



## SAFETY DATA SHEET BROMICIDE TABLETS (US)

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

|                       |  |
|-----------------------|--|
| <b>Product name</b>   | BROMICIDE TABLETS (US)   |
| <b>Chemical name</b>  | Bromo-chloro-5,5-dimethylhydantoin                             |
| <b>Product number</b> | 100404, 100408, 100411, 100870, 100423, 101335, 101507, 100974 |
| <b>CAS number</b>     | 32718-18-6   |

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

|                        |                               |
|------------------------|-------------------------------|
| <b>Identified uses</b> | Biocides for water treatment. |
|------------------------|-------------------------------|

#### 1.3. Details of the supplier of the safety data sheet

|                 |  |
|-----------------|--|
| <b>Supplier</b> | BWA Water Additives UK Ltd<br>2 Brightgate Way<br>Manchester M32 0TB<br>United Kingdom<br>T: +44 (0)161 864 6699<br>(Technical/commercial enquiries)<br>F: +44 (0)161 864 6666<br>E: msds@wateradditives.com |
|-----------------|--|

#### 1.4. Emergency telephone number

|                            |                             |
|----------------------------|-----------------------------|
| <b>Emergency telephone</b> | +44 (0) 1235 239 670 (NCEC) |
|----------------------------|-----------------------------|

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification (EC/1272/2008)

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

**Classification (67/548/EEC or 1999/45/EC)** Xn;R22. C;R34. R43. N;R50. R31.

#### 2.2. Label elements

##### Pictogram



**Signal word**

**Danger**

## BROMICIDE TABLETS (US)

|                                 |  |
|---------------------------------|--|
| <b>Hazard statements</b>        | <p>H272 May intensify fire; oxidiser.</p> <p>H302 Harmful if swallowed.</p> <p>H314 Causes severe skin burns and eye damage.</p> <p>H317 May cause an allergic skin reaction.</p> <p>H400 Very toxic to aquatic life.</p>  |
| <b>Precautionary statements</b> | <p>P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. 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 vapour/ spray.</p> <p>P261 Avoid breathing vapour/ spray.</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 should 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+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.</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>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> |
| <b>Contains</b>                 | 1-Bromo-3-chloro-5,5-dimethylhydantoin   |

### 2.3. Other hazards

#### SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

|   |  |
|---|--|
| <b>1-Bromo-3-chloro-5,5-dimethylhydantoin</b> | <b>60-100%</b>                                   |
| CAS number: 16079-88-2                        | EC number: 240-230-0                             |
| M factor (Acute) = 1                          |  |
| <b>Classification</b>                         | <b>Classification (67/548/EEC or 1999/45/EC)</b> |
| Ox. Sol. 3 - H272                             | Xn;R22. C;R34. N;R50. R31,R43.                   |
| 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 R-Phrases and Hazard Statements are Displayed in Section 16.

**Composition comments** Bromo-chloro-5,5-dimethylhydantoin

## BROMICIDE TABLETS (US)

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

|                     |  |
|---------------------|--|
| <b>Inhalation</b>   | Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Get medical attention.  |
| <b>Ingestion</b>    | 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.   |
| <b>Skin contact</b> | Remove contaminated clothing. Rinse immediately with plenty of water. Get medical attention immediately.   |
| <b>Eye contact</b>  | 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 |

#### 4.2. Most important symptoms and effects, both acute and delayed

|                     |  |
|---------------------|--|
| <b>Inhalation</b>   | Inhalation of dust may cause irritation of the respiratory tract.  |
| <b>Ingestion</b>    | 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. |
| <b>Skin contact</b> | Chemical burns. Burning pain and severe corrosive skin damage.   |
| <b>Eye contact</b>  | Severe irritation, burning and tearing.  |

#### 4.3. Indication of any immediate medical attention and special treatment needed

|                             |  |
|-----------------------------|--|
| <b>Notes for the doctor</b> | Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. 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. The decision of whether to induce vomiting or not should be made by a physician. No specific antidote. |
|-----------------------------|--|

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

|                                       |   |
|---------------------------------------|---|
| <b>Suitable extinguishing media</b>   | Extinguish with the following media: Water spray, fog or mist. Alcohol-resistant foam. DO NOT use CO <sub>2</sub> or dry chemicals. |
| <b>Unsuitable extinguishing media</b> | Carbon dioxide (CO <sub>2</sub> ). Dry chemicals.   |

#### 5.2. Special hazards arising from the substance or mixture

|                         |   |
|-------------------------|---|
| <b>Specific hazards</b> | Toxic gases/vapours/fumes of: Bromine. Chlorine. Oxides of the following substances: Carbon. Nitrogen. Thermal decomposition or combustion products may include the following substances: Toxic gases or vapours. |
|-------------------------|---|

#### 5.3. Advice for firefighters

|  |   |
|--|---|
| <b>Protective actions during firefighting</b>        | 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. |
| <b>Special protective equipment for firefighters</b> | Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.   |

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

|                             |   |
|-----------------------------|---|
| <b>Personal precautions</b> | Follow precautions for safe handling described in this safety data sheet. For personal protection, see Section 8. |
|-----------------------------|---|

## BROMICIDE TABLETS (US)

### 6.2. Environmental precautions

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

### 6.3. 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 labelled with correct contents and hazard symbol. Wash thoroughly after dealing with a spillage. Avoid generation and spreading of dust. Avoid contact with water.

### 6.4. Reference to other sections

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

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

**Usage precautions** Provide adequate ventilation. Avoid inhalation of vapours. 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.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage precautions** Store in tightly-closed, original container in a dry, cool and well-ventilated place. Keep container tightly closed. Protect from light. Keep away from heat, sparks and open flame.

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

### 7.3. Specific end use(s)

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

## SECTION 8: Exposure Controls/personal protection

### 8.1. Control parameters

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

### 8.2. 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.

## BROMICIDE TABLETS (US)

|                               |  |
|-------------------------------|--|
| <b>Hygiene measures</b>       | 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. |
| <b>Respiratory protection</b> | Wear a suitable dust mask.   |

### SECTION 9: Physical and Chemical Properties

#### 9.1. Information on basic physical and chemical properties

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

#### 9.2. Other information

|                          |                |
|--------------------------|----------------|
| <b>Other information</b> | Not available. |
|--------------------------|----------------|

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

|                   |   |
|-------------------|---|
| <b>Reactivity</b> | This material has oxidising properties. |
|-------------------|---|

#### 10.2. Chemical stability

## BROMICIDE TABLETS (US)

**Stability** Stable at normal ambient temperatures. Avoid the following conditions: Moisture.

### 10.3. Possibility of hazardous reactions

**Possibility of hazardous reactions** Will not polymerise.

### 10.4. Conditions to avoid

**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.

### 10.5. Incompatible materials

**Materials to avoid** Strong acids. Strong alkalis. Strong reducing agents.

### 10.6. Hazardous decomposition products

**Hazardous decomposition products** Toxic gases/vapours/fumes of: Hydrogen bromide (HBr). Bromine. Hydrogen chloride (HCl). Chlorine. Oxides of the following substances: Carbon. Nitrogen.

## SECTION 11: Toxicological information

### 11.1. 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<sub>50</sub> mg/kg)** 578.0

**Species** Rat

**ATE oral (mg/kg)** 520.83

#### Acute toxicity - dermal

**Acute toxicity dermal (LD<sub>50</sub> 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

## SECTION 12: Ecological Information

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

### 12.1. Toxicity

## BROMICIDE TABLETS (US)

**Acute toxicity - fish** LC50, 96 hours: 0.87 mg/l, Onchorhynchus mykiss (Rainbow trout)  
LC<sub>50</sub>, 96 hours: 0.87 mg/l, Fish

**Acute toxicity - aquatic invertebrates** EC<sub>50</sub>, 48 hours: 0.46 mg/l, Daphnia magna  
EC<sub>50</sub>, 48 hours: 0.46 mg/l, Daphnia magna

### 12.2. Persistence and degradability

**Persistence and degradability** Halogens will dissociate in water leaving DMH. DMH is readily biodegradable in a CO<sub>2</sub> 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<sub>2</sub>/g substance

### 12.3. Bioaccumulative potential

**Bioaccumulative potential** Low bioaccumulation potential

**Partition coefficient** log Pow: 0.35

### 12.4. Mobility in soil

**Mobility** Information not available.

### 12.5. Results of PBT and vPvB assessment

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

### 12.6. Other adverse effects

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

## SECTION 13: Disposal considerations

### 13.1. 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

## SECTION 14: Transport information

### 14.1. UN number

**UN No. (ADR/RID)** 3085

**UN No. (IMDG)** 3085

**UN No. (ICAO)** 3085

### 14.2. UN proper shipping name

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

## BROMICIDE TABLETS (US)

**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 (ADN)** OXIDIZING SOLID, CORROSIVE, N.O.S., (contains bromo-chloro-dimethylhydantoin) 5.1(8)  
PGIII, MARINE POLLUTANT

### 14.3. Transport hazard class(es)

ADR/RID class 5.1

ADR/RID subsidiary risk 8

ADR/RID classification code 5.1 (8)

ADR/RID label 5.1+8

IMDG class 5.1

ICAO class/division 5.1

### 14.4. Packing group

ADR/RID packing group III

IMDG packing group III

ICAO packing group III

### 14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant



### 14.6. Special precautions for user

EmS F-A, S-Q

Hazard Identification Number (ADR/RID) OC2

Tunnel restriction code (E)

### 14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

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

Classification Code (Adr) OC2

Classification Code (Adr) OC2

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

### 15.2. Chemical safety assessment

#### Inventories

#### EU - EINECS/ELINCS

All the ingredients are listed or exempt.



## BROMICIDE TABLETS (US)

### 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.

## SECTION 16: Other information

|                                  |   |
|----------------------------------|---|
| <b>General information</b>       | 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).<br>To/From China: +86 10 5100 3039 (NCEC) |
| <b>Revision comments</b>         | Section 15 revision, added US regulatory status and EPA Reg. No.  |
| <b>Issued by</b>                 | S.G.  |
| <b>Revision date</b>             | 28/03/2016  |
| <b>Revision</b>                  | 4   |
| <b>SDS number</b>                | 10804   |
| <b>Risk phrases in full</b>      | R22 Harmful if swallowed.<br>R31 Contact with acids liberates toxic gas.<br>R34 Causes burns.<br>R43 May cause sensitisation by skin contact.<br>R50 Very toxic to aquatic organisms.   |
| <b>Hazard statements in full</b> | H272 May intensify fire; oxidiser.<br>H302 Harmful if swallowed.<br>H314 Causes severe skin burns and eye damage.<br>H317 May cause an allergic skin reaction.<br>H318 Causes serious eye damage.<br>H400 Very toxic to aquatic life.   |
| <b>KIWA Certification</b>        |   |
| <b>NSF Non Food Program</b>      |   |

## BROMICIDE TABLETS (US)

### NSF/ANSI Standard 60

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.