Safety Data Sheet

25 August 2021

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name:	**HY-CLOR GRANULAR CHLORINE**
Chemical Name:	Calcium Hypochlorite calcium; dihypochlorite
Synonyms	
Product Codes:	HYCG02, HYCG04, HYCG10
Recommended Use of the Chemical and Restrictions on Use:	Swimming Pool Disinfectant and Sanitiser
Supplier:	HY-CLOR AUSTRALIA PTY LTD
Street Address:	178 Power Street Glendenning NSW 2761
Telephone Number:	02 8805 2400
After Hours Contact:	0404 859 515
Facsimile:	02 8805 2401
Email Contact:	help@hyclor.com.au
Emergency Telephone:	**13 11 26 (Australia Poisons Information Centre)**

Please ensure you refer to the limitations of this Safety Data Sheet as set out in the "Other Information"

2. HAZARDS IDENTIFICATION

Classified as hazardous according to the criteria of the GHS as adopted in Australia. A Dangerous Good according to ADG 7.5.

Poisons Schedule: S6. SIGNAL WORD: Poison
GHS Hazard Statement(s)

Oxidising Solid	Category 2	H272	May Intensify fire: oxidizer
Acute Oral Toxicity	Category 4	H302	Harmful if swallowed
Skin Corrosion irritation	Category 1B	H314	Causes severe skin burns and eye damage
Aquatic acute toxicity	Category 1	H400	Very Toxic to the aquatic life

Precautionary statements
Prevention:
P210: Keep away from heat.
P220: Keep/Store away from clothing, other chemicals, acids and combustible materials such as paper, fabric, sawdust or kerosene.
P221: Take any precaution to avoid mixing with combustibles, acids and other chemicals ...

P260: Do not breathe mists.
P264: Wash face and hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/eye protection/face protection
P273: Avoid release to the environment. - if this is not the intended use.
Response:
P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P310: Immediately call a POISON CENTER or doctor/ physician.
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.
P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
P370+P378: In case of fire: Use water for extinction. P391: Collect spillage.
Storage:
P405: Store locked up.
Disposal:
P501: Dispose of contents/container in accordance with local & regional waste disposal legislation

Hazard pictograms

Signal word Danger

Label Statements:	Keep out of reach of Children Read Label before use If medical advice is needed, have product container or label at hand.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	**CAS Number**	**Concentration (% w/w)**
Calcium Hypochlorite	7778-54-3	65-68%
Not contributing to the product hazard		Balance

4. FIRST AID MEASURES

If poisoning occurs, or medical advice needed contact a Poisons Information Centre. Phone Australia 13 1126 or a doctor. Have this SDS when you call.

Swallowed:	Do not induce vomiting unless advised to do so from, a medical practitioner. Give a glass of water. Wash out mouth with water. Seek medical attention.
Skin:	Wash affected area thoroughly with soap and water. Remove contaminated clothing and wash before reuse or discard. If irritation occurs seek immediate medical attention.
Eye:	If in eyes, hold eyes open, flood with water for at least 15 minutes. Take care not to rinse contaminated water into the non-affected eye. If irritation occurs seek immediate medical attention.
Inhaled:	Remove from contaminated area. If symptoms develop seek medical attention.
Note to Physician	Treat symptomatically

5. FIRE FIGHTING MEASURES

Suitable extinguishing media:	Flooding water spray. Do not use foam or dry agent.
Special hazards arising from the chemical:	Inhalation, ingestion or contact (skin, eyes) with vapors or substance may cause severe injury, burns or death. Fire may produce irritating, corrosive and/or toxic gases. Carbon monoxide (in conditions of incomplete combustion), carbon dioxide, nitrogen oxides and hydrogen chloride may be produced if water in the product boils off. May accelerate burning when involved in a fire. May decompose explosively when heated or involved in a fire. May explode from heat or contamination. May react explosively with hydrocarbons (fuels). May ignite combustibles (wood, paper, oil, clothing, etc.). Containers may explode when heated. Runoff may create fire or explosion hazard. Runoff from fire control or dilution water may cause pollution.
Special protective equipment and precautions for fire firefighters:	The product is not combustible. However, after evaporation of water in the product, the residue may be combustible. In confined areas or areas of excessive smoke, fire fighter must wear full protection and self-contained breathing apparatus.
Hazchem Code:	2P

6. ACCIDENTAL RELEASE MEASURES

Environmental precautions	Keep spilt products out of drains, sewers and waterways. If large quantities of this material enter the waterways contact the Environmental Protection Authority, or your local Waste Management Authority.
Methods and materials for containment and cleaning up	For minor spills, contain and absorb with inert materials (sand, earth), sweep up, place contaminated material in a sealed container and place in garbage. Wash area down with excess water. For large spills contact the emergency response number.

7. HANDLING AND STORAGE

Keep out of the reach of children.

Precautions for safe handling	Avoid skin and eye contact and breathing in dust. Wear appropriate protective equipment and clothing. Remove contaminated clothing. Use in a well ventilated area. Avoid spillage onto floor. Maintain personal hygiene by washing hands prior to eating, drinking, smoking or using toilet.
Safe storage, including any incompatibilities	Store in a cool, dry well-ventilated area, out of direct sunlight. Store in labelled, original containers. Keep containers tightly closed and upright. Avoid spillage onto the floor. Do not allow into contract with water. Store away from sources of ignition, heat and incompatible materials described in Section 10.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits: Exposure limits have not been established by Safe Work Australia for this product or any of its components. It is appropriate to apply the exposure standard for nuisance dusts of 10 mg/m3 , measured as inhalable dust (8 hour TWA).

Workplace Exposure Standard(s) for decomposition product(s) are:

- Chlorine: TWA Peak Limitation = 3 mg/m^3 (1 ppm)
- Hydrogen chloride: TWA = 7.5 mg/m^3 (5 ppm)
- Nitrogen oxides: Nitrous oxide. TWA = 31 mg/m^3 (25 ppm).
  Nitrogen dioxide TWA – 5.6 mg/m^3 (3 ppm). STEL 9.4 mg/m^3 (5 ppm)
- Carbon oxides: carbon dioxide: TWA = 9g/m^3 (5000 ppm).
  carbon monoxide: TWA = 34 mg/m^3 (30 ppm).

Exposure controls

Appropriate Engineering Controls:

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. Avoid generating and inhaling dusts. Use in a well-ventilated area only. Keep containers in a well-ventilated area. Local exhaust ventilations system may be required, especially if chlorine gas evolved.

The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

Skin Protection:	Suitable protective clothing should be worn e.g. cotton overalls and safety shoes. Wear gloves of impervious material such as nitrile rubber (glove thickness 0.11 mm & breakthrough time > 480 min) that comply with AS/NZS 2126. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken.
Eye Protection:	Tightly fitting safety goggles or full-faced shields as appropriate recommended and that comply with AS/NZS 1336 and 1337. Final choice of appropriate eye/face protection will vary according to individual circumstances i.e. methods of handling or engineering controls and according to risk assessments undertaken.
Respiratory Protection:	Respiratory protection is not normally necessary, unless the production of dust is significant. In such cases, a suitable respirator may be worn that meets the requirements of AS/NZS 1715 and 1716.
Personal Hygiene:	Always wash hands after handling this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	White to cream, dry free flowing powder	**Vapour density:**	No data found
Odour:	Chlorine	**Relative density:**	No data found
pH:	10-11.5 at 1% solution	**Water solubility:**	200 g/L at 20°C
Melting point / freezing point:	~ 100°C	**Partition coefficient n-octanol/water:**	Not applicable, inorganic compound
Initial boiling point and boiling range:	Not applicable	**Auto-ignition temperature:**	Not applicable
Flash point:	Not flammable	**Decomposition temperature:**	'>177 °C
Evaporation rate:	No data found	**Viscosity:**	Not applicable
Flammability:	Not flammable	**Explosive properties:**	May explode when in contact with incompatible substances
Upper/lower flammability limits:	Not flammable	**Oxidising properties:**	GHS Cat 2 oxidiser
Vapour pressure:	No data found		

10. STABILITY AND REACTIVITY

Reactivity: Oxidising agent. Violent explosions possible

Chemical Stability: This product is stable and unlikely to react or decompose under normal circumstances. In a fire and reactive conditions chlorine gas evolves.

Possibility of hazardous reactions:

- A risk of explosion and/or of toxic gas formation exists with the following substances: Water, acids ferric oxide, ethanol, glycerol, Methanol, carbon/soot, Organic Substances, acetic acid, with, potassium cyanide
- Violent reactions possible with: phenol, combustible substances, Alcohols, Alkali metals, Amines, ammonium compounds, Halogenated hydrocarbon, mercaptans, metallic oxides, organic nitro compounds, Reducing agents, sulphur.

Conditions to avoid: Heating.

Incompatible materials: See possibility of hazardous reactions.

11. TOXICOLOGICAL INFORMATION

No data available for the product. Information given is based on the calcium hypochlorite component (70% w/w).

Acute Oral Harmful if swallowed. Ingestion may cause nausea, vomiting, shock and coma. Corrosive. Will cause severe damage to the mucous membranes, including irritation and/or burns to the entire gastrointestinal tract. This is characterised by nausea, vomiting, diarrhea, abdominal pain, bleeding and/or tissue ulceration. May also cause circulatory collapse, cyanosis, shock, confusion, delirium and swelling of the throat or tongue resulting in obstruction of the airway. Oral LD50 (rat) = 790 mg/kg.

Acute Dermal Dermal LD50 (rat) > 2000mg/kg

Skin corrosion/irritation Corrosive to skin – causes burns. Dermal exposure can cause severe irritation and/or burns characterised by redness, swelling and scab formation. Skin contact may also cause eruptions and eczema.

Serious eye damage/eye irritation Causes burns and is a severe eye irritant. Contact may cause impairment of vision or corneal damage.

Inhalation The vapour is an irritant to the mucous membranes and respiratory tract. Inhalation of dust will result in respiratory irritation. Inhalation may result in headaches, dizziness and possible nausea. May also cause burns to the respiratory tract with the

	choking, chest pain and impairment of lung function. Inhalation of high concentrations can result in permanent lung damage. Inhalation exposures to concentrations of greater than about 500 ppm (10 min or more) may be fatal for rats.
Respiratory or skin sensitization	Inhalation of mist may result in respiratory irritation. No data found for skin or respiratory sensitisation
Mutagenicity	Chromosomal aberrations were analyzed in Chinese hamster cells treated for 24 or 48 hours with three different doses of calcium hypochlorite, in the absence of metabolic activation. A positive increase in chromosomal aberrations was observed only in a culture treated with 0.5 ug/mL (6.7 mol/L = approx. 3.5 umol/L active chlorine) for 48 hours.
Reproduction/Development	No reproductive toxic effects were shown up to 5 mg/kg (highest dose tested) of sodium salt (equivalent to 4.8 mg/kg of Calcium salt) in a one generation oral study in rats. No evidence of adverse developmental effects were reported in animals. Moreover, epidemiological studies in humans did not show any evidence of toxic effects on reproduction and development.
Carcinogenicity	No carcinogenicity was observed in mice or rats exposed by inhalation to chlorine and orally to sodium hypochlorite, except some equivocal results were reported for female rats by oral route. For human carcinogenicity, no causal relationship between hypochlorite exposure and tumor incidence was observed. The observation is applicable to calcium hypochlorite.
Specific target organ toxicity - single exposure	Moderate depression of the central nervous system was found at 1 hour after administration. Most survivors showed a mild to moderate persistent anorexia. Most affected animals showed diarrhea for several days.
Specific target organ toxicity - repeated exposure	A NOAEL (chronic) can be calculated to be approximately 14 mg available chlorine /kg bw/day for rats and 22.5 mg available chlorine /kg bw/day for mice.
Aspiration hazard	Not considered to be an aspiration hazard.

12. ECOLOGICAL INFORMATION

	No data available for the product. Information given is based on the calcium hypochlorite component (70% w/w).
Aquatic toxicity	LC_{50} for *Ceriodaphnia dubia* is 5 µg FAC/L (FAC=Free available chlorine). Adequate standard acute tests in fish are not available. Data for TRC (total residual chlorine = the sum of combined and free residual available chlorine) - 96h LC_{50} = 60 µg TRC/L and 168h LC_{50} = 330 µg TRC/L. Lowest result for algae is reported for *Thalassiosira pseudonana* with a IC_{50} of 75 µg/L (20°C).
toxicity	LC_{50} for *Ceriodaphnia dubia* is 5 µg FAC/L (FAC=Free available chlorine). Adequate standard acute tests in fish
	Salt water: fish (*Oncorhynchus kisutch*) 96 h LC_{50} = 32 µg TRO/L) (TRO = Total Residual Oxidant) Molluscs: are more 15d NOEC of 6.2 µg TRO/L.
Persistence and degradability	High water solubility and rapid reaction with organic matter leads to rapid disappearance of the hypochlorite moiety. Biodegradation of this substance cannot be measured
Bioaccumulative potential:	The bioaccumulation potential of this substance can be disregarded, because of its water solubility and its high reactivity.
Mobility in soil	substance decomposes rapidly in each compartment (air, water, soil and sediment). Therefore, this substance itself does not exist in nature.
PBT identification:	This product is not identified as a PBT/vPvB substance.
Other adverse effects:	None known.

are not available. Data for TRC (total residual chlorine = the sum of combined and free residual available chlorine) - 96h LC_{50} = 60 µg TRC/L and 168h LC_{50} = 330 µg TRC/L.

Long-term toxicity to freshwater organisms: lowest NOEC = 5 µg/L (*Ictalurus punctatus*, 133d, growth).

In microcosm and field studies the most sensitive parameter was the density of zooplankton with a NOEC of 1.5 µg TRC/L.,

13. DISPOSAL CONSIDERATIONS

Disposal: Rinse empty containers in the pool and dispose of by wrapping with paper and putting in garbage. For larger quantities, refer to Refer to local government authority for disposal recommendations. Dispose of material through a licensed waste contractor. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

14. TRANSPORT INFORMATION

Consult the ADG 7.5, IMDG and ICAO/IATA Codes for all the transport requirements for the specified UN Number.

	Land Transport (ADG 7.5)	Sea Transport (IMDG)	Air Transport (ICAO/IATA)
UN Number	2880	2880	2880
UN proper shipping name	CALCIUM HYPOCHLORITE, HYDRATED MIXTURE with not less than 5.5% but not more than 16% water	CALCIUM HYPOCHLORITE, HYDRATED MIXTURE with not less than 5.5% but not more than 16% water	CALCIUM HYPOCHLORITE, HYDRATED MIXTURE with not less than 5.5% but not more than 16% water
Transport Hazard Class	5.1	5.1	5.1
Packaging Group	II or III (see ADG 7.5 for details)	II	II
Marine Pollutant		Yes	
Special Provisions*	223, 314, 322		

'* See ADG 7.5 for details

15. REGULATORY INFORMATION

Poisons Standard (Scheduling):	Schedule 6
APVMA Product Number:	56157
Listing in the Australian Inventory of Chemical Substances (AICS)	Not applicable for APVMA registered products

16. OTHER INFORMATION

ADG	Australian Code for the Transport of Dangerous Goods by Road & Rail Edition 7.5, 2017
AS/NZS	Australian Standard/New Zealand Standard
CAS Number:	Unique Chemical Abstracts Service Registry Number
EC_{50}:	Ecotoxic Concentration 50% – concentration in water which is fatal to 50% of a test population (e.g. daphnia, fish species).
GHS:	Globally Harmonized System of classification and labelling of chemicals (GHS)
Hazchem Code:	Emergency action code of numbers and letters that provide information to emergency services, especially fire fighters
HCIS:	Hazardous Chemical Information System (http://hcis.safeworkaustralia.gov.au/HazardousChemical)
IARC:	International Agency for Research on Cancer
LD_{50}:	Lethal Dose 50% – dose which is fatal to 50% of a test population (usually rats).
IDLH:	Immediately dangerous to life or health (**IDLH**) is **defined** by the US National Institute for Occupational Safety and Health (NIOSH)
LC_{50}:	Lethal Concentration 50% – concentration in air which is fatal to 50% of a test population.
NTP:	National Toxicology Program (USA)
SDS:	Safety Data Sheet
STEL:	Short term exposure limit (STEL) means the time-weighted average maximum airborne concentration of a substance calculated over a 15 minute period.
TWA:	8-hour Time-weighted average (TWA) means the maximum average airborne concentration of a substance when calculated over an eight-hour working day, for a five-day working week.
WES:	Workplace exposure standard
UN Number:	United Nations Dangerous Goods Number

References:

Work Safe Australia Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice (February 2016). The exposure standards comply with the Australian Workplace Exposure Standards for Airborne Contaminants. The Dangerous Goods Classification complies with the Australian Code for the Transport of Dangerous Goods by Road & Rail Edition 7.5, 2017. Other information from ChemIDPlus and linked databases and the European Chemicals Agency Classification and Labelling database. OECD SIDS.

Sections Revised: All

Replaces revision: 11 July 2013

Disclaimer

This Safety Data Sheet (SDS) has been prepared in compliance with the Work Safe Australia Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice (February 2016). The information in this SDS should be provided to all who will use, handle, store, transport, or otherwise be exposed to this product. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is

based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. HY-CLOR Australia Pty. Limited shall not be held liable for any damage resulting from handling or from contact with the above product.

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