (ignites on contact), carbon disulphide (explosive reaction in the presence of an iron catalyst), cesium nitride (attached by chlorine), 3-chloropropyne (possible explosion), chromyl chloride + carbon (possible explosion), combustible materials (contact with the liquid is likely to result in an explosion), contact with the gas may result in ignition or an explosion, diborane (explodes on contact at ambient temperatures), dichloromethylarsine (possible explosion), diethyl ether (explodes), diethylzinc (ignition), dimethylformamide (explosion hazard), dimethyl phosphorimidate (may form explosive nitrogen trichloride), dioxygen difluoride (ignition or explosive reaction), disilyl oxide (explosive reaction), 4,4'-dithiodimorpholine (may form explosive compound), ethylene (explosive reaction in the presence of light or catalysts), ethylene imine (formation of explosive 1-chloroethylene imine), ethylphosphine (explosion on contact), flammable compounds (contact with the liquid is likely to result in an explosion), fluorine (ignition followed by explosion on sparking, hexachlorodisilane (ignition above 300°C with possible explosion), hydrazine (ignition reaction), hydrocarbons (contact with the liquid is likely to result in an explosion. Addition of a Lewis acid to chlorine-hydrocarbon mixtures will result in the release of large volumes of hydrogen chloride. Also incompatible with hydrogen (explosive mixtures), hydrogen peroxide + potassium hydroxide (luminescent reaction), hydroxylamine (spontaneous ignition), iodine (violent reaction), iron carbide (incandescent reaction), lithium silicide (incandescent reaction when heated), metals and alloys (ignition on contact; some metals may be corroded in the presence of moisture), metal acetylides (ignition reaction), metal hydrides (ignition), metal oxides (vigorous reaction and possible ignition), metal phosphides (ignition), nitrogen compounds (may form explosive nitrogen trichloride), nitrogen triiodide (explosive reaction on contact), non-metal hydrides (ignite on contact), oxygen (explosive on heating), oxygen difluoride (explodes on warming), phenylmagnesium bromide (possible explosion), phosphorus (explosive reaction on contact with the liquid; ignition on contact with the gas), phosphorus compounds (ignition), phosphorus isocyanate (vigorous reaction), polychlorobiphenyl (exothermic reaction), (poly)oxomonosilane (ignition), potassium halides (ignition), silicon (ignites on contact with gaseous chlorine at ambient temperatures), siloxanes (possible explosion on heating), sodium hydroxide (violent reaction), stannous fluoride (reaction occurs with flaming), stibine (explosive reaction if heated), sulphamic acid (may form explosive nitrogen trichloride), (sulphides (ignition), tellurium (incandescent reaction), tetramethyldiarsine (spontaneous ignition), tetramethylsilane (possible explosion in the presence of a catalyst), tetraselenium tetranitride (explosion on contact), trialkylboranes (ignition reaction), trimethyl thionophosphate (possible explosion) and vanadium powder (explosion on contact with the liquid).

**ABBREVIATIONS:**

ADB - Air-Dry Basis.

BEI - Biological Exposure Indice(s)

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CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds.  
CNS - Central Nervous System.  
EINECS - European INventory of Existing Commercial chemical Substances.  
IARC - International Agency for Research on Cancer.  
M - moles per litre, a unit of concentration.  
mg/m3 - Milligrams per cubic metre.  
NOS - Not Otherwise Specified.  
NTP - National Toxicology Program.  
OSHA - Occupational Safety and Health Administration.  
pH - relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).  
ppm - Parts Per Million.  
RTECS - Registry of Toxic Effects of Chemical Substances.  
TWA/ES - Time Weighted Average or Exposure Standard.

**HEALTH EFFECTS FROM EXPOSURE:**

It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a Chem Alert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

**PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:**

The recommendation for protective equipment contained within this Chem Alert report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

**COLOUR RATING SYSTEM:** RMT has assigned all Chem Alert reports a colour rating of Green, Amber or Red for the sole purpose of providing users with a quick and easy means of determining the hazardous nature of a product. Safe handling recommendations are provided in all Chem Alert reports so as to clearly identify how users can control the hazards and thereby reduce the risk (or likelihood) of adverse effects. As a general guideline, a Green colour rating indicates a low hazard, an Amber colour rating indicates a moderate hazard and a Red colour rating indicates a high hazard.

While all due care has been taken by RMT in the preparation of the Colour Rating System, it is intended as a guide only and RMT does not provide any warranty in relation to the accuracy of the Colour Rating System. As far as is lawfully possible, RMT accepts no liability or responsibility whatsoever for the actions or omissions of any person in reliance on the Colour Rating System.

**Report Status**

This Chem Alert report has been independently compiled by RMT's scientific department utilising the original Material Safety Data Sheet ('MSDS') for the product provided to RMT by the manufacturer. The information is based on the latest chemical and toxicological research and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue.

This Chem Alert report does not constitute the manufacturer's original MSDS and is not intended to be a replacement for same. It is provided to subscribers of Chem Alert as a reference tool only, is not all-inclusive and does not represent any guarantee as to the properties of the product. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer.

While RMT has taken all due care to include accurate and up-to-date information in this Chem Alert report, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this Chem Alert report.

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**End of Report**