1. Identification of Substance & Company

Product	
Product name	Liquid chlorine
Other names	Sodium hypochlorite 13-15%
HSNO approval	HSR002681
Approval description	Water Treatment Chemicals (Corrosive) Group Standard 2017
UN number	1791
DG class	8
Proper Shipping Name	SODIUM HYPOCHLORITE
Packaging group	III
Hazchem code	2X
Uses	Pool Chemical

Company Details	
Company	**Poolwise Ltd**
Physical Address	93 Ireland Road, Mt Wellington, 1060, Auckland New Zealand
Telephone	09 527 0753
Fax	09 527 4189
Website	www.poolwise.co.nz

Emergency Telephone Number: 0800 764 766

2. Hazard Identification

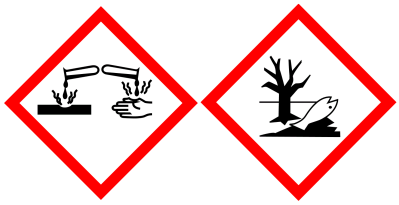
Approval

This product has been approved under the Hazardous Substances and New Organisms Act (HSNO, Approval HSR002681, Water Treatment Chemicals (Corrosive) Group Standard 2017). The substance has been assessed as hazardous according to the criteria in the Hazardous substances (Minimum Degrees of Hazard) Notice 2017 and is classified as follows:

Classes	Hazard Statements
8.2C	H314 - Causes severe skin burns and eye damage.
8.3A	H318 - Causes serious eye damage.
9.1B	H411 - Toxic to aquatic life with long lasting effects.

SYMBOLS

DANGER



Other Classifications

There are no other classifications that are known to apply.

Precautionary Statements

P101 - If medical advice is needed, have product container or label at hand.
P102 - Keep out of reach of children.
P103 - Read label before use.
P260 - Do not breathe vapours.
P264 - Wash hands thoroughly after handling.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/eye protection/face protection.
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P310 - Immediately call a POISON CENTRE 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.

P310 - Immediately call a POISON CENTRE or doctor/physician.
P304+P340 - IF INHALED: Remove 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.
P310 - Immediately call a POISON CENTRE or doctor/physician.
P391 - Collect spillage.
P405 - Store locked up.

3. Composition / Information on Ingredients

Component	CAS/ Identification	Conc (%)
sodium hypochlorite	7681-52-9	13-15%
sodium hydroxide	1310-73-2	<1%
Ingredients not contributing to HSNO classes	-	balance

This is a commercial product whose exact ratio of components may vary. Trace quantities of impurities are also likely.

4. First Aid

General Information

If medical advice is needed, have product container or label at hand. You should call the National Poisons Centre if you feel that you may have been harmed, burned or irritated by this product. The number is 0800 764 766 (0800 POISON) (24 hr emergency service).

Recommended first aid facilities Ready access to running water is required. Accessible eyewash is required.

Exposure

Swallowed IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Give a glass of water to drink. Contact a doctor. If conscious, give plenty of water to drink. Contact the National Poisons Centre or a Doctor immediately.

Eye contact IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Apply continuous irrigation with water for at least 15 minutes holding eyelids apart. Immediately call a POISON CENTER or doctor/physician.

Skin contact IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor.

Inhaled IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. If patient is unconscious, place in the recovery position (on the side) for transport and contact a doctor. If experiencing respiratory symptoms: Call a POISON CENTER or doctor.

Advice to Doctor

Treat symptomatically

5. Firefighting Measures

Fire and explosion hazards: There are no specific risks for fire/explosion for this chemical. It is non-flammable.
Suitable extinguishing substances: Carbon dioxide, extinguishing powder or water jet. Fight larger fires with water jet or alcohol resistant foam.
Unsuitable extinguishing substances: Unknown.
Products of combustion: No special measures are required.
Protective equipment: Carbon dioxide, and if combustion is incomplete, carbon monoxide, chlorine and smoke. Water. May form toxic mixtures in air and may accumulate in sumps, pits and other low-lying spaces, forming potentially explosive mixtures.
Hazchem code: 2X

6. Accidental Release Measures

Containment — If greater than 1000L is stored, secondary containment and emergency plans to manage any potential spills must be in place. In all cases design storage to prevent discharge to storm water.

Emergency procedures — In the event of spillage alert the fire brigade to location and give brief description of hazard. Stop the source of the leak, if safe to do so. Shut off all possible sources of ignition. Wear protective equipment to prevent skin, eye and respiratory exposure. Clear area of any unprotected personnel. Contain using sand, earth or vermiculite. Do not use sawdust. Prevent by whatever means possible any spillage from entering drains, sewers, or water courses. (If this occurs contact your regional council immediately).

Clean-up method — Use absorbent (soil, sand or other inert material). Rags are not recommended for the clean-up of spills, as they may create fire or environmental hazard. Collect and seal in properly labelled containers or drums for disposal. If contamination of crops, sewers or waterways has occurred advise local emergency services.

Disposal — Mop up and collect recoverable material into labelled containers for recycling or salvage. Recycle containers wherever possible. This material may be suitable for approved landfill. Dispose of only in accord with all regulations.

Precautions — Wear protective equipment to prevent skin and eye contamination and the inhalation of vapours. Work up wind or increase ventilation.

7. Storage & Handling

Storage — Avoid storage of harmful substances with food. Store out of reach of children. Containers should be kept closed in order to minimise contamination. Keep from extreme heat and open flames. Avoid contact with incompatible substances as listed in Section 10. Store locked up.

Handling — Keep exposure to a minimum, and minimise the quantities kept in work areas. See section 8 with regard to personal protective equipment requirements. Avoid skin and eye contact and inhalation of vapour, mist or aerosols.

8. Exposure Controls / Personal Protective Equipment

Workplace Exposure Standards

A workplace exposure standard (WES) has not been established by WorkSafe NZ for this product. There is a general limit of 3mg/m^3 for respirable particulates and 10mg/m^3 for inhalable particulates when limits have not otherwise been established.

NZ Workplace Exposure Stds	Ingredient	WES-TWA*	WES-STEL
	sodium hypochlorite	data unavailable	data unavailable
	chlorine	0.5ppm, 1.5mg/m^3	1ppm, 2.9mg/m^3
	sodium hydroxide	Ceiling 2 mg/m^3	

* These workplace exposure standards are also Prescribed Exposure Standards (PES) under the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016.

Engineering Controls

In industrial situations, it is expected that employee exposure to hazardous substances will be controlled to a level as far below the WES as practicable by applying the hierarchy of control required by the Health and Safety at Work Act (2015) and the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016. Exposure can be reduced by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods. If you believe air borne concentrations of mists, dusts or vapours are high, you are advised to modify processes or increase ventilation.

Personal Protective Equipment

Eyes

Protect eyes with goggles, safety glasses or full face mask. Avoid wearing contact lenses.

Skin

Avoid any skin contact. Wear overalls, rubber boots and impervious gloves. Replace frequently. Gloves should be checked for tears or holes before use. Remove protective clothing and wash exposed areas with soap and water prior to eating, drinking or smoking.

Respiratory

A respirator when airborne concentrations approach the WES (section 8). Use a Multi Gas & Vapor Respirator. If using a respirator, ensure that the cartridges are correct for the potential air contamination and are in good working order.

WES Additional Information

Not applicable

9. Physical & Chemical Properties

Appearance	pale yellow liquid
Odour	chlorine odour
pH	1% solution: 9.5-10.5. 10-11 (as supplied)
Vapour pressure	no data
Viscosity	no data
Boiling point	no data
Volatile materials	may evolve chlorine gas
Freezing / melting point	~-25°C
Solubility	soluble in water
Specific gravity / density	1.1-1.2g/cm^3
Flash point	no data
Danger of explosion	no data
Auto-ignition temperature	no data
Upper & lower flammable limits	no data
Corrosiveness	corrosive

10. Stability & Reactivity

Stability	Stable at ambient temperature and pressure. The amount of available chlorine does diminish over time.
Conditions to be avoided	Containers should be kept closed in order to avoid contamination. Keep from extreme heat, sources of ignition and open flames. Avoid exposure to light and sunlight. Avoid contact with foodstuffs.
Incompatible groups	Acids, metals, metal salts, peroxides, reducing agents and ethylene diamine tetraacetc acid (EDTA), ammonia, ammonium compounds
Hazardous decomposition products	Contact with acids liberates toxic gas (chlorine).
Hazardous reactions	Some reactions with incompatible substance are exothermic (give off heat).

11. Toxicological Information

Summary

IF SWALLOWED: may cause damage to the gastrointestinal tract and nausea, vomiting and abdominal pain.
IF IN EYES: will irritate the eyes with stinging and redness. If left in eye contact can cause burns to the eye with possible permanent eye damage.
IF ON SKIN: may cause the skin burns.
IF INHALED: vapours and mists can cause irritation of the upper respiratory tract causing coughing and/or shortness of breath. Higher concentrations can cause build up of fluid in the lungs. Exposure may also cause headaches, dizziness, nausea and vomiting. Symptoms may be delayed up to 48 hours.

Supporting Data

Acute	**Oral**	Using LD_{50}'s for ingredients, the calculated LD_{50} (oral, rat) for the mixture is >5,000 mg/kg. Data considered includes: sodium hypochlorite 5800mg/kg (mouse).
	Dermal	Using LD_{50}'s for ingredients, the calculated LD_{50} (dermal, rat) for the mixture is >5,000 mg/kg. Data considered includes: sodium hydroxide 1349mg/kg (rat).
	Inhaled	This mixture is not considered acutely toxic by inhalation, however inhalation of aerosol of sodium hypochlorite may cause lung oedema. The effects may be delayed. The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort.
	Eye	The mixture is considered to be corrosive to the eye, because Sodium hypochlorite present at >3% are considered eye corrosives.

	Skin	The mixture is considered to be a skin corrosive. Sodium hypochlorite and sodium hydroxide are skin corrosives.
Chronic	**Sensitisation**	No ingredient present at concentrations > 0.1% is considered a sensitizer.
	Mutagenicity	No ingredient present at concentrations > 0.1% is considered a mutagen.
	Carcinogenicity	No ingredient present at concentrations > 0.1% is considered a carcinogen.
	Reproductive / Developmental	No ingredient present at concentrations > 0.1% is considered a reproductive or developmental toxicant or have any effects on or via lactation.
	Systemic	No ingredient present at concentrations > 1% is considered a target organ toxicant.
	Aggravation of existing conditions	None known.

12. Ecological Data

Summary

This mixture is considered toxic in the aquatic environment.

Supporting Data

Aquatic	Using EC_{50}'s for ingredients, the calculated EC_{50} for the mixture is between 1 mg/L and 10 mg/L. Data considered includes: Sodium Hypochlorite 0.065 mg/l (96hr, fish), 0.032 mg/l (48hr, Daphnia magna), 46 mg/l (96hr, red algae), sodium hydroxide 45.4 mg/l (96hr, fish), 40.38 mg/l (48hr, water flea).
Bioaccumulation	No data
Degradability	No data
Soil	No data
Terrestrial vertebrate	This product is not considered ecotoxic towards terrestrial vertebrates.
Terrestrial invertebrate	No evidence of ecotoxicity towards terrestrial invertebrates.
Biocidal	no data
Environmental effect levels	No EELs are available for this mixture or ingredients

13. Disposal Considerations

Restrictions	There are no product-specific restrictions, however, local council and resource consent conditions may apply, including requirements of trade waste consents.
Disposal method	Disposal of this product must comply with the Hazardous Substances (Disposal) Notice 2017 and the requirements of the Resource Management Act for which approval should be sought from the Regional Authority. The substance must be treated and therefore rendered non-hazardous before discharge to the environment.
Contaminated packaging	Disposal of contaminated packaging must comply with the Hazardous Substances (Disposal) Notice 2017 clause 12. Ensure that the package is renedered incapable of containing any substance and is disposed in a manner that is consistent with the requirements of the substance it contained and the material of the package. If possible reuse or recycle packaging.

14. Transport Information

Land Transport Rule: Dangerous Goods 2005 - NZS 5433:2007

Transport according to NZS 5433 (Transport of Hazardous Substances on Land). Considered a dangerous good for transport.

UN number:	1791	**Proper shipping name:**	SODIUM HYPOCHLORITE
Class(es)	8	**Packing group:**	III
Precautions:	CORROSIVE LIQUID, MARINE POLLUTANT	**Hazchem code:**	2X

15. Regulatory Information

This product is an approved substance under the Hazardous Substances and New Organisms Act (HSNO). Approval code: HSR002681, Water Treatment Chemicals (Corrosive) Group Standard 2017.
All ingredients appear on the NZIoC.

Specific Controls

Key workplace requirements are:

SDS	To be available within 10 minutes in workplaces storing any quantity.
Inventory	An inventory of all hazardous substances must be prepared and maintained.
Packaging	All hazardous substances should be appropriately packaged including substances that have been decanted, transferred or manufactured for own use or have been supplied
Labelling	Must comply with the Hazardous Substances (Labelling) Notice 2017.
Emergency plan	Required if > 1000L is stored.
Certified handler	Not required.
Tracking	Not required.
Bunding & secondary containment	Required if > 1000L is stored.
Signage	Required if > 1000L is stored.
Location compliance certificate	Not required.
Flammable zone	Not required.
Fire extinguisher	Not required.

Note: The above workplace requirements apply if only this particular substance is present. The complete set of controls for a location will depend on the classification and total quantities of other substances present in that location.

Other Legislation

In New Zealand, the use of this product may come under the Resource Management Act and Regulations, the Health and Safety at Work Act 2015 and the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016, local Council Rules and Regional Council Plans.

16. Other Information

Abbreviations

Approval Code	Approval HSR002681, Water Treatment Chemicals (Corrosive) Group Standard 2017 Controls, EPA. www.epa.govt.nz
CAS Number	Unique Chemical Abstracts Service Registry Number
Ceiling	Ceiling Exposure Value: The maximum airborne concentration of a biological or chemical agent to which a worker may be exposed at any time.
Controls Matrix	List of default controls linking regulation numbers to Matrix code (e.g. T1, I16).
EC_{50}	Ecotoxic Concentration 50% – concentration in water which is fatal to 50% of a test population (e.g. daphnia, fish species)
EPA	Environmental Protection Authority (New Zealand)
HAZCHEM Code	Emergency action code of numbers and letters that provide information to emergency services, especially fire fighters
HSNO	Hazardous Substances and New Organisms (Act and Regulations)
IARC	International Agency for Research on Cancer
LEL/UEL	Lower Explosive Limit/ Upper Explosive Limit
LD_{50}	Lethal Dose 50% – dose which is fatal to 50% of a test population (usually rats).
LC_{50}	Lethal Concentration 50% – concentration in air which is fatal to 50% of a test population (usually rats)
NZIoC	New Zealand Inventory of Chemicals
MSDS (SDS)	Material Safety Data Sheet (or Safety Data Sheet)
PES	Prescribed Exposure Standard means a WES or a biological exposure standard that is prescribed in a regulation, a safe work instrument or an approval under HSNO (including group standards).
STEL	Short Term Exposure Limit - The maximum airborne concentration of a chemical or biological agent to which a worker may be exposed in any 15 minute period, provided the TWA is not exceeded
TWA	Time Weighted Average – generally referred to WES averaged over typical work day (usually 8 hours)
UN Number	United Nations Number

WES	Workplace Exposure Standard - The airborne concentration of a biological or chemical agent to which a worker may be exposed during work hours (usually 8 hours, 5 days a week). The WES relates to exposure that has been measured by personal monitoring using procedures that gather air samples in the worker's breathing zone.

References

Data	Unless otherwise stated comes from the EPA HSNO chemical classification information database (CCID).
Controls	EPA notices, www.epa.govt.nz, Health and Safety at Work (Hazardous Substances) Regulations 2017, www.legislation.govt.nz
WES	The latest NZ Workplace Exposure Standards, published by WorkSafe NZ and available on their web site – www.worksafe.govt.nz.
Other References:	Suppliers SDS, EU ECHA, ingredients SDS's, ChemIDplus

Review

Date	**Reason for review**
June 2018	Not applicable – new SDS

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