AQUA CHLOR L

(ChemWatch name: SODIUM HYPOCHLORITE SOLUTION)

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

AQUA CHLOR L

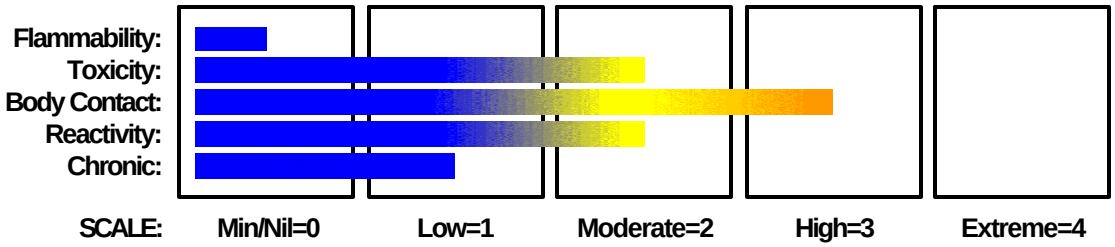
STATEMENT OF HAZARDOUS NATURE

Considered a Hazardous Substance according to the criteria of the New Zealand Hazardous Substances New Organisms legislation.

SUPPLIER

Company: Andrew Limited
Address:
3 Porana Road
Glenfield
AUCKLAND
Telephone: 09 444 3733
Telephone: 0800 429 628
Emergency Tel: 0800 243 622
Fax: 09 444 3838

HAZARD RATINGS



PRODUCT USE

In the bleaching of paper pulp and textiles, for the purification of water. Sterilising disinfectant and as fungicide, microbiocide in laundry. An oxidising agent used in the manufacture of organic chemicals and as a chemical intermediate. The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing Before starting consider control of exposure by mechanical

continued...

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ...

ventilation

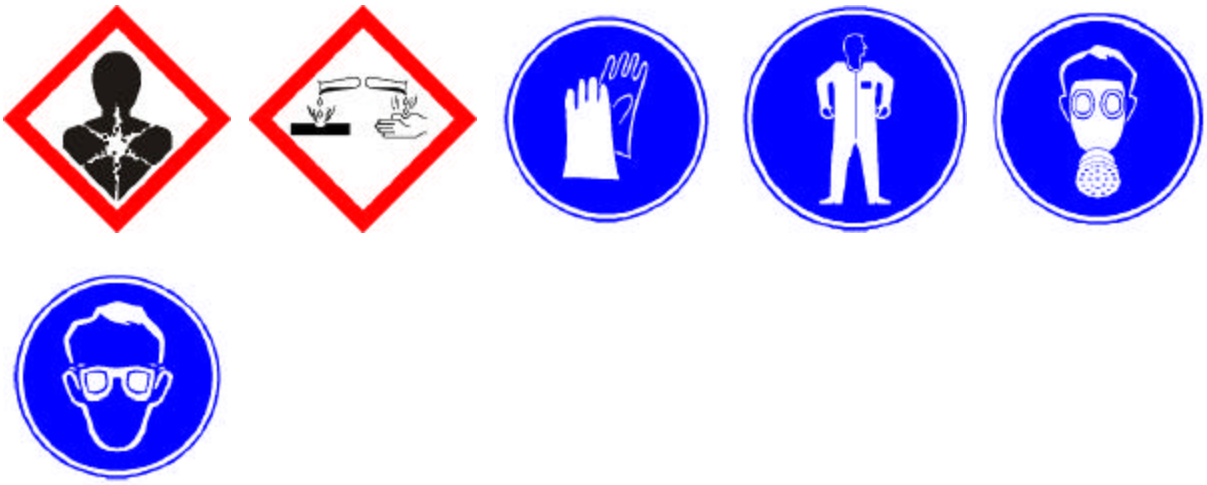
SYNONYMS

Na-O-Cl	Carrel-Darkin solution
Chlorox	Clorox
Dakin's solution	bleach
hypochlorous acid, sodium salt	Antiformin
B-K liquid	Chloro
Hypochlorite	Milton
Surchlor	household bleach
Soda bleach liquor	Liquid pool chlorine
Newland sodium hypochloride	

Section 2 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
sodium hypochlorite @ 136.4 gram / Litre = 11.3 % hypochlorite or as 13% available chlorine	7681-52-9	5-30
water contains more than 5% available chlorine	7732-18-5	>60

Section 3 - HAZARDS IDENTIFICATION



EMERGENCY OVERVIEW

HAZARD

6.7B Limited evidence of a carcinogenic effect.
8.1A Corrosive to metals

continued...

Section 3 - HAZARDS IDENTIFICATION ...

8.2C Mildlycorrosive to skin
8.3A Corrosive to eyes

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Accidental ingestion of the material may be damaging to the health of the individual; animal experiments indicate that ingestion of less than 150 gram may be fatal.
The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.

EYE

The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.
When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation.

SKIN

The material can produce chemical burns following direct contact with the skin.

INHALED

Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system in a substantial number of individuals following inhalation.

CHRONIC HEALTH EFFECTS

On the basis, primarily, of animal experiments, concern has been expressed by at least one classification body that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.

Principal routes of exposure are usually by skin contact / eye contact and inhalation of vapour
Prolonged or repeated skin contact may cause drying with cracking, irritation and possible dermatitis following.
Necrosis and haemorrhage of the upper digestive tract, oedema and pulmonary emphysema were found on autopsy after suicidal ingestion, and methaemoglobinaemia was also reported in another fatal case.

Section 4 - FIRST AID MEASURES

SWALLOWED

If poisoning occurs, contact a doctor or Poisons Information Centre.
- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

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- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconsciousness
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

EYE

If this product comes in contact with the eyes:
- Immediately hold eyelids apart and flush the eye continuously with running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin or hair contact occurs:
- Immediately flush body and clothes with large amounts of water, using safety shower if available.
- Quickly remove all contaminated clothing, including footwear.
- Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.
- Transport to hospital, or doctor.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor, without delay.

NOTES TO PHYSICIAN

For acute or repeated exposures to hypochlorite solutions:
- Release of small amounts of hypochlorous acid and acid gases from the stomach following ingestion, is usually too low to cause damage but may be irritating to mucous membranes. Buffering with antacid may be helpful if discomfort is evident.
- Evaluate as potential caustic exposure.
- Decontaminate skin and eyes with copious saline irrigation. Check exposed eyes for corneal abrasions with fluorescein staining.
- Emesis or lavage and catharsis may be indicated for mild caustic exposure.
- Chlorine exposures require evaluation of acid/base and respiratory status.
- Inhalation of vapours or mists may result in pulmonary oedema.

ELLENHORN and BARCELOUX: Medical Toxicology.

continued...

Section 4 - FIRST AID MEASURES ...

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Water spray or fog.
Foam.
Dry chemical powder.
BCF (where regulations permit).
Carbon dioxide.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use fire fighting procedures suitable for surrounding area.
- Do not approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

Non combustible liquid
Heating may cause expansion or decomposition leading to violent rupture of containers
Decomposes on heating and produces toxic fumes of chlorine caustic compounds

FIRE INCOMPATIBILITY

Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous
Avoid storage with reducing agents. , amines , acids , copper , peroxides , ammonium salts and combustible materials

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

DO NOT touch the spill material . Clean up all spills immediately.
Avoid breathing vapours and contact with skin and eyes.
Wear protective clothing, impervious gloves and safety glasses.
Neutralise with sodium metabisulfite or sodium thiosulfate.
Wipe up and absorb small quantities with vermiculite or other absorbent material.
Place in suitable containers for disposal.
Wash spill area with large quantities of water.

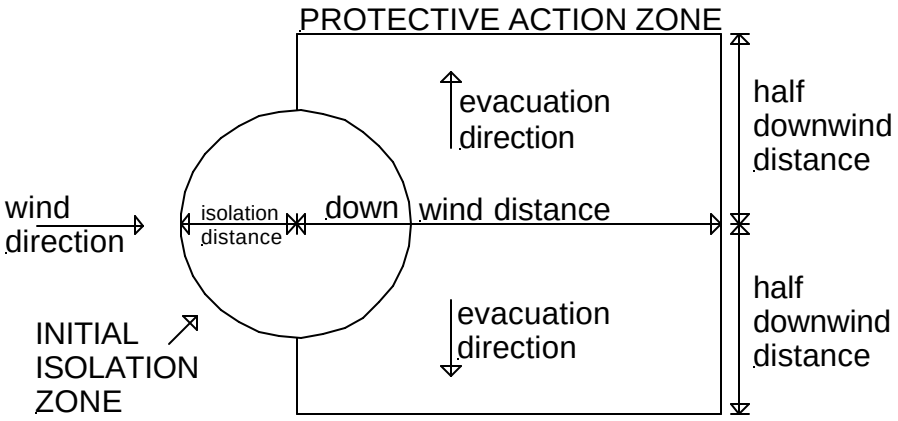
continued...

Section 6 - ACCIDENTAL RELEASE MEASURES ...

MAJOR SPILLS

Clear area of personnel and move upwind . DO NOT touch the spill material
Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water courses.
Increase ventilation.
Stop leak if safe to do so.
Contain spill with sand, earth or vermiculite.
Collect recoverable product into labelled containers for recycling
Neutralise with sodium metabisulfite or sodium thiosulfate.
Absorb remaining product with sand, earth or vermiculite.
Collect residues and seal in labelled drums for disposal
Wash spill area with large quantities of water.
If contamination of drains or waterways occurs, advise emergency services.
After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.

PROTECTIVE ACTIONS FOR SPILL



From IERG (Canada/Australia)

Isolation Distance	25 metres
Downwind Protection Distance	250 metres

FOOTNOTES

1 PROTECTIVE ACTION ZONE is defined as the area in which people are at risk of harmful exposure. This zone assumes that random changes in wind direction confines the vapour plume to an area within 30 degrees on either side of the predominant wind direction, resulting in a crosswind protective action distance equal to the downwind protective action distance.

2 PROTECTIVE ACTIONS should be initiated to the extent possible, beginning with those closest to the spill and working away from the site in the downwind direction. Within the protective action zone a level of vapour concentration may exist resulting in nearly all unprotected persons becoming incapacitated and unable to take protective action and/or incurring serious or irreversible

continued...

Section 6 - ACCIDENTAL RELEASE MEASURES ...

health effects.
3 INITIAL ISOLATION ZONE is determined as an area, including upwind of the incident, within which a high probability of localised wind reversal may expose nearly all persons without appropriate protection to life-threatening concentrations of the material.
4 SMALL SPILLS involve a leaking package of 200 litres (55 US gallons) or less, such as a drum (jerrican or box with inner containers). Larger packages leaking less than 200 litres and compressed gas leaking from a small cylinder are also considered "small spills".
LARGE SPILLS involve many small leaking packages or a leaking package of greater than 200 litres, such as a cargo tank, portable tank or a "one-tonne" compressed gas cylinder.
5 Guide 154 is taken from the US DOT emergency response guide book.
6 IERG information is derived from CANUTEC - Transport Canada.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

Avoid generating and breathing mist
DO NOT allow clothing wet with material to stay in contact with skin
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- WARNING: To avoid violent reaction, ALWAYS add material to water and NEVER water to material.
- Avoid smoking, naked lights or ignition sources.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

Glass container and Container to have vented cap
- Polyethylene or polypropylene container.
- Packing as recommended by manufacturer
- Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

Avoid storage with reducing agents. , amines , methanol , acids , copper , peroxides , ammonium salts and combustible materials
Contact with acids liberates toxic gases i.e. chlorine

continued...

Section 7 - HANDLING AND STORAGE ...

STORAGE REQUIREMENTS

Store in original containers. and Store in an upright position.
Store away from incompatible materials.
DO NOT store near acids . DO NOT store on wooden floors.
Store in a well-ventilated area. Keep containers securely sealed
Protect from light. Protect containers against physical damage
Check regularly for spills and leaks
Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

available chlorine, as chlorine gas:
TLV TWA: 0.5 ppm, 1.5 mg/m³; STEL: 1 ppm, 2.9 mg/m³
ES Peak: 1 ppm, 3 mg/m³ (Under review)

INGREDIENT DATA

SODIUM HYPOCHLORITE:
available chlorine, as chlorine
TLV TWA: 0.5 ppm, 1.5 mg/m³: STEL: 1 ppm, 2.9 mg/m³
ES Peak: 1 ppm, 3 mg/m³
CEL TWA: 2 mg/m³ (compare WEEL TWA)
The odour threshold is likely to be similar to that of chlorine, 0.3 ppm.
Acute, subchronic, and chronic toxicity studies have shown no significant treatment related effects. High concentrations may produce moderate to severe eye irritation, but not permanent injury. High doses also appear to be embryotoxic. Since nearly all sodium hypochlorite is handled as aqueous solution, airborne exposure is likely to be as an aerosol, or mist. Sodium hypochlorite dissociates in water to form free hypochlorous acid in equilibrium. The toxic effects are likely to be similar to those of chlorine or sodium hydroxide.

WATER:
No exposure limits set by NOHSC or ACGIH

PERSONAL PROTECTION

continued...

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ...

EYE

- Chemical goggles.
- Full face shield.
- Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

HANDS/FEET

Wear chemical protective gloves. eg. PVC gloves with barrier cream
Wear safety footwear. or PVC safety gumboots

RESPIRATOR

Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
10 x ES	b P1 Air-line*	- -	b PAPR-P1 -
50 x ES	Air-line**	b P2	b PAPR-P2
100 x ES	-	b P3	-
		Air-line*	-
100+ x ES	-	Air-line**	b PAPR-P3

* - Negative pressure demand ** - Continuous flow

OTHER

- Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.
- Ensure there is ready access to a safety shower.

ENGINEERING CONTROLS

CARE: Use of a quantity of this material in confined space or poorly ventilated area, where rapid build up of concentrated atmosphere may occur, could require increased ventilation and/or protective gear
Use in a well-ventilated area
General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in specific circumstances. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas.
Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid	0.5-1 m/s (100-200 f/min.)

continued...

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ...

fumes, pickling (released at low velocity into zone of active generation)	
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.
Avoid contact with eyes.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Liquid.
Mixes with water.
Corrosive.
Contact with acids liberates toxic gas.

Molecular Weight: Not applicable.	Boiling Range (°C): 100-110
Melting Range (°C): < 0	Specific Gravity (water=1): 1.15-1.2

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES ...

Solubility in water (g/L): Miscible
pH (1% solution): 9.5-10.5
Volatile Component (%vol): Not available
Relative Vapour Density (air=1): Not available
Lower Explosive Limit (%): Not applicable
Autoignition Temp (°C): Not applicable
State: Liquid

pH (as supplied): 10-11
Vapour Pressure (kPa): 2.4 @ 20 C
Evaporation Rate: Not available
Flash Point (°C): Not applicable
Upper Explosive Limit (%): Not applicable
Decomposition Temp (°C):

APPEARANCE

Pale yellow or greenish liquid with chlorine odour; mixes with water.
CORROSIVE and Oxidising Agent
Freezing point 12% approx minus 25 deg.C.
Evolves very poisonous and corrosive chlorine gas on contact with acids and is mildly corrosive to most metals. Evolves oxygen and chlorine on heating.
Commercial grades have 3-14% available chlorine. All grades over 5% available chlorine are Dangerous Goods, with 5-16% available chlorine as Packing Group III; and more than 16% available chlorine - packing group II.
Items with 4% or less are not a scheduled poison.

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

Contact with acids produces toxic fumes of chlorine
Product is considered stable under normal handling conditions
Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

Aqua Chlor L

TOXICITY IRRITATION
Data for 21% aqueous solution:
Oral (rat) LD50: 5300 mg/kg [CCInfo]

SODIUM HYPOCHLORITE:
TOXICITY IRRITATION
Oral (mouse) LD50: 5800 mg/kg Eye (rabbit): 10 mg - moderate
Oral (woman) TDLo: 1000 mg/kg
as sodium hypochlorite pentahydrate
Oral (rat) LD50: 8910 mg/kg Skin (rabbit): 500 mg/24h-moderate
Eye (rabbit): 100 mg - moderate

The substance is classified by IARC as Group 3:
NOT classifiable as to its carcinogenicity to humans.
Evidence of carcinogenicity may be inadequate or limited in animal testing.

continued...

Section 11 - TOXICOLOGICAL INFORMATION ...

WATER:
No significant acute toxicological data identified in literature search.

Section 12 - ECOLOGICAL INFORMATION

Hazardous Air Pollutant: No

DO NOT discharge into sewer or waterways.

Section 13 - DISPOSAL CONSIDERATIONS

Recycle wherever possible. Consult manufacturer for recycling options.
Consult State Land Waste Management Authority for disposal.
Treat and neutralise at an effluent treatment plant.
Bury residue in an authorised landfill.
Puncture containers to prevent re-use.

Section 14 - TRANSPORTATION INFORMATION

Shipping Name: HYPOCHLORITE SOLUTION
Hazard Class: 8
UN/NA Number: 1791
ADR Number: 80
Packing Group: III
Labels Required: corrosive
Additional Shipping Information:
International Transport Regulations:
IMO: 8

Section 15 - REGULATORY INFORMATION

continued...

Section 15 - REGULATORY INFORMATION ...

SAFETY

Keep away from combustible material.
Do not breathe gas/ fumes/ vapour/ spray.
Avoid contact with eyes.
Wear suitable protective clothing.
To clean the floor and all objects contaminated by this material, use water.
Take off immediately all contaminated clothing.
In case of accident or if you feel unwell IMMEDIATELY contact Doctor or Poisons Information Centre (show label if possible).

Section 16 - OTHER INFORMATION

NEW ZEALAND POISONS INFORMATION CENTRE
0800 POISON (0800 764 766)
NZ EMERGENCY SERVICES: 111

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