HEAD OFFICE
38 May Holman Drive
Bassendean WA 6054
T: (61 8) 6270 4500
F: (61 8) 6270 4544
E: admin@agentsales.com.au

SALES & SERVICES

Safety Data Sheet

1. IDENTIFICATION OF THE PRODUCT AND THE SUPPLIER

1.1 Product identifiers

Product name : AQUAGUARD ENLIVEN

1.2 Other means of identification

Lithium Hypochlorite Hydrated, Spa Chlorine, Enliven

1.3 Recommended use of the product and restrictions on use

Swimming pool sanitiser, Algaecide, Bactericide, Water purification & Oxidising agent

1.4 Details of supplier of the safety data sheet

Company	: AGent Sales & Services Pty Ltd
Street address	: 38 May Holman Drive, Bassendean, Western Australia 6054
Telephone	: (+61 8) 6270 4500
Fax	: (+61 8) 6270 4544

1.5 Emergency telephone number

Telephone : 1300 883 844

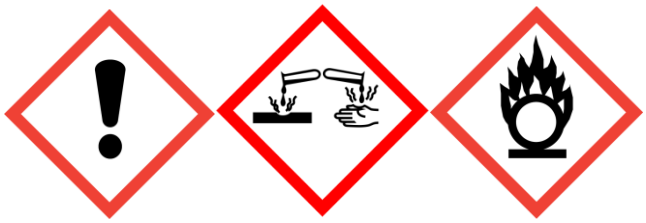
2. HAZARDS IDENTIFICATION

2.1 GHS Classification

Oxidising solids (Category 3)
Skin corrosion (Category 1B)
Serious eye damage (Category 1)
Harmful to aquatic life - Acute (Category 1)

2.2 GHS Label elements, including precautionary statements

Pictogram(s) :



Signal word : DANGER

Hazard statement(s)

H272	May intensify fire; oxidiser.
H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.
H402	Very toxic to aquatic life.

Precautionary statement(s)

Prevention

P102	Keep out of reach of children.
P210	Keep away from heat.
P220	Keep/Store away from clothing/ combustible materials.

P221	Take any precaution to avoid mixing with combustibles.
P260	Do not breathe dust or mist.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

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.
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.
P310	Immediately call a POISON CENTER or doctor/ physician.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage

P402	Store in a dry place.
P403 + P233	Store in a well ventilated place. Keep container tightly closed.

Disposal

P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

Contact with acids liberates toxic gas.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS Number	Classification	Concentration (%)
Lithium hypochlorite (35% as available chlorine)	13840-33-0	Ox. Sol. (3), Skin corr. (1B), eye dam. (1), Harm. Aquat. Life (1).	27 - 30
Ingredients determined to be non-hazardous	-	N/A	Balance

For the full text of the H-Statements mentioned in this section, see Section 16

4. FIRST AID MEASURES

4.1 Description of First Aid measures

General advice

Contact the Poisons Information Centre (Phone: Australia 131 126; New Zealand 0800 764 766) or consult a doctor/physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek immediate medical attention. In severe cases, symptoms of pulmonary oedema can be delayed up to 48 hours after exposure.

In case of skin contact

Quickly and gently brush away excess particles. Remove contaminated clothing and wash affected areas with soap and water. Consult a doctor/physician. Launder clothing before reuse.

In case of eye contact

In case of eye contact, check for and remove any contact lenses if safe to do so. Immediately rinse thoroughly with plenty of running water for at least 15 minutes, keeping eyelids open. Consult a doctor/physician. Neutral saline solution may be used as soon as it is available.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a doctor/physician. Urgent hospital treatment is likely to be needed. Give activated charcoal if instructed.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in Section 2.2 and/or Section 11.

4.3 Indication of any immediate medical attention and special treatment needed
No data available.

4.4 First Aid facilities
Eye wash facilities and safety shower should be available.

5. FIRE FIGHTING MEASURES

5.1 Suitable extinguishing media
Not combustible. Use extinguishing media suited to burning materials. Water fog (or if unavailable fine water spray), foam, dry agent (carbon dioxide, dry chemical powder).

5.2 Special hazards arising from the chemical
The major hazard in fires is usually inhalation of heated and toxic or oxygen deficient (or both), fire gases. There is a moderate risk of an explosion from this product if commercial quantities are involved in a fire. Firefighters should take care and appropriate precautions. The presence of this product in a fire is likely to intensify the fire due to its oxidising properties.

5.3 Special protective equipment and precautions for fire fighters
There is a danger of a violent reaction or explosion if significant quantities of this product are involved in a fire. Recommended personal protective equipment is liquid-tight chemical protective clothing and breathing apparatus.

5.4 Hazchem code
1W

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see Section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided. If contamination of sewers or waterways has occurred, advise local emergency services. Observe all local and national regulations.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Use clean, non-sparking tools and equipment. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see Section 13). Do not flush with water. Keep in suitable, closed containers for disposal. Do NOT return spilled product to original container.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition – No smoking. Keep away from heat and sources of ignition. Take precautionary measures against static discharges by bonding and grounding equipment. Do NOT mix with other chemicals. Do NOT add water to the product - add the product to the water. Use only clean utensils for handling as remnants of other products may cause a violent reaction leading to fire or explosion.
For precautions see Section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry, well-ventilated place and out of direct sunlight. Check regularly for spills. Never allow product to get in contact with water during storage. Store away from sources of heat and ignition. Do not store near acids. Store away from incompatible materials described in Section 10.

This material is classified as a Dangerous Goods Class 5.1 Oxidising Substance by the criteria of the ADG Code and must be stored and handled in accordance with the relevant regulations.

This material is a Scheduled Poison S6 and must be stored, maintained and used in accordance with the relevant regulations.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure Limits

Chemical Name	Reference	TWA – Peak Limitation		STEL		Carcinogen Category	Notices
		ppm	mg/m^3	ppm	mg/m^3		
Chlorine (7782-50-5)	ASCC	1	3	-	-	-	-

As published in "*Workplace Exposure Standards for Airborne Contaminants, December 2011"* by SWA.

Biological Limits

None allocated for this product.

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Ensure ventilation is adequate to maintain air concentrations below Exposure Standards. Avoid generating and inhaling dusts. Use with local exhaust ventilation or while wearing appropriate respirator. Chlorine gas vapour is heavier than air - prevent concentration in hollows or sumps. DO NOT enter confined spaces where vapour may have collected. Keep containers closed when not in use.

Personal protective equipment (PPE)

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.

Eye/face protection

Face shield and safety glasses or goggles. See Australian Standards (AS/NZS 1336 & 1337).

Skin protection

Wear protective gloves and protective clothing appropriate for the risk of exposure. See Australian Standards (AS 2161 & 2919 and AS/NZS 2210). Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use. Wash and dry hands.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. See Australian Standards (AS/NZS 1715 & 1716).

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Form : Granular solid
	Colour : White
Odour:	Chlorine
Odour Threshold:	No data available
pH:	11.6 – 12.0 @ 10% solution
Decomposition Temperature:	135 ºC
Evaporation Rate:	Not applicable
Flash Point:	Not applicable
Specific Gravity:	0.9 – 1.0 g/cm^3 @ 20ºC
Vapour Density (air=1):	Not available
Vapour Pressure:	Not applicable
% Volatiles:	Not applicable
Solubility in water:	430 g/L @ 20ºC

10. STABILITY AND REACTIVITY

10.1 Reactivity
Reacts with acids liberating toxic gases. Reaction with hydrochloric acid will evolve chlorine gas. Form potentially explosive mixtures with oxidative cyanurates.

10.2 Chemical stability
Product is stable under normal conditions of use, storage and temperature. Will slowly decompose to give chlorine gas and other chlorinated species in moist conditions.

10.3 Possibility of hazardous reactions
Mixing with any of the incompatible compounds listed below can initiate a hazardous decomposition. Reacts with ammonia, urea and amines (can form reactive and toxic chloramines). Metal oxides can cause decomposition.

10.4 Conditions to avoid
Avoid moisture, poor ventilation, contamination, excessive heat, sparks, open flames and other ignition sources

10.5 Incompatible materials
Calcium hypochlorite (dry or hydrated) and its mixtures are incompatible with dichloroisocyanuric acid, ammonium nitrate, trichloroisocyanuric acid, or any chloroisocyanurate, acids, aluminium, iron, lead, magnesium, and zinc. Incompatible with organic materials, combustible materials, reducing agents, ammonia, nitrogen compounds, acidic materials, cyanides, hydrogen peroxide, and chlorinated isocyanuric acid (organic bleaching powder).

10.6 Hazardous decomposition products
Chlorine, oxygen and oxides of chlorine and lithium.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - rat - 850 mg/kg

Carcinogenicity
IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Lithium hypochlorite)

Health Effects
No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Eye contact: A severe eye irritant. Corrosive. Contact can cause blurred vision, redness, pain and severe tissue burns. Exposure to calcium hypochlorite dust and mist can cause eye irritation. Concentrated solutions can cause burns which may result in permanent eye damage.

Skin contact: Irritant. Corrosive. Symptoms of redness, pain, and severe burn can occur. Calcium hypochlorite dust and solutions can cause irritation, and in severe cases, chemical burns with permanent scar.

Ingestion: Calcium hypochlorite may cause burns to the mouth and digestive tract. Symptoms include abdominal pain, vomiting, difficulty in breathing, confusion, delirium and, in severe cases, coma and death. Corrosive. Swallowing can cause severe burns of the mouth, throat, and stomach.

Inhalation: Corrosive. Extremely destructive to tissues of the mucous membranes and upper respiratory tract. Symptoms may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Inhalation may be fatal as a result of spasm inflammation and oedema of the larynx and bronchi, chemical pneumonitis and pulmonary oedema. Dust and mist may irritate the nose and throat and upper respiratory tract. When mixed with acids, chlorine gas releases. This gas can cause severe irritation of the nose and throat. Prolonged exposure to high concentration of chlorine gas may result in severe lung damage.

11.2 Information on possible routes of exposure
The substance can be absorbed into the body by ingestion and by inhalation.

11.3 Additional Information
RTECS: NH3485000

12. ECOGICAL INFORMATION

12.1 Ecotoxicity
Avoid contaminating waterways. This product is harmful to aquatic organisms. Salts, acids and bases are typically diluted and neutralised when released to the environment in small quantities.

12.2 Persistence and degradability
No data available.

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Other adverse effects
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Disposal methods and containers
Ensure waste disposal conforms to relevant local, state and federal authority waste disposal regulations. All empty packaging should be disposed of as unused product.

13.3 Special precautions for landfill or incineration
Contact a specialist disposal company or the local waste regulator for advice. Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to an approved waste facility. Processing, use or contamination of this product may change the waste management options. Untreated waste lithium hypochlorite must never be discharged directly into sewers or surface water. Following decontamination, disposal of residue by secure landfill may be acceptable.

14. TRANSPORT INFORMATION

Classified as a Dangerous Goods by the criteria of the ADG Code for transport by road or rail.
Classified as a Dangerous Goods by the criteria of the IMDG Code for transport by sea
Classified as a Dangerous Goods by the criteria of the IATA Code for transport by air

14.1 UN number
ADG : 1471 **IMDG :** 1471 **IATA :** 1471

14.2 Proper shipping name
ADG : LITHIUM HYPOCHLORITE, MIXTURE
IMDG : LITHIUM HYPOCHLORITE, MIXTURE
IATA : LITHIUM HYPOCHLORITE, MIXTURE

14.3 Transport hazard class
ADG : 5.1 Oxidising **IMDG :** 5.1 Oxidising **IATA :** 5.1 Oxidising

14.4 Packing group
ADG : II **IMDG :** II **IATA :** II

14.5 Environmental hazards
ADG : Yes **IMDG Marine Pollutant :** Yes **IATA :** Yes

14.6 Special precautions for users No data

14.7 Hazchem code
ADG : 1W **IMDG EMS :** F-A, S-B

14.8 Dangerous goods initial emergency response guide (SAA/SNZ HB76:2010) 31

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations

Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)
Poisons Schedule : 6

Carcinogen classification under WHS Regulations 2011, Schedule 10
Not listed

Notification status
AICS On the inventory, or in compliance with the inventory.

16. OTHER INFORMATION

Key / legend to abbreviations and acronyms used in the SDS

ADG	Australian Dangerous Goods
ASCC	Australian Safety and Compensation Council
DEC	Department of Environment and Conservation
NOHSC	National Occupational Health and Safety Commission
SUSDP	Standard for the Uniform Scheduling of Drugs and Poisons
Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Eye Dam.	Serious eye damage
Ox. Sol.	Oxidising solids
Skin Corr.	Skin corrosion
TWA	Time weighted average
STEL	Short term exposure level
SWA	Safe Work Australia
Peak Limitations	A ceiling concentration that should not be exceeded over a measurement period, which should be as short as possible, but not exceeding 15 minutes
LD_{50}	Lethal dose 50. The single dose of a substance that causes the death of 50% of an animal population from exposure to the substance by any route other than inhalation
LC_{50}	Lethal concentration that kills 50% of an animal population within a specified time
TD Lo	The lowest dose of a substance known to have produced signs of toxicity
RTECS	Registry of Toxic Effects of Chemical Substances
g/L	Grams per litre
g/cm^3	Grams per cubic centimetre
mg/m^3	Milligrams per cubic metre
mg/kg	Milligrams per kilogram
pH	Relates to hydrogen ion concentration - this value will relate to a scale of 0 - 14, where 0 is highly acidic and 14 is highly alkaline
WHS	Work Health and Safety

Literature references

"Workplace Exposure Standards for Airborne Contaminants, December 2011" by SWA
Work Health and Safety Regulations 2011

Disclaimer

AGent Sales & Services Pty Ltd provides the information contained herein in good faith but makes no representation as to its' comprehensiveness or accuracy. A properly trained person using this product intends this document only as a guide to the appropriate precautionary handling of the material. Individuals receiving the information must exercise their independent judgement in determining its appropriateness for a particular purpose. AGent Sales & Services Pty Ltd makes no representations or warranties, either express or implied, including without limitation any warranties of merchantability, fitness for a particular purpose with respect to the information set forth herein or the product to which the information refers. Accordingly, AGent Sales & Services Pty Ltd will not be responsible for damages resulting from use of or reliance upon this information.