



SAFETY DATA SHEET BROMICIDE® TABLETS

1. Identification

Product identifier

Product name	BROMICIDE® TABLETS
Chemical name	1-Bromo-3-chloro-5,5-dimethylhydantoin
Product number	100404, 100408, 100411, 100870, 100423, 101507, 100409, 100410 (4109-M9)
CAS number	16079-88-2

Recommended use of the chemical and restrictions on use

Application	Biocides for water treatment.
Uses advised against	Industrial Use Only

Details of the supplier of the safety data sheet

Supplier	BWA Water Additives US LLC 1979 Lakeside Parkway Suite 925, Tucker. GA30084. T: (800) 600-4523 . (Technical/commercial enquiries) E: MSDS@wateradditives.com
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Distributed by: **Nu-Calgon 2611 Schuetz Road, St. Louis, MO 63043 (800) 554-5499**

Emergency telephone number

Emergency telephone	CHEMTREC Phone: 1-800-424-9300
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2. Hazard(s) identification

Classification of the substance or mixture

Physical hazards	Ox. Sol. 3 - H272
Health hazards	Acute Tox. 4 - H302 Skin Corr. 1C - H314 Eye Dam. 1 - H318 Skin Sens. 1 - H317
Environmental hazards	Aquatic Acute 1 - H400

Label elements

Pictogram



Signal word

Danger

Hazard statements

H272 May intensify fire; oxidizer.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H400 Very toxic to aquatic life.

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Precautionary statements	<p>P210 Keep away from heat, sparks, open flames and hot surfaces. No smoking.</p> <p>P220 Keep away from combustible materials.</p> <p>P221 Take any precaution to avoid mixing with combustibles.</p> <p>P260 Do not breathe dust.</p> <p>P261 Avoid breathing dust.</p> <p>P264 Wash contaminated skin thoroughly after handling.</p> <p>P270 Do not eat, drink or smoke when using this product.</p> <p>P272 Contaminated work clothing must not be allowed out of the workplace.</p> <p>P273 Avoid release to the environment.</p> <p>P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.</p> <p>P301+P312 If swallowed: Call a poison center/ doctor if you feel unwell.</p> <p>P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.</p> <p>P302+P352 If on skin: Wash with plenty of water.</p> <p>P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.</p> <p>P304+P340 If inhaled: Remove person to fresh air and keep comfortable for breathing.</p> <p>P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P310 Immediately call a poison center/ doctor.</p> <p>P321 Specific treatment (see medical advice on this label).</p> <p>P333+P313 If skin irritation or rash occurs: Get medical advice/ attention.</p> <p>P362+P364 Take off contaminated clothing and wash it before reuse.</p> <p>P363 Wash contaminated clothing before reuse.</p> <p>P370+P378 In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish.</p> <p>P391 Collect spillage.</p> <p>P405 Store locked up.</p> <p>P501 Dispose of contents/ container in accordance with national regulations.</p>
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Contains 1-Bromo-3-chloro-5,5-dimethylhydantoin

3. Composition/information on ingredients

Mixtures

1-Bromo-3-chloro-5,5-dimethylhydantoin	96.0%
CAS number: 16079-88-2	
M factor (Acute) = 1	

Classification

Ox. Sol. 3 - H272
 Acute Tox. 4 - H302
 Skin Corr. 1B - H314
 Eye Dam. 1 - H318
 Skin Sens. 1 - H317
 Aquatic Acute 1 - H400

The full text for all hazard statements is displayed in Section 16.

Composition comments 1-bromo-3-chloro-5,5-dimethylhydantoin

4. First-aid measures

Description of first aid measures

Inhalation Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Get medical attention.

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Ingestion	Do not induce vomiting. Never give anything by mouth to an unconscious person. Do not induce vomiting. Rinse mouth thoroughly with water. Get medical attention immediately.
Skin Contact	Remove contaminated clothing. Rinse immediately with plenty of water. Get medical attention immediately.
Eye contact	Remove affected person from source of contamination. Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention immediately

Most important symptoms and effects, both acute and delayed

Inhalation	Inhalation of dust may cause irritation of the respiratory tract.
Ingestion	May cause stomach pain or vomiting. May cause chemical burns in mouth and throat. Due to the physical nature of this material it is unlikely that swallowing will occur.
Skin contact	Chemical burns. Burning pain and severe corrosive skin damage.
Eye contact	Severe irritation, burning and tearing.

Indication of immediate medical attention and special treatment needed

Notes for the doctor	If lavage is performed suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. Chemical eye burns may require extended irrigation. Obtain prompt consultation preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.
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5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Extinguish with the following media: Water spray, fog or mist. Alcohol-resistant foam. DO NOT use CO2 or dry chemicals.
Unsuitable extinguishing media	Carbon dioxide (CO2). Dry chemicals.

Special hazards arising from the substance or mixture

Specific hazards	Toxic gases/vapors/fumes of: Bromine. Chlorine. Oxides of the following substances: Carbon. Nitrogen. Thermal decomposition or combustion products may include the following substances: Toxic gases or vapors.
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Advice for firefighters

Protective actions during firefighting	Move containers from fire area if it can be done without risk. Control run-off water by containing and keeping it out of sewers and watercourses.
Special protective equipment for firefighters	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions	Follow precautions for safe handling described in this safety data sheet. For personal protection, see Section 8.
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Environmental precautions

Environmental precautions	Avoid release to the environment. To prevent release, place container with damaged side up.
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Methods and material for containment and cleaning up

Methods for cleaning up Provide adequate ventilation. Contain spillage with sand, earth or other suitable non-combustible material. Avoid the spillage or runoff entering drains, sewers or watercourses. Collect spillage for reclamation or disposal in sealed containers via a licensed waste contractor. Containers with collected spillage must be properly labeled with correct contents and hazard symbol. Wash thoroughly after dealing with a spillage. Avoid generation and spreading of dust. Avoid contact with water.

Reference to other sections For personal protection, see Section 8. For waste disposal, see section 13.

7. Handling and storage

Precautions for safe handling

Usage precautions Provide adequate ventilation. Avoid inhalation of vapors. Use approved respirator if air contamination is above an acceptable level. Do not use in confined spaces without adequate ventilation and/or respirator. Avoid spilling. Avoid contact with skin and eyes. Avoid contact with the following materials: Acids. Moisture. Avoid handling which leads to dust formation.

Conditions for safe storage, including any incompatibilities

Storage precautions Store in a tightly-closed, original container in a dry, cool, and well-ventilated place. Store at temperatures not exceeding 50°C /122°F. Protect from freezing and direct sunlight. If frozen: once thawed, agitate container vigorously to ensure the product is homogeneous. Store away from the following materials; alkalis, acids, cyanides, reducing agents, oxidizing materials and aluminum. Do not use containers made of Carbon steel. Keep separate from food, feeds, fertilizers, and other sensitive materials.

Storage class Oxidizer storage. NFPA STORAGE CLASSIFICATION:NFPA Oxidiser Class 2.

Specific end uses(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.

8. Exposure Controls/personal protection

Ingredient comments No exposure limits known for ingredient(s).

Exposure controls

Protective equipment



Appropriate engineering controls All handling should only take place in well-ventilated areas.

Eye/face protection The following protection should be worn: Chemical splash goggles or face shield.

Hand protection Selection of a suitable glove depends on work conditions and whether the product is present on its own or in combination with other substances. Wear protective gloves made of the following material: Neoprene. Nitrile rubber. Polyethylene. Polyvinyl chloride (PVC). Gloves should be replaced immediately if signs of degradation are observed.

Other skin and body protection Wear appropriate clothing to prevent any possibility of skin contact. Wear a suitable dust mask. Wear apron or protective clothing in case of contact.

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Hygiene measures	Use engineering controls to reduce air contamination to permissible exposure level. Provide eyewash station. No specific hygiene procedures recommended but good personal hygiene practices should always be observed when working with chemical products. Contaminated clothing should be placed in a closed container for disposal or decontamination.
Respiratory protection	Wear a suitable dust mask.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance	Tablet.
Color	White/off-white.
Odor	Slight. Halogen
Odor threshold	Not available. Not available.
pH	Not available. pH (diluted solution): 3.5 @ 0.15 %
Melting point	156 - 162°C
Initial boiling point and range	Not available.
Boiling Point:	
Freezing Point:	
Flash point	Not available.
Evaporation rate	Not available.
Evaporation factor	Not available.
Upper/lower flammability or explosive limits	Not applicable.
Vapor pressure	0.0038 Pa @ 25°C
Vapor density	Not available.
Relative density	Not applicable.
Bulk density	~900 kg/m ³
Solubility(ies)	0.15 @ °C Slightly soluble in water.
Partition coefficient	log Pow: 0.35
Auto-ignition temperature	Not available.
Viscosity	Not available.
Explosive properties	Scientifically unjustified.
Oxidizing properties	This material is oxidising keep away from fire/heat/sources of ignition.
Other information	Not available.

10. Stability and reactivity

Reactivity	This material has oxidising properties.
Stability	Stable at normal ambient temperatures. Avoid the following conditions: Moisture.

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Possibility of hazardous reactions	Will not polymerize.
Conditions to avoid	Generates toxic gas in contact with acid. Avoid heat, flames and other sources of ignition. Avoid excessive heat for prolonged periods of time.
Materials to avoid	Strong acids. Strong alkalis. Strong reducing agents.
Hazardous decomposition products	Toxic gases/vapors/fumes of: Hydrogen bromide (HBr). Bromine. Hydrogen chloride (HCl). Chlorine. Oxides of the following substances: Carbon. Nitrogen.

11. Toxicological information

Information on toxicological effects

Other health effects There is no evidence that the product can cause cancer.

Supplemental Toxicological Information

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 578.0

Species Rat

ATE oral (mg/kg) 520.83

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 2,000.0

Species Rabbit

Germ cell mutagenicity

Genotoxicity - in vitro Ames test: Negative.

Inhalation May cause respiratory system irritation.

Ingestion Harmful if swallowed.

Skin Contact Causes burns. May cause sensitisation by skin contact.

Eye contact Causes burns.

Acute and chronic health hazards This product is corrosive. Contact with acids liberates toxic gas.

Route of exposure Skin and/or eye contact Ingestion. Inhalation

12. Ecological Information

Ecotoxicity The product contains a substance which is very toxic to aquatic organisms.

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: 0.87 mg/l, Oncorhynchus mykiss (Rainbow trout)
LC₅₀, 96 hours: 0.87 mg/l, Fish

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 0.46 mg/l, Daphnia magna
EC₅₀, 48 hours: 0.46 mg/l, Daphnia magna

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Persistence and degradability

Persistence and degradability Halogens will dissociate in water leaving DMH. DMH is readily biodegradable in a CO₂ Evolution study and passes the 10-day window criteria. DMH has also been shown to be rapidly degraded in a water/sediment system.

Chemical oxygen demand 1.005 g O₂/g substance

Bioaccumulative potential

Bio-Accumulative Potential Low bioaccumulation potential

Partition coefficient log Pow: 0.35

Mobility in soil

Mobility Information not available.

Other adverse effects

**Acute Toxicity. Lc50 96 Hours, 640 American Oyster
Mg/L**

13. Disposal considerations

Waste treatment methods

General information When handling waste, the safety precautions applying to handling of the product should be considered.

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. Absorb in vermiculite, dry sand or earth and place into containers. Dispose of waste via a licensed waste disposal contractor. Liquid material should be incinerated. Material absorbed onto sand or earth should be disposed of as solid waste in accordance with local regulations. Empty packaging may contain product residues and due consideration should be given prior to disposal.

Waste class 07 01 99

14. Transport information

UN Number

UN No. (TDG) 3085

UN No. (IMDG) 3085

UN No. (ICAO) 3085

UN No. (DOT) 3085

UN proper shipping name

Proper shipping name (TDG) OXIDIZING SOLID, CORROSIVE, N.O.S., (contains bromo-chloro-dimethylhydantoin) 5.1(8)
PGIII, MARINE POLLUTANT

Proper shipping name (IMDG) OXIDIZING SOLID, CORROSIVE, N.O.S., (contains bromo-chloro-dimethylhydantoin) 5.1(8)
PGIII, MARINE POLLUTANT

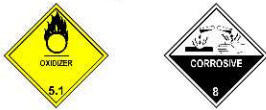
Proper shipping name (ICAO) OXIDIZING SOLID, CORROSIVE, N.O.S., (contains bromo-chloro-dimethylhydantoin) 5.1(8)
PGIII, MARINE POLLUTANT

Proper shipping name (DOT) OXIDIZING SOLID, CORROSIVE, N.O.S., (contains bromo-chloro-dimethylhydantoin) 5.1(8)
PGIII, MARINE POLLUTANT

Transport hazard class(es)

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TDG class	5.1
TDG subsidiary risk	8
TDG label(s)	5.1(8)
IMDG Class	5.1
IMDG subsidiary risk	8
ICAO class/division	5.1
ICAO subsidiary risk	8

DOT transport labels**Packing group**

TDG Packing Group	III
IMDG packing group	III
ICAO packing group	III
DOT packing group	III

Environmental hazards**Environmentally Hazardous Substance****Special precautions for user**

EmS F-A, S-Q

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

Classification Code (Adr) OC2

15. Regulatory information

Regulatory Status This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label: DANGER Avoid contact with eyes, skin and clothing. EPA Reg. No. 83451-4

Regulatory References 29 CFR 1910.1010 Federal Regulations (OSHA Standard)

US Federal Regulations**SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities**

None of the ingredients are listed.

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CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)

None of the ingredients are listed.

SARA 313 Emission Reporting

None of the ingredients are listed.

US State Regulations

California Proposition 65 Carcinogens and Reproductive Toxins

None of the ingredients are listed.

Massachusetts "Right To Know" List

None of the ingredients are listed.

Rhode Island "Right To Know" List

None of the ingredients are listed.

Minnesota "Right To Know" List

None of the ingredients are listed.

New Jersey "Right To Know" List

None of the ingredients are listed.

Pennsylvania "Right To Know" List

None of the ingredients are listed.

Inventories

EU - EINECS/ELINCS

All the ingredients are listed or exempt.

Canada - DSL/NDSL

All the ingredients are listed or exempt.

US - TSCA

All the ingredients are listed or exempt.

US - TSCA 12(b) Export Notification

All the ingredients are listed or exempt.

Australia - AICS

All the ingredients are listed or exempt.

Japan - MITI

All the ingredients are listed or exempt.

JAPAN- IHSL

Korea - KECI

All the ingredients are listed or exempt.

China - IECSC

All the ingredients are listed or exempt.

Philippines - PICCS

All the ingredients are listed or exempt.

Taiwan -TCSI

BROMICIDE® TABLETS**16. Other information**

General information	For advice on chemical emergencies, spillages, fires or first aid in relation to this product please contact the relevant emergency number below : EU/English Speakers - +44 (0) 1235 239 670 (NCEC) Arabic Speakers - +44 (0) 1235 239 671 Asia/Pacific countries - +65 3158 1074 Within Mainland China: +86 532 8388 9090 (NRCC). To/From China: +86 10 5100 3039 (NCEC)
Revision comments	Changed the Skin Corrosion Health Hazard from 1B to 1C, per Ross B.
Issued by	BWA Water Additives Regulatory Group, +44(0)1618646699
Revision date	1/19/2018
Revision	4.2
Supersedes date	12/19/2016
SDS No.	10804
Hazard statements in full	H272 May intensify fire; oxidizer. H302 Harmful if swallowed. H314 Causes severe skin burns and eye damage. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H400 Very toxic to aquatic life.
NFPA - health hazard	Extremely hazardous, serious injury. (3)
NFPA - flammability hazard	Burns only if pre-heated. (1)
NFPA - instability hazard	Unstable if heated. (1)
NFPA - special hazard	OX
ACA HMIS Health rating.	Serious Hazard. (3)
NSF Non Food Program	Nonfood Compounds Program Listed B1, G5, G7 # 133178
ACA HMIS Flammability rating.	Burns only if pre-heated. (1)
ACA HMIS Physical hazard rating.	Unstable if heated. (1)
ACA HMIS Personal protection rating.	C

For safety reasons it is IMPERATIVE that customers:-

1. Ensure that all those within their control who use the products are supplied with all relevant information contained within the Safety Data Sheet and Technical Bulletin concerning the applications for which the product is designed and any instructions and warnings contained therein.

2. Consult BWA Water Additives before using or supplying the product for any other applications. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.