SAFETY DATA SHEET
BWA BROMICIDE TABLETS

1. IDENTIFICATION

Product Name: BWA BROMICIDE TABLETS
Chemical Name: 1-Bromo-3-chloro-5,5-dimethylhydantoin
Product No.: 100409, 100410, 100974
Identification No.: 3085
Identified uses: Biocides for water treatment.
Supplier: BWA Water Additives US LLC
1979 Lakeside Parkway
Suite 925, Tucker, GA30084
USA
T: +1 800 600 4523
T: +1 678 802 3050
E: msds@wateradditives.com

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

2. HAZARD(S) IDENTIFICATION

EMERGENCY OVERVIEW

PMRA SIGNAL WORD: DANGER EPA REGISTRATION No: 83451-4 EPA SIGNAL WORD: DANGER. EPA FIFRA
Labelling information in Section 15 (PRN 2012-1)

Appearance: Tablet.
Color: White / off-white.
Odor: Slight odor. Halogen

GHS 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.

Precautionary Statements:
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+330+331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303+361+353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+351+338 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.
P501 Dispose of contents/container in accordance with national regulations.

Contains: 1-Bromo-3-chloro-5,5-dimethylhydantoin
BWA BROMICIDE TABLETS

GHS Classification

Physical and Chemical Hazards
Ox. Sol. 3 - H272

Human health
Acute Tox. 4 - H302; Skin Corr. 1B - H314; Skin Sens. 1 - H317

Environment
Aquatic Acute 1 - H400

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM - WHMIS

Controlled Product Classification
Canadian WHMIS Classification C E

Inhalation
May cause irritation to the respiratory system.

Ingestion
Harmful if swallowed.

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

Eye Contact
Causes burns.

Health Warnings
This substance is corrosive. Contact with acids liberates toxic gas.

Route Of Entry
Skin and/or eye contact. Ingestion. Inhalation.

Other Health Effects
This substance has no evidence of carcinogenic properties.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Composition/Information on Ingredients</th>
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<tbody>
<tr>
<td>1-Bromo-3-chloro-5, 5-dimethylhydantoin</td>
<td>60-100%</td>
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<tr>
<td>CAS No.: 16079-88-2</td>
<td>EC No.: 240-230-0</td>
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Composition Comments
1-bromo-3-chloro-5, 5-dimethylhydantoin

4. FIRST-AID MEASURES

Description of first aid measures

Inhalation
Provide fresh air, warmth and rest, preferably in a comfortable upright sitting position. Get medical attention.

Ingestion
DO NOT INDUCE VOMITING! NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Rinse mouth thoroughly. Get medical attention immediately!

Skin Contact
Remove contaminated clothing. Rinse the skin immediately with lots of water. Get medical attention immediately!

Eye Contact
Remove victim immediately from source of exposure. Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention immediately

Most important symptoms and effects, both acute and delayed

Inhalation
Inhalation of dust may cause irritation of the respiratory tract.
BWA BROMICIDE TABLETS

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
Extreme irritation of eyes and mucous membranes, including burning and tearing.

Indication of any immediate medical attention and special treatment needed

Notes To The Physician
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.

5. FIRE-FIGHTING MEASURES

Auto Ignition Temperature (°C)
Not available.

Flammability Limit - Lower(%)
Not applicable.

Flammability Limit - Upper(%)
Not applicable.

Flash point (°C)
Not available.

Extinguishing Media
Use: Water spray, fog or mist. Alcohol resistant foam. DO NOT use CO2 or dry chemicals.

Unsuitable extinguishing media
Carbon dioxide (CO2). Dry chemicals.

Unusual Fire & Explosion Hazards
Fire causes formation of toxic gases.

Specific Hazards

Special Fire Fighting Procedures
Move container from fire area if it can be done without risk. Keep run-off water out of sewers and water sources. Dike for water control.

Protective Equipment For Fire-Fighters
Self contained breathing apparatus and full protective clothing must be worn in case of fire.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Follow precautions for safe handling described in this material safety data sheet. For personal protection, see section 8.

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

Spill Clean Up Methods
Provide ventilation and confine spill. Do not allow runoff to sewer. Collect and reclaim or dispose in sealed containers in licensed waste. Containers with collected spillage must be properly labelled 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

Handling
Ventilate well, avoid breathing vapors. Use approved respirator if air contamination is above accepted level. Do not use in confined spaces without adequate ventilation and/or respirator. Avoid spilling, skin and eye contact. Avoid acids, moisture, and combustible materials. Avoid handling which leads to dust formation.

Storage
Store in tightly closed original container in a dry, cool and well-ventilated place. Keep containers tightly closed. Protect from light, including direct sunrays. Keep away from heat, sparks and open flame.
BWA BROMICIDE TABLETS

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

Specific end use(s)
The identified uses for this product are detailed in Section 1.2.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredient Comments
No exposure limits noted for ingredient(s).

Protective Equipment

Process Conditions
Use engineering controls to reduce air contamination to permissible exposure level. Provide eyewash station.

Engineering Measures
All handling to take place in well-ventilated area.

Respiratory Equipment
Use specified dust masks.

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. Use protective gloves made of: Neoprene, nitrile, polyethylene or PVC. Gloves should be replaced immediately if signs of degradation are observed.

Eye Protection
Use approved safety goggles or face shield.

Other Protection
Wear appropriate clothing to prevent any possibility of skin contact.
Wear dust masks in dusty areas.

Hygiene Measures
No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals. Isolate contaminated clothing and wash before reuse.

Skin Protection
Wear apron or protective clothing in case of contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Tablet.

Color
White / off-white.

Odor
Slight odor. Halogen

Solubility
Slightly soluble in water.

Initial boiling point and boiling range (°C)
Not available.

Melting point (°C)
156 - 162

Relative density
Not applicable.

Bulk Density
~900 kg/m3

Vapor density (air=1)
Not available.

Vapor pressure
0.0038 Pa  25°C

Evaporation rate
Not available.

Evaporation Factor
Not available.

pH-Value, Conc. Solution
Not available.

pH-Value, Diluted Solution
3.5 @ 0.15 %
BWA BROMICIDE TABLETS

Viscosity
Not available.

Solubility Value (G/100G H2O@20°C) 0.15

Decomposition temperature (°C) 162°C

Odour Threshold, Lower
Not available.

Odour Threshold, Upper
Not available.

Flash point (°C)
Not available.

Auto Ignition Temperature (°C)
Not available.

Flammability Limit - Lower(%)
Not applicable.

Flammability Limit - Upper(%)
Not applicable.

Partition Coefficient (N-Octanol/Water) log Pow 0.35

Explosive properties
Scientifically unjustified.

This material is oxidising keep away from fire/heat/sources of ignition.
Not available.

10. STABILITY AND REACTIVITY

Reactivity
This material has oxidising properties.

Stability
Stable under normal temperature conditions. Avoid Moisture.

Hazardous Polymerisation
Will not polymerise.

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

Hazardous Decomposition Products

11. TOXICOLOGICAL INFORMATION

Other Health Effects
This substance has no evidence of carcinogenic properties.

Acute toxicity:
Acute Toxicity (Oral LD50)
578 mg/kg Rat

Acute Toxicity (Dermal LD50)
> 2000 mg/kg Rabbit

Germ cell mutagenicity:
Genotoxicity - In Vitro
Ames Test
Negative.

12. ECOLOGICAL INFORMATION
BWA BROMICIDE TABLETS

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

Acute Toxicity - Fish
LC50 96 hours 0.87 mg/l Onchorynchus mykiss (Rainbow trout)

Acute Toxicity - Aquatic Invertebrates
EC50 48 hours 0.46 mg/l Daphnia magna

Degradability
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
Low bioaccumulation potential

Partition coefficient
log Pow 0.35

Mobility:
Information not available.

Results of PBT and vPvB assessment
An assessment of the substance's properties indicates it is neither a PBT or vPvB.

Acute Toxicity. LC50 96 Hours, Mg/L
640 American Oyster

13. DISPOSAL CONSIDERATIONS

Waste Management
When handling waste, consideration should be made to the safety precautions applying to handling of the product.

Disposal Methods
Dispose of waste and residues in accordance with local authority requirements.
Absorb in vermiculite or dry sand and dispose of at a licenced hazardous waste collection point.
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.

14. TRANSPORT INFORMATION

UN No. (DOT/TDG) 3085
NA No. 1479
UN No. (IMDG) 3085
UN No. (ICAO) 3085

DOT Proper Shipping Name OXIDIZING SOLID, CORROSIVE, N.O.S., (contains bromo-chloro-5, 5-dimethylhydantoin) 5.1(8), PGIII, MARINE POLLUTANT

TDG Proper Shipping Name OXIDIZING SOLID, CORROSIVE, N.O.S., (contains bromo-chloro-5, 5-dimethylhydantoin) 5.1(8), PGIII, MARINE POLLUTANT

DOT Hazard Class 5.1 8

DOT Hazard Label Oxidiser Corrosive

TDG Class 5.1 (8)
IMDG Class 5.1
IMDG Subsidiary Risk 8
ICAO Class 5.1
ICAO Subsidiary Risk 8

Transport Labels
BWA BROMICIDE TABLETS

DOT Pack Group III
TDG Pack Group III
IMDG Pack Group III
Air Pack Group III

Environmentally Hazardous Substance/Marine Pollutant

EMS F-A, S-Q

Markings
MARINE POLLUTANT

Packaging Instructions P002

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

Classification Code (Adr) OC2

15. REGULATORY INFORMATION

Regulatory Status (US)
SECTION 313: This product does not contain toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372. PROPOSITION 65: This product does not contain chemicals considered by the State of California's Safe Drinking Water and Toxic Enforcement Act of 1986 as causing cancer or reproductive toxicity and for which warnings are now required. TSCA: The ingredients of this product are on the TSCA Inventory. TSCA Export Notification Section 12b. EPA REGISTRATION NUMBER: 83451-4 PMRA PCP Number - 31855

Regulatory References

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.
BWA BROMICIDE TABLETS

Pennsylvania "Right To Know" List
None of the ingredients are listed.

Fifra Information
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.
Causes irreversible eye damage and skin burns.
Harmful if swallowed.
Irritating to nose and throat.
Do not get in eyes, on skin, or on clothing.

International Inventories

EU - EINECS/ELINCS
The following ingredients are listed.
1-Bromo-3-chloro-5, 5-dimethylhydantoin

Canada – DSL/NDSL
All ingredients are listed or exempt.

US - TSCA
All ingredients are listed or exempt.

US – TSCA 12(b) Export Notification
All ingredients are listed or exempt.

Australia - AICS
All ingredients are listed or exempt.

Japan – MITI
All ingredients are listed or exempt.

Korea - KECI
All ingredients are listed or exempt.

China - IECSC
All ingredients are listed or exempt.

Phillippines – PICCS
All ingredients are listed or exempt.

16. OTHER INFORMATION

HAZARDOUS MATERIAL INFORMATION SYSTEM (HMIS)

<table>
<thead>
<tr>
<th>Category</th>
<th>Code</th>
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<tr>
<td>HEALTH</td>
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<td>FLAMMABILITY</td>
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<td>PHYSICAL</td>
<td>1</td>
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<tr>
<td>PERSONAL PROTECTION</td>
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NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

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)
Disclaimer

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.