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# *SAFETY DATA SHEET – Bromine tablets*

## 1. IDENTIFICATION

| | |
|---|---|
| **Revision Date** | July 2023 (*valid for 5 years from this date)* |
| **Product Name** | BROMOCHLORO-5, 5-DIMETHYLHYDANTOIN DRY |
| **Other Names** | 1-BROMO-3-CHLORO-5, 5, DIMETHYLIMIDAZOLIDINE; BCDMH |
| **Uses** | Used as an aid in the control of bacterial, fungi and algae slimes |
| **Contact Information** | Chlorine Discounters |
| | 43 Clapham Road, Regents Park NSW 2143 |
| | Phone: 02-96454433 |
| | Fax: 02-96454030 |
| | Email:info@chlorinediscounters.com.au |
| | W: www.chlorinediscounters.com.au |
| **Emergency Contact** | Managing Director or Operations Manager |

## 2. HAZARD IDENTIFICATION

| | |
|---|---|
| **Poisons Schedule (Aust)** | 6 |
| **Globally Harmonised System** | |
| Hazard Classification | Hazardous according to the criteria of the Globally HarmonisedSystem of Classification and Labelling of Chemicals (GHS) |
| **Hazard Categories** | Oxidising Solids - Category 3<br>Skin Corrosion/Irritation - Category 1C<br>Serious Eye Damage/Irritation - Category 1<br>Acute Hazard To The Aquatic Environment - Category 2 |
| **Pictograms** |  |
| **Signal Word** | Danger |

| | | |
|---|---|---|
| **Hazard Statements** | H272 | May intensify fire; oxidizer |
| | H314 | Causes severe skin burns and eye damage. |
| | H318 | Causes serious eye damage. |
| | H401 | Toxic to aquatic life. |

**Precautionary Statements**

| | | | |
|---|---|---|---|
| **Prevention** | | P210 | Keep away from heat/sparks/open flames/hot surfaces. No smoking |
| | | P221 | Take any precaution to avoid mixing with combustibles. |
| | | P260 | Do not breathe dusts or mists. |
| | | 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 ordoctor/physician. |
| | | P321 | Specific treatment (see First Aid Measures on Safety Data Sheet). |
| | | P363 | Wash contaminated clothing before reuse. |
| | | P370 + P378 | In case of fire: Use carbon dioxide (CO2), dry chemical, alcohol resistant foam or water spray for extinction. |
| | | P391 | Collect spillage. |
| **Storage** | P405 | | Store locked up. |
| **Disposal** | | P501 | Dispose of contents/container in accordance with local / regional / national / international regulations. |

**National Transport Commission (Australia)**

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

**Dangerous Goods Classification** Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

**Ingredients**

| Chemical Entity | CAS Number | Proportions (%) |
|---|---|---|
| 1-Bromo-3-Chloro-5,5-Dimethylhydantoin | [16079-88-2] | >98.0 |
| Water | [7732-18-5] | >0.5% |

# 4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

| | |
|---|---|
| **Swallowed** | Drink large amounts of 0.5% FeSO4 solution and water to vomit. Get medical immediately. |
| **Eye** | In case of contact, hold eyelids apart and immediately flush eyes with 0.1% NaHSO3 and plenty of water for 10 minutes. If still feel uncomfortable, get medical immediately. |
| **Skin** | Get medical attention immediately. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse. |
| **Inhaled** | Get medical attention immediately. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. |
| **Advice to Doctor** | Treat symptomatically based on judgement of doctor and individual reactions of patient. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.<br>Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. |
| **Medical Conditions Aggravated by Exposure** | No information available on medical conditions aggravated by exposure to this product. |

# 5. FIRE FIGHTING MEASURES

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|---|---|
| **General Measures** | If safe to do so, move undamaged containers from fire area. Do NOT move cargo if cargo has been exposed to heat. Dam fire control water for later disposal. Avoid generating dust. |
| **Flammability Conditions** | Oxidizing material. May intensify fire. |
| **Extinguishing Media** | Dry ice and sand. Do not use ABC dry powder extinguisher. |
| **Hazardous Products of Combustion** | Material is oxidative. Special irritative odour. Decompose in water and bases. React with reducing agents and organic chemicals. Produces poison gas when heated or exposed under light. |
| **Special Fire Fighting Instructions** | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. This material is very toxic to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain. |
| **Personal Protective Equipment** | Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves) or chemical splash suit. |
| **Flash Point** | Not burnable °C |
| **Lower Explosion Limit** | No Data Available |
| **Upper Explosion Limit** | No Data Available |
| **Auto Ignition Temperature** | No Data Available |

**Hazchem Code** 1W

# 6. ACCIDENTAL RELEASE MEASURES

| | |
|---|---|
| **General Response Procedure** | No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. |
| **Clean Up Procedures** | Small Spill: Move containers from spill area. Vacuum or sweep up material and place in a designated, labelled waste container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.<br>Large Spill: Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labelled waste container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal. |
| **Containment** | Stop leak if safe to do so. |
| **Environmental Precautionary Measures** | Do NOT allow spilled material and runoff to contact soil, waterways, drains or sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. This material is very toxic to aquatic life. Collect spillage. |
| **Evacuation Criteria** | Evacuate all unnecessary personnel. |
| **Personal Precautionary Measures** | Personnel involved in the clean up should wear full protective clothing as listed in section 8. |

# 7. HANDLING AND STORAGE

**Handling**

Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not get in eyes or on skin or clothing. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from clothing, incompatible materials and combustible materials. Keep away from heat. Empty containers retain product residue and can be hazardous. Do not reuse container. Provide sufficient air exchange and/or exhaust in work rooms. Avoid contact with skin and eyes. Avoid formation of respirable particles. Avoid dust formation. Take precautionary measures against static discharges.

**Storage**

Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 10. Incompatible with oxidizing agents. Separate from reducing agents and combustible materials. To maintain product quality, do not store in heat or direct sunlight. Keep away from food and drink. Store locked up.Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. This product has a UN classification of 3085 and a Dangerous Goods Class 5.1 (Oxidizing agent) and a Subsidiary Risk 8 (corrosive) according to The Australian Code for the Transport of Dangerous Goods By Road and Rail.

**Container**

Store in original packaging as approved by manufacturer. Container type/packaging must comply with all applicable local legislation.

# 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**General**

No exposure standard has been established for this product by the Australian Safety and Compensation Council (ASCC). However, the exposure standard for dust not otherwise specified is 10mg/m3 (for inspirable dust) and 3mg/m3 (for respirable dust).

**Exposure Limits**

No Data Available

**Engineering Measures**

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.

**Personal Protection Equipment**

RESPIRATOR: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator (AS1715/1716).

EYES: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts (AS1336/1337).

HANDS: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary (AS2161).

CLOTHING: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product (AS3765/2210).

**Work Hygienic Practices**

Wash hands, forearms and face thoroughly immediately after handling chemical products, before eating, smoking, using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

# 9. PHYSICAL AND CHEMICAL PROPERTIES

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|---|---|
| **Physical State** | Solid |
| **Appearance** | Solid |
| **Odour** | Faint halogen smell |
| **Colour** | White / Off-White |
| **pH** | 3.5 - 4.5 1% BCDMH in water |
| **Vapour Pressure** | 0.0 hPa (0.0 mmHg) OECD Test Guideline 104 (@ 25 °C) |
| **Relative Vapour Density** | Not volatile |
| **Boiling Point** | No Data Available |
| **Melting Point** | 152 - 163 °C |
| **Freezing Point** | No Data Available |
| **Solubility** | 1.9 g/L 25°C In water |
| **Specific Gravity** | 1.8 - 2.0 |
| **Flash Point** | Not burnable °C |
| **Additional Characteristics** | Solubility: Very slightly soluble in the following materials: cold water and hot water. |
| **Reactions That Release Gases Vapours** . | Produces poison gas when heated or exposed under light **or** |

# 10. STABILITY AND REACTIVITY

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|---|---|
| **General Information** | Reactivity: Material is oxidative. Has special irritative odour. Decompose in water and bases. React with reducing agents and organic chemicals. Produces poison gas when heated or exposed under light. |
| **Chemical Stability** | Product is stable under normal conditions of use, storage and temperature. Hazardous reactions or instability may occur under certain conditions of storage or use. Conditions may include the following: contact with combustible materials Reactions may include the following: risk of causing or intensifying fire. |
| **Conditions to Avoid** | Elevated temperature and impurities (alkalis). Protect from moisture. Avoid excessive heat. Avoid all possible sources of ignition (spark or flame). |
| **Materials to Avoid** | Reactive or incompatible with the following materials: oxidizing materials, reducing materials, combustible materials, acids, bases, oxidisers, reducing agents, organic chemicals, alkalis and moisture. Contact with acids liberates toxic gas. |
| **Hazardous Decomposition Products** | Thermal decomposition forms HBr,HCl,NO2,CO,CO2, decomposition in water producesHBr,HCl,NH3,CO2. |
| **Hazardous Polymerisation** | Under normal conditions of storage and use, hazardous polymerization will not occur. |

# 11. TOXICOLOGICAL INFORMATION

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|---|---|
| **General Information** | Primary Routes of Entry: Inhalation, Ingestion, Eyes, Skin<br><br>Acute toxicity. LD50. Oral Rat. 578 mg/kg.<br>Acute toxicity LD50. Skin Rat. >2000 mg/kg.<br>Acute toxicity LD50.Inhalation Rat LC50=0.53mg/L of air.<br><br>Mutagenicity - BCDMH was tested for potential mutagenic effects using Salmonella and Saccharomyces. All the results of the tests were negative.<br><br>Sensitisation: Prolonged or repeated skin contact with solid BCDMH resulted in minor reddening of the skin and superficial necrosis withthe development of excessive exfoliation. Contact with dilute solutions of 0.1% or less was not irritating to the skin. Eye contactswith BCDMH powder result in persistent severe conjunctiva irritationand slow development of corneal damage in rabbits. Washing theeye promptly resulted in a significant reduction of adverse effects. Dilute solutions of 0.1% or less were non-irritating to the eyes.<br><br>Deformity: No deformity to rat sperm.<br><br>Irritability: BCDMH was considered corrosive to the skin. The primaryskin irritation index was calculated to be 6.1. |
| **Eye Irritant** | Causes serious eye damage. Adverse symptoms may include pain, watering, redness. |
| **Ingestion** | Harmful or fatal if swallowed. May cause burns to mouth, throat and stomach. Adverse symptoms may include stomach pains. |
| **Inhalation** | May give off gas, vapor or dust that is very irritating or corrosive tothe respiratory system. Exposure to decomposition products maycause a health hazard. Serious effects may be delayed followingexposure. |
| **Skin Irritant** | Causes severe burns. Adverse symptoms may include pain orirritation, redness, blistering may occur. |
| **Carcinogen Category** | No Data Available |

# 12. ECOLOGICAL INFORMATION

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|---|---|
| Ecotoxicity | **1-bromo-3-chloro-5,5-dimethylhydantoin**:<br>Daphnia EC50/48 hr: 0.46 mg/L<br>Fish LC50/96 hr: 0.87 mg/L<br><br>**Bromochloro-5,5-dimethylimidazolidine-2,4-dione (BCDMH)**<br>(CAS-No.: 32718-18-6)<br><br>Acute Fish toxicity: Acute toxicity LC50<br>Species: Oncorhynchusmykiss (rainbow trout)<br>Concentration: 0,65 mg/l Exposure time: 96 h Method: US-EPA<br><br>**5,5-Dimethylhydantoin (DMH) (CAS-No.: 77-71-4)**<br>Acute Fish toxicity : Acute toxicity LC50<br>Species: Oncorhynchusmykiss (rainbow trout)<br>Concentration: > 972,00 mg/l<br>Exposure time: 96 h<br>Analytical monitoring: no Method: US-EPA |
| **Persistence/Degradability** | **5,5-Dimethylhydantoin (DMH) (CAS-No.: 77-71-4)**<br>Die-Away Test Concentration: 25 mg/l<br>Exposure time: 19 d<br>Result: Biodegradable 94 %<br><br>CO2 Evolution Test<br>Concentration: 10 mg/l<br>Exposure time: 28 d<br>Result: Readily biodegradable. 88 %<br>Method: OECD 301 B |
| **Mobility** | No information on mobility. |
| **Environmental Fate** | This material is very toxic to aquatic life. |
| **Bioaccumulation Potential** | This product shows a low bioaccumulation potential. |
| **Environmental Impact** | No Data Available |

## 13. DISPOSAL CONSIDERATIONS

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|---|---|
| **General Information** | Dispose of in accordance with all local, state and federal regulations. All empty packaging should be disposed of in accordance with Local, State and Federal Regulations or recycled/reconditioned at an approved facility. |
| **Special Precautions for Land Fill** | Contact a specialist disposal company or the local waste regulator for advice. The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. |

## 14. TRANSPORT INFORMATION

**Land Transport (Australia)**

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| **Regulation name** | ADG Code |
| **UN Number** | 3085 |
| **Proper Shipping Name** | OXIDIZING SOLID CORROSIVE N.O.S (Bromochloro-5,5-dimethylimidazolidine-2,4-dione) |
| **Dangerous Goods Class** | 5.1 Oxidising Substances |
| **Subsidiary Risk(s)** | 8 Corrosive Substances |
| **Pack Group** | III |
| **EPG** | 31 Oxidizing Substances |
| **Hazchem** | 1W |







**National Transport Commission (Australia)**

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**Dangerous Goods Classification** Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

## 15. REGULATORY INFORMATION

| | |
|---|---|
| **General Information** | No Data Available |
| **Poisons Schedule (Aust)** | 6 |
| **National/Regional Inventories** | |
| Australia (AICS) | Listed |

## 16. OTHER INFORMATION

| | |
|---|---|
| **Literature References** | No data available. |
| **Sources for Data** | No data available. |

**Legend to Abbreviations and Acronyms**

| | |
|---|---|
| **<** | less than |
| **<** | Greater than |
| **ADG** | Australian Dangerous Goods Code |
| **AICS** | Australian Inventory of Chemical Substances |
| **CAS** | Chemical Abstracts Service (Registry Number) |
| **cm2** | square centimeters |
| **CO2** | Carbon Dioxide |
| **COD** | Chemical Oxygen Demand |
| **deg C ( 'C )** | degrees Celsius |

| | |
|---|---|
| **ERMA** | Environmental Risk Management Authority |
| **G** | gram |
| **g/cm3** | grams per cubic centimetre |
| **g/l** | grams per litre |
| **HSNO** | Hazardous Substance and New Organism |
| **IATA** | International Air Transport Association Dangerous Goods Regulations |
| **IDLH** | Immediately Dangerous to Life and Health |
| **IMDG** | International Maritime Dangerous Goods Code |
| **Immiscible** | liquids are insoluble in each other |
| **Kg** | kilogram |
| **kg/m3** | kilograms per cubic metre |
| **LC50** | LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours. |
| **LD50** | LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals |
| **Ltr** | Litre |
| **m3** | cubic metre |
| **mbar** | millibar |
| **mg** | milligram |
| **mg/24H** | milligrams per 24 hours |
| **mg/kg** | milligrams per kilogram |
| **mg/m3** | milligrams per cubic metre |
| **Misc** | miscible |
| **Miscible** | liquids form one homogeneous liquid phase regardless of the amount of either component present |
| **Mm** | millimetre |
| **mPa.s** | milli Pascal per second |
| **N/A** | Not Applicable |
| **NOHSC** | National Occupational Health and Safety Commission |
| **OECD** | Organization for Economic Co-operation and Development |
| **PEL** | Permissible Exposure Limit |
| **Ppb** | parts per billion |
| **Ppm** | parts per million |
| **ppm/2h** | parts per million per 2 hours |
| **ppm/6h** | parts per million per 6 hours |
| **RCP** | Reciprocal Calculation Procedure |
| **STEL** | Short Term Exposure Limit |
| **TLV** | Threshold Limit Value |
| **Tne** | tonne |

| | |
|---|---|
| **TWA** | Time Weighted Average |
| **ug/24H** | micrograms per 24 hours |
| **UN** | United Nations (number) |
| **Wt** | weight |

This SDS summarises Chlorine Discounters best knowledge of the health and safety hazard information of the selected substance and how to safely handle the selected substance in the workplace however Chlorine Discounters expressly disclaims that the SDS is a representation or guarantee of the chemical specifications for the substance.

Each user should read the SDS and consider the information in the context of how the selected substance will be handled and used in the workplace including its use in conjunction with other substances.