Spa Bromine/Spa bromine granules

Safety Data Sheet

1. Identification of Substance & Company

Product

Product name	Spa Bromine/Spa bromine granules
Other names	Bromo-chloro-dimethylhydantoin
HSNO approval	HSR002632
Approval description	Oxidising Liquids and Solids (Corrosive) Group Standard 2020
UN number	3085
DG class	5.1
Proper Shipping Name	OXIDISING SOLID. CORROSIVE, n.o.s. (contains Bromo--chloro-dimethylhydantoin)
Packaging group	III
Hazchem code	1W
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 is an approved substance under the Hazardous Substances and New Organisms Act (HSNO, Approval HSR002632, Oxidising Liquids and Solids (Corrosive) Group Standard 2020). The substance has been classified as hazardous according to the criteria in the Hazardous substances (Hazard Classification) Notice 2020.

GHS 7 Classes	Hazard Statements
Oxidising solid Category 2	H270 - May intensify fire; oxidizer.
Acute toxicity category 4 (inhalation)	H332 - Harmful if inhaled.
Acute toxicity category 4 (oral)	H302 - Harmful if swallowed.
Skin sensitiser category 1	H317 - May cause an allergic skin reaction.
Skin corrosive category 1C	H314 - Causes severe skin burns and eye damage.
Eye damage category 1	H318 - Causes serious eye damage.
Acute aquatic category 1	H400 - Very toxic to aquatic life.
Chronic aquatic category 1	H410 - Very toxic to aquatic life with long lasting effects.
Hazardous to terrestrial vertebrates	H432 - Toxic to terrestrial vertebrates.

SYMBOLS

DANGER

Other Classifications

There are no other classifications that are known to apply.

Precautionary Statements

Prevention

P102 - Keep out of reach of children.
P103 - Read label before use.
P210 - Keep away from heat. No smoking.
P220 - Keep/Store away from clothing/combustible materials.
P221 - Take any precaution to avoid mixing with combustibles.
P260 - Do not breathe dust/fume/gas/mist/vapours/spray*.
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray*.
P264 - Wash hands thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P284 - Wear respiratory protection.

Response

P101 - If medical advice is needed, have product container or label at hand.
P304+P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P310 - Immediately call a POISON CENTRE or doctor/physician.
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician.
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.
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.
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.

Storage

P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.

Disposal

P501 - Dispose of contents/container in accordance with local/regional/national/international regulation.

3. Composition / Information on Ingredients

Component	CAS/ Identification	Conc (%)
1-Bromo-3-chloro-5,5-dimethydantoin	16079-88-2	Min 96%

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 burned, harmed 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 Do NOT induce vomiting. Give a glass of water to drink. Contact a doctor immediately.

Eye contact IF IN EYES: Rinse cautiously with water for at least 20 to 30 minutes, while holding the eye lids open. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTRE or doctor/physician.

Skin contact IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower for at least 20-30 mins. Wash contaminated clothing before reuse. Immediately call a POISON CENTRE or doctor/physician.

Inhaled Remove victim from exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep victim at rest until fully recovered. If breathing is laboured and patient cyanotic (blue), ensure airways are clear and have a qualified person give

oxygen through a face mask. If breathing has stopped, apply artificial respiration at once. In event of cardiac arrest, apply cardiopulmonary resuscitation (CPR) if trained. See a doctor immediately. Symptoms may be delayed by 48hours.

Advice to Doctor

Treat symptomatically.

5. Firefighting Measures

Fire and explosion hazards:	This product is an oxidiser. Oxidising materials can increase the intensity of fire. Fire decomposition products may be toxic if inhaled.
Suitable extinguishing substances:	Carbon dioxide, extinguishing powder, foam, fog sprays, water jets.
Unsuitable extinguishing substances:	None known.
Products of combustion:	Bromine, chlorine, chlorine and bromine compounds, carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. May form toxic mixtures in air and may accumulate in sumps, pits and other low-lying spaces, forming potentially explosive mixtures.
Protective equipment:	Self-contained breathing apparatus. Safety boots, non-flammable overalls, gloves, hat and eye protection.
Hazchem code:	1W

6. Accidental Release Measures

Containment	If greater than 100kg 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	Not applicable
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. Store locked up. Store in a cool ventilated place. Containers should be kept closed in order to minimise contamination. Keep from extreme heat, sunlight and open flames. Avoid contact with incompatible substances as listed in Section 10. Location compliance certificates must be available if storing >500kg (closed), 50kg (open). Containers (and outer packaging) must bear the prescribed labelling, including the Hazchem code, UN number, flammability warning and name of contents.
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 dust.

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
	1-Bromo-3-chloro-5,5-dimethylhydantoin	Not listed	Not listed

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

General

Personal Protective Equipment (PPE) should not be used as the primary means of exposure protection, except in the event of an accident or emergency situation or where all other means of protection have proven to inadequate.
Clean PPE after use or dispose of as appropriate. Store PPE for re-use in a clean place. Regular training on the correct use of PPE should be provided. In particular the correct fitting and use of respirators and where applicable the cleaning of respirators should be undertaken.

Eyes

Protect eyes with goggles, safety glasses or full face mask. Avoid wearing contact lenses. Select eye protection in accordance with AS/NZS 1337.

Skin

Avoid any skin contact. Wear overalls, rubber boots and impervious gloves. Protective gloves or suitably resistant material must comply with AS 2161. Replace frequently. Gloves should be checked for tears or holes before use. Protective clothing must comply with AS 2919, AS3765.1 or AS3765.2. PVC or rubber boots must comply with AS/NZS 2210.2 and selected and maintained in accordance with AS/NS2210.1. 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). Respirators must have filters appropriate to the duty and comply with AS/NZS1716 and selected, used and maintained in accordance with AS/NS 1715.). Use a respirator with a particulate filter. If using a respirator, ensure that the cartridges are correct for the potential air contamination and are in good working order. Fit testing and clear guidelines and training for use and maintenance of PPE are necessary.

WES Additional Information

Not applicable

9. Physical & Chemical Properties

Appearance	white tablets
Odour	halogen odour (bromine, chlorine)
Odour threshold	no data
pH	3.4-3.6 (1g/L at 20°C)
Freezing / melting point	decomposes before melting >145°C
Boiling point	no data
Flash point	no data
Flammability	non flammable (oxidising)
Upper & lower flammable limits	no data
Vapour pressure	no data
Vapour density	no data
Specific gravity / density	0.96g/cm^3
Solubility	1.5g/L at 20°C in water
Partition Coefficient:	no data
Auto-ignition temperature	no data
Decomposition temperature	145°C
Viscosity	no data
Particle characteristics	no data

10. Stability & Reactivity

Stability	Stable
Conditions to be avoided	Oxidising substance - keep away from sources of ignition and flammable materials (see below).
Incompatible groups	Reducing agents, combustible materials, flammable substances,other substances that are readily oxidised
Substance Specific Incompatibility	none known
Hazardous decomposition products	Combustion forms carbon dioxide, and if incomplete, carbon monoxide and smoke. Water is also formed. Hydrogen chloride, other compounds of chlorine and bromine.
Hazardous reactions	none known

11. Toxicological Information

Summary

IF SWALLOWED: may cause burns to the mouth and gastrointestinal tract.
IF IN EYES: may cause eye damage.
IF ON SKIN: prolonged skin contact can cause burns, particularly if skin is damp or wet. Skin contact may cause sensitisation.
IF INHALED: dust may cause respiratory irritation.

Supporting Data

Acute	**Oral**	LD_{50} (oral) for 1-bromo-3-chloro-5,5-dimethylhydantoin- 485mg/kg (rat).
	Aspiration	This substance is not an aspiration hazard.
	Dermal	LD_{50} (dermal, rat) for 1-bromo-3-chloro-5,5-dimethylhydantoin >2000mg/kg.
	Inhaled	LC_{50} (inhalation, rat) for 1-bromo-3-chloro-5,5-dimethylhydantoin 1.11mg/L (4hr)
	Eye	1-bromo-3-chloro-5,5-dimethylhydantoin is corrosive to the eye.
	Skin	1-bromo-3-chloro-5,5-dimethylhydantoin is considered a skin corrosive.
Chronic	**Sensitisation**	1-bromo-3-chloro-5,5-dimethylhydantoin is a contact 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 substance is very ecotoxic towards aquatic organisms and ecotoxic towards terrestrial vertebrates.

Supporting Data

Aquatic	LC_{50} for 1-bromo-3-chloro-5,5-dimethylhydantoin: 0.4mg/L (96hr, rainbow trout), 2.25mg/L (96hr, fathead minnow), 0.46mg/L (96hr, Bluegill sunfish), 13mg/L (grass shrimp), 20mg/L (96hr, Sheepshead minnow), >640mg/L (American oyster), 0.75mg/L (48hr, Daphnia magna).
Bioaccumulation	No data
Degradability	No data
Soil	No evidence of soil toxicity.
Terrestrial vertebrate	This substance is considered ecotoxic to terrestrial vertebrates. LD50: 1-bromo-3-chloro-5,5-dimethylhydantoin 485mg/kg (rat). 1839mg/kg (bobwhite quail), >5620ppm (dietary, bobtail quail), >5620ppm (dietary, mallard duck).
Terrestrial invertebrate	No evidence of toxicity 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:	3085	**Proper shipping name:**	OXIDISING SOLID. CORROSIVE, n.o.s. (contains Bromo--chloro-dimethylhydantoin)
Class(es)	5.1	**Packing group:**	III
Precautions:	OXIDISER, CORROSIVE, ECOTOXIC	**Hazchem code:**	1W

15. Regulatory Information

This product is an approved substance under the Hazardous Substances and New Organisms Act (HSNO). Approval code: HSR002632, Oxidising Liquids and Solids (Corrosive) Group Standard 2020. 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 h manufactured for own use or have been supplied
Labelling	Must comply with the Hazardous Substances (Labelling) Notice 2017.
Emergency plan	Required if >100kg is stored.
Certified handler	Not required.
Tracking	Not required.
Bunding & secondary containment	Required if > 100kg is stored.
Signage	Required if > 100kg is stored.
Location compliance certificate	Required if > 500kg (closed), >50kg (open) is stored.
Flammable zone	Must be established.
Fire extinguisher	If > 200kg present.

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 HSR002632, Oxidising Liquids and Solids (Corrosive) Group Standard 2020 Controls, EPA. www.epa.govt.nz
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)
EPA	Environmental Protection Authority (New Zealand)
GHS	Globally Harmonised System of Classification and Labelling of Chemicals, 7th revised edition, 2017, published by the United Nations.
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	Lower 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
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
STOT RE	System Target Organ Toxicity – Repeated Exposure
STOT SE	System Target Organ Toxicity – Single Exposure
TWA	Time Weighted Average – generally referred to WES averaged over typical work day (usually 8 hours)
UEL	Upper Explosive Limit
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**
August 2018	Not applicable – new SDS
November 2022	Update HSNO to GHS. Update of group standard.

Disclaimer

This SDS was prepared by Datachem LTD and is based on our current state of knowledge, including information obtained from suppliers. The SDS is given in good faith and constitutes a guideline (not a guarantee of safety). The level of risk each substance poses is relevant to its properties (as summarised in the SDS) AND HOW THE SUBSTANCE IS USED. While guidelines are given for personal protective equipment, such precautions must be relevant to the use. The likely GHS classifications for this SDS have been estimated based on general information from the supplier (e.g., hazard, toxicological). This SDS is copyright Datachem and must not be copied, edited or used for other than intended purpose. To contact the SDS author, email info@datachem.co.nz or phone: ***+64 21 1040951.***

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