BWA™ Water Additives

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, 100974, 100409, 100410
CAS number	32718-18-6

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

Distributed by:

Emergency telephone number

Emergency telephone	CHEMTREC Phone: 1-800-424-9300

2. Hazard(s) identification

Classification of the substance or mixture

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

Label elements

Pictogram

Signal word Danger

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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.

Precautionary statements

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

Contains

1-Bromo-3-chloro-5,5-dimethylhydantoin

3. Composition/Information on ingredients

Mixtures

1-Bromo-3-chloro-5,5-dimethylhydantoin **98.0%**

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

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Inert ingredients CAS number: —	**4.0%**
Classification Not Classified	

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.

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 Inhaltion of dust may cause irritation of the respiritory 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 opthalmologist.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.

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.

Environmental precautions

Environmental precautions Avoid release to the environment. To prevent release, place container with damaged side up.

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

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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.
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.
Flash point	Not available.
Freezing Point:	
Evaporation rate	Not available.
Evaporation factor	Not available.
Upper/lower flammability or explosive limits	Not applicable.
Vapor pressure	0.0038 Pa @ °C
Vapor density	Not available.
Relative density	Not applicable.
Bulk density	~900 kg/m³
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.

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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.
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 (LD_{50} mg/kg)	578.0
Species	Rat
ATE oral (mg/kg)	520.83
Acute toxicity - dermal	
Acute toxicity dermal (LD_{50} 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 entry	Skin and/or eye contact Ingestion. Inhalation

12. Ecological information

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Ecotoxicity	The product contains a substance which is very toxic to aquatic organisms.
Acute toxicity - fish	LC50, 96 hours: 0.87 mg/l, Onchorhynchus mykiss (Rainbow trout) LC_{50}, 96 hours: 0.87 mg/l, Fish
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 0.46 mg/l, Daphnia magna EC_{50}, 48 hours: 0.46 mg/l, Daphnia magna

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 O_2/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, Mg/L	640 American Oyster

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

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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)

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)

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US Federal Regulations

SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities
None of the ingredients are listed.

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.

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Philippines - PICCS
All the ingredients are listed or exempt.

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	4.1 Added NSF values and revised text in section 7.
Issued by	BWA Water Additives Regulatory Group, +44(0)1618646699
Revision date	12/19/2016
Revision	4.1
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)
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
NSF Non Food Program	Nonfood Compounds Program Listed B1, G5, G7 # 133178

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.