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# Safety Data Sheet
# Chlorine

Classified as: Hazardous according to the EPA Hazardous Substances (Hazard Classification) Notice 2020.

## Section 1: SUBSTANCE AND SUPPLIER DETAILS

**Product Name:** Chlorine

**Other Names:** Liquefied chlorine, Liquid chlorine, Diatomic chlorine, Chlorine cylinder (used)

**Supplier:**
Chemtrex Limited
PO Box 9122
17 Maleme Street
Tauranga 3112
New Zealand

**Recommended Use:** Disinfection, water treatment, bleaching, metal recovery, neutralising agent, oxidant. Restricted to workplaces only.

**In Case of Emergency Contact:**

CHEMCALL: 0800 CHEMCALL (243 622)

## Section 2: HAZARDS IDENTIFICATION

Chlorine is classified as Dangerous Goods by the criteria of the New Zealand Land Transport Rule, Dangerous Goods for Transport by Road and Rail.

Chlorine is classified as hazardous according to criteria in the EPA Hazardous Substances (Hazard Classification) Notice 2020.

HSNO APPROVAL NUMBER: **HSR001058**

HSNO CLASSIFICATIONS:
5.1.2A Oxidising substances that are gases
6.1A (inhalation) Acutely toxic
6.9A Toxic to human target organs or systems, repeated exposure
8.1A Corrosive to metals
8.2A Corrosive to dermal tissue
8.3A Corrosive to ocular tissue
9.1A Very ecotoxic in the aquatic environment, acute
9.1B Ecotoxic in the aquatic environment, chronic

GHS Classification:
Oxidising Gases – Category 1
Gases under pressure – Liquefied Gas
Corrosive to metals – Category 1

Acute toxicity inhalation – Category 1
Skin corrosion/irritation – Category 1A
Serious eye damage/eye irritation – Category 1
Specific target organ toxicity (repeated exposure) – Category 1
Hazardous to the aquatic environment, acute – Category 1
Hazardous to the aquatic environment, chronic – Category 2
Hazardous to soil organisms

Hazard Statements:

H270 May cause or intensify fire; oxidizer.
H280 Contains gas under pressure; may explode if heated.
H290 May be corrosive to metals.
H330 Fatal if inhaled.
H314 Causes severe skin burns and eye damage.
H372 Causes damage to organs (respiratory system) through prolonged or repeated exposure via inhalation.
H400 Very toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.
Hazardous to soil organisms.

GHS Pictograms:

**DANGER**

PREVENTION STATEMENTS:

P220 - Keep/Store away from clothing/incompatible materials/combustible materials.
P244 - Keep valves and fittings free from oil and grease.
P234 - Keep only in original container.
P260 - Do not breathe gas.
P264 - Wash hands, exposed skin, thoroughly after handling.
P270 - Do not eat, drink, or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, eye protection, face protection.
P284 - Wear respiratory protection.

RESPONSE STATEMENTS:

P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P363 - Wash contaminated clothing before reuse.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308 + P310 - If exposed or concerned: Immediately call a POISON CENTER or doctor/physician.
P314 - Get medical advice/attention if you feel unwell.
P320 - Specific treatment is urgent. (See First Aid treatment on the Safety Data Sheet).
P370+P376 - In case of fire: Stop leak if safe to do so.
P390 - Absorb spillage to prevent material damage.
P391 - Collect spillage.

STORAGE

P410 + P403 + P233 - Protect from sunlight. Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P406 - Store in a corrosion resistant container.

DISPOSAL

P501 - In accordance with the Consolidated EPA Hazardous Substances (Disposal) Notice 2017. Refer to Section 13 of this SDS.

## Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Single substance.

| Main Component | CAS Number | Concentration (%wt) |
|---|---|---|
| Chlorine | 7782-50-5 | >=99.8% |

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

## Section 4: FIRST AID MEASURES

**Workplace Facilities Required:** Eye wash and safety shower facilities must be provided.

**For Advice:** Contact 0800 CHEMCALL (0800 243 622)

**If Inhaled:** Remove victim from area of 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 patient finds breathing difficult and develops a bluish discolouration of the skin (which suggests a lack of oxygen in the blood - cyanosis), ensure airways are clear of any obstruction and have a qualified person give oxygen through a face mask. Apply artificial respiration if patient is not breathing. Seek immediate medical advice.

**In Contact with Eye:** If in eyes, hold eyelids apart and flush the eye continuously with running water for at least 20 minutes. Seek immediate medical assistance. Continue flushing until advised to stop by a doctor.

**In Contact with Skin:** If skin or hair contact occurs, immediately remove any contaminated clothing and wash skin and hair thoroughly with running water. If swelling, redness, blistering, or irritation occurs seek medical assistance. For skin burns, cover with a clean, dry dressing until medical help is available. Launder contaminated clothing before reuse.

**If Swallowed:** Immediately rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water. Seek immediate medical assistance.

**Advice to Doctor:** Treat symptomatically. Effects may be delayed. Delayed pulmonary oedema may result.

## Section 5: FIRE FIGHTING MEASURES

**Fire/Explosion Hazard:** Non-combustible, but will support combustion of other materials. Oxidizing substance.

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.

| | |
|---|---|
| **Suitable Extinguishing Media:** | If material is involved in a fire use: Water fog, normal foam, dry agent (carbon dioxide, dry chemical powder). |
| **Precautions in Connection with Fire:** | Heating can cause expansion or decomposition of the material, which can lead to the containers exploding. If safe to do so, remove containers from the path of fire. Only move cool cylinders. Do not approach cylinders suspected to be hot. |
| **Advice for firefighters:** | Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure. If unable to keep cylinders cool, evacuate area. |

## Section 6: ACCIDENTAL RELEASE MEASURES

**An emergency response plan is required under Part 5 of the Health and Safety at Work (Hazardous Substances) Regulations 2017 when held in quantities greater than 5kg.**

| | |
|---|---|
| **Precautions:** | Note: Chlorine gas only becomes visible at high concentrations. Clear area of all unprotected personnel. Evacuate personnel from downwind areas. Wear protective equipment to prevent skin and eye contact and inhalation of gas. Avoid breathing in gas. Work up wind or increase ventilation. |
| **Suitable Protective Equipment:** | Emergency responders must use personal protective equipment, including gloves, protective overalls and footwear, face shield and self-contained breathing apparatus. |
| **Spill or Leak Procedures.** | For large spills notify the emergency services.<br><br>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.<br><br>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.<br><br>SMALL SPILLS: Allow liquid to evaporate. |
| **Waste Disposal Methods:** | Dispose of as per Section 13. |
| **Emergency preparation:** | Ensure there is appropriate and adequate personal protective equipment, trained personnel and clean up materials for management of accidental release. |

## Section 7: HANDLING AND STORAGE

| | |
|---|---|
| **Precautions for Safe Handling:** | Avoid contact with skin and eyes. Do not breathe gas. Do not eat drink or smoke when using this product. Remove contaminated clothing and wash hands and face before entering eating areas. |
| **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.<br><br>Store in a cool, dry, well-ventilated area – reacts with water. Store away from |

foodstuffs, combustible materials, and incompatible materials, refer to Section 10.

**Site Storage Requirements:** Site Signage will be required when quantities exceed 5kg.

## Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

**Workplace Exposure Standards NZ:** Chlorine: WES-STEL 0.5 ppm, 1.5 mg/$m^3$

**Engineering Controls:** Ensure ventilation is adequate to maintain air concentrations below Workplace Exposure Standards. If inhalation risk exists: Use with local exhaust ventilation or while wearing air supplied mask. Vapour heavier than air - prevent concentration in hollows or sumps. DO NOT enter confined spaces where vapour may have collected.

**Personal Protective Equipment:** Avoid contact with the skin and eyes. Avoid inhaling gas.

* Not required if wearing air supplied mask

**Hand protection:** Wear elbow-length impervious gloves. Refer to Australian and New Zealand Standard AS/NZS 2161 for protective gloves.

**Skin and body protection:** Use protective overalls. Clothing worn should be specific to chlorine handling and should be removed when leaving chlorine handling area to prevent any residual chlorine on clothing contacting any incompatible substances. Wash work clothes regularly. Refer to Australian and New Zealand Standard AS/NZS 4501 for occupational protective clothing.

**Eye protection:** Use full face shield to protect eyes and face. Alternatively, an air supplied mask can be used. Refer to AS/NZS 1336 for suitable eye and face protection.

**Respiratory protection:** Wear an air supplied mask. Refer to AS/NZS 1715 and AS/NZS 1716 for suitable respiratory protection. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

**Other information:** PPE selected must be impervious to the substance. Do not eat, smoke, or drink where material is handled, processed, or stored. Wash hands carefully before eating, drinking, or smoking. Handle in accordance with safe industrial hygiene practices.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

| | | | |
|---|---|---|---|
| **Description:** | Gas/Liquid | **Colour:** | Greenish yellow at high concentrations, Colourless at low concentrations |
| **Odour:** | Irritating, pungent | **Odour Threshold:** | Approx. 1ppm |
| **pH (20°C):** | Not available | **Solubility (water, 20°C):** | 7300 mg/L |

| | | | |
|---|---|---|---|
| **Freezing point:** | -101 °C | **Boiling Point:** | -34 °C |
| **Flammability:** | Non-flammable | **Flash Point:** | Not applicable |
| **UEL/LEL:** | Not applicable | **Vapour Pressure (20°C):** | 666 kPa |
| **Decomposition Temp:** | Not available | **Autoignition Temp:** | Not self-igniting |
| **Specific Gravity:** | 1.468 (liquid), 1.56 @ -35 °C | **Viscosity:** | Not applicable |
| **Vapour Density (Relative):** | 2.4 (air = 1) | **Particle Characteristics:** | Not applicable |
| **% Volatile by Volume:** | ca. 100 | | |

## Section 10: STABILITY AND REACTIVITY

**Stability:** Reactive chemical. Corrosive in the presence of moisture.

**Reactivity:** 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.

**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.

**Incompatibility:** Incompatible with combustible materials. Incompatible with heat and hot surfaces. Incompatible with reducing agents.

**Hazardous Decomposition:** Decomposes to form oxides of chlorine and chlorine compounds.

## Section 11: TOXICOLOGICAL INFORMATION

### Acute Exposure

**Acute Toxicity:** LC50 inhalation (mice) 137 ppm/1hr. Converts to 68.5 ppm/4hr

**Inhalation:** Fatal if inhaled. Causes coughing, wheezing, shortness of breath, corrosive to mucous membranes and airways. May cause pulmonary oedema.

**Ingestion:** Swallowing liquid will result in freeze burns of the mouth, throat, and stomach. Swallowing can result in chemical burns to the mouth, throat, and abdomen; perforation of the gastrointestinal tract and vomiting of blood and eroded tissue.

**Skin Corrosion/Irritation:** Liquid chlorine is corrosive to skin causing redness, pain, blistering. Liquid splashes or spray may cause freeze burns.

**Serious Eye Damage/Eye Irritation:** Corrosive to eyes; contact can cause corneal burns. Contamination of eyes can result in permanent injury. Liquid splashes or spray may cause freeze burns to the eye.

**Respiratory or Skin Sensitisation:** Not expected to be a respiratory or contact sensitiser.

### Chronic Exposure:

**Mutagen/Carcinogen/Reproductive Toxicant** Not expected to be mutagenic, carcinogenic, or a reproductive toxicant.

**Specific Target Organ Toxicity, Single Exposure:** Not expected to be hazardous to target organs by single exposure.

**Specific Target Organ Toxicity, Repeated Exposure:** Toxic to human target organs or systems through prolonged or repeated exposure via inhalation causing damage to lungs.

**Aspiration Hazard:** Not expected to be an aspiration hazard.

Toxicity data is based on hazardous ingredient information and information in the EPA Chemical Classification and Information Database.

## Section 12: ECOLOGICAL INFORMATION

**Ecotoxicity:** Very toxic to aquatic organisms with short term effects. Toxic to aquatic organisms with long lasting effects.
Very toxic to the soil environment.
Avoid losses of product to the environment wherever possible.

Acute ecotoxicity: $LC_{50}$ (fish) 96 hr: 0.014 mg/L, $LC_{50}$ (crust.) 48 hr: 0.085 mg/L
Chronic ecotoxicity: $LC_{50}$ (fish) 147 days: 0.016 mg/L

**Persistence/degradability:** Product is biodegradable.

**Bioaccumulation:** Not bioaccumulative.

**Mobility in soil:** Product is soluble in water. Highly mobile in soil.

**Other adverse effects:** No other adverse effects expected.

**Ingredients with Ecotoxic classifications:** Chlorine is classified as very toxic to aquatic life with acute effects, toxic to aquatic life with chronic effects, and hazardous to soil organisms.

Ecotoxicity data is based on hazardous ingredient information and information in the EPA Chemical Classification and Information Database.

## Section 13: DISPOSAL CONSIDERATIONS

**Disposal:** Dispose of waste product via an approved waste disposal contractor. Contact supplier for advice.

**Disposal of Packaging:** Cylinders and tanks may contain product residues and should be treated as hazardous. Return to supplier or contact supplier for advice.

## Section 14: TRANSPORT INFORMATION

Chlorine is classified as a Dangerous Good for transport in accordance with NZS5433:2020, IMDG.

Ensure transportation methods prevent leakage from packages and collapsing loads.


**Land Transport:**

| | |
|---|---|
| UN No: | 1017 |
| Transport Hazard Class: | 2.3 Toxic Gas |
| Subrisk 1: | 5.1 Oxidising Agent |
| Subrisk 2: | 8 Corrosive |
| Proper Shipping Name or Technical Name: | CHLORINE |
| ANZ Emergency Response Guide Book: | Guide 124 |
| Hazchem or Emergency Action Code: | 2XE |

**Marine Transport:**

| | |
|---|---|
| UN No: | 1017 |
| Transport Hazard Class: | 2.3 Toxic Gas |
| Subrisk 1: | 5.1 Oxidising Agent |
| Subrisk 2: | 8 Corrosive |
| Proper Shipping Name or Technical Name: | CHLORINE |
| IMDG EMS Fire: | F-C |
| IMDG EMS Spill: | S-U |
| Marine Pollutant: | Yes |

**Air Transport:**

TRANSPORT PROHIBITED under the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air in Passenger and Cargo Aircraft, and Cargo Aircraft Only.

## Section 15: REGULATORY INFORMATION

**EPA Approval Number:** Chlorine HSR001058

**Hazard Classifications:**
Oxidising Gases – Category 1
Gases under pressure – Liquefied Gas
Corrosive to metals – Category 1
Acute toxicity inhalation – Category 1
Skin corrosion/irritation – Category 1A
Serious eye damage/eye irritation – Category 1
Specific target organ toxicity (repeated exposure) – Category 1
Hazardous to the aquatic environment, acute – Category 1
Hazardous to the aquatic environment, chronic – Category 2
Hazardous to soil organisms

**NZ Inventory of Chemicals:** All ingredients are listed in the NZ Inventory of Chemicals.

This substance triggers:

| | |
|---|---|
| Compliance Certificate | 150 kg* |
| Certified Handler | Yes |
| Emergency Response Plan | 5kg |
| Secondary Containment | N/A |
| Signage | 5kg |

* Trigger quantity amended in Health and Safety at Work Hazardous Substances Regulations, Schedule 10, Tables 1 and 2.

This substance is required to be Tracked. This substance is restricted to workplaces only. Suppliers must meet the requirements of Clause 13 of the EPA Hazardous Substances (Hazardous Property Controls) Notice 2017.

All workplace personnel handling this substance are required to be trained on the safe handling and PPE requirements for the hazards associated with this substance.

## Section 16: OTHER INFORMATION

The information provided in this Safety Data Sheet relates only to the specific material designated herein. This Safety Data Sheet summarises our best knowledge of the health and safety hazard information of the product and how to safely handle the product in the workplace. Each user should read this SDS and consider the information in the context of how the product will be handled and used in the workplace including its use in conjunction with other products.

This substance is approved under HSNO for various industrial uses. All reasonable care has been taken to ensure that the information and advice contained herein are from sources believed to be reliable and to represent the most up-to-date knowledge available at the date given in Section 16. No liability is assumed for any damages related to the use or misuse of this substance.

All chemical materials may present unknown hazards as people have varying degrees of sensitivity to chemicals. Therefore, this product should be used with caution. The information herein is given in good faith, but no warranty, express or implied is made.

SDS Issued: 9 December 2025

Supersedes: 24 February 2021

Reason for Revision: 5-year review and update.

References:

EPA NZ Chemical Classification and Information Database
EPA Guide: Assigning a Hazardous Substance to a Group Standard, 2014
Supplier SDS: Chemtrex Chlorine SDS, May 2016

Summary of Abbreviations: EPA – Environmental Protection Authority
GHS – Global Harmonisation System
CAS – Chemical Abstracts Service
STEL – Short Term Exposure Limit

**END OF SAFETY DATA SHEET**