MATERIAL SAFETY DATA SHEET
BROMICIDE GRANULES

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

PRODUCT NAME: BROMICIDE GRANULES
CHEMICAL NAME: 1-Bromo-3-chloro-5, 5-dimethylhydantoin
PRODUCT USE: Industrial Water Treatment
SUPPLIER: BWA Water Additives US LLC
1979 Lakeside Parkway
Suite 925, Tucker, GA 30084.
T: (800) 600-4523 .
(Technical/commercial enquiries)
E: MSDS@wateradditives.com

EMERGENCY TELEPHONE
Chemtrec Phone: 1-800-424-9300
IDENTIFICATION No.
UN3085

2 HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

INHALATION
May cause irritation to the respiratory system.

INGESTION
Harmful if swallowed.

SKIN CONTACT
Causes burns.

EYE CONTACT
Causes burns.

HEALTH WARNINGS
This substance is corrosive.

ROUTE OF ENTRY
Skin and/or eye contact. Inhalation: Ingestion.

CARCINOGENICITY
This substance has no evidence of carcinogenic properties.

3 COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Name</th>
<th>EC No.</th>
<th>CAS-No.</th>
<th>Content %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Bromo-3-chloro-5, 5-dimethylhydantoin</td>
<td>240-230-0</td>
<td>16079-88-2</td>
<td>60-100%</td>
</tr>
</tbody>
</table>

EC (EINECS) NO. 240-230-0
CAS NO. 16079-88-2

4 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!
BROMICIDE GRANULES

SKIN CONTACT
Remove contaminated clothing. Rinse the skin immediately with lots of water. Get medical attention if irritation persists after washing.

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 promptly if symptoms occur after washing.

5 FIRE-FIGHTING MEASURES

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

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.

UNUSUAL FIRE & EXPLOSION HAZARDS
Fire causes formation of toxic gases.

SPECIFIC HAZARDS

PROTECTIVE MEASURES IN FIRE
Use self-contained breathing apparatus

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.

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

7 HANDLING AND STORAGE

HANDLING
Ventilate well, avoid breathing vapours. 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.

STORAGE CLASS
Oxidiser storage.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

INGREDIENT COMMENTS
No exposure limits noted for ingredient(s).

PROCESS CONDITIONS
Use engineering controls to reduce air contamination to permissible exposure level. Provide eyewash station.

PROTECTIVE EQUIPMENT
BROMICIDE GRANULES

ENGINEERING MEASURES
All handling to take place in well-ventilated area.

RESPIRATORY EQUIPMENT
Use specified dust masks.

HAND PROTECTION
It has been found that gloves made from rubber, neoprene or PVC provide short-term splash protection.
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

<table>
<thead>
<tr>
<th>APPEARANCE</th>
<th>Granular</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLOR</td>
<td>White / off-white</td>
</tr>
<tr>
<td>ODOR</td>
<td>Slight odor Halogen</td>
</tr>
<tr>
<td>SOLUBILITY</td>
<td>Slightly soluble in water.</td>
</tr>
<tr>
<td>MELTING POINT</td>
<td>145 - 160°C</td>
</tr>
<tr>
<td>RELATIVE DENSITY</td>
<td>0.96</td>
</tr>
<tr>
<td>BULK DENSITY</td>
<td>0.9 kg/l</td>
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<tr>
<td>pH-VALUE, DILUTED SOLUTION</td>
<td>3.5 @ 0.15 %</td>
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<tr>
<td>PARTITION COEFFICIENT (N-Octanol/Water)</td>
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<tr>
<td>SOLUBILITY VALUE (g/100g H2O@20°C)</td>
<td>0.15</td>
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</table>

10 STABILITY AND REACTIVITY

STABILITY
Stable under normal temperature conditions. Avoid: Moisture.

CONDITIONS TO AVOID
Avoid contact with oxidizers or reducing agents. Avoid contact with acids and alkalis. Avoid heat, flames and other sources of ignition.

HAZARDOUS POLYMERISATION
Will not polymerise.

MATERIALS TO AVOID

HAZARDOUS DECOMPOSITION PRODUCTS

11 TOXICOLOGICAL INFORMATION

TOXIC DOSE 1 - LD 50 | 578 mg/kg (oral rat)
TOXIC DOSE 2 - LD 50 | >2000 mg/kg (skin-rabbit)

Ames Test negative
INHALATION
May cause irritation to the respiratory system.

INGESTION
Harmful if swallowed.

SKIN CONTACT
Causes burns.

EYE CONTACT
Causes burns.

HEALTH WARNINGS
This substance is corrosive.

OTHER HEALTH EFFECTS
This substance has no evidence of carcinogenic properties.

12 ECOLOGICAL INFORMATION

LC 50, 96 Hrs, FISH mg/l 0.87
EC 50, 48 Hrs, DAPHNIA, mg/l 0.46

BIOACCUMULATION
Low bioaccumulation potential
Chemical Oxygen Demand,COD 1.005 g/g
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.

WASTE CLASS
07 01 99

14 TRANSPORT INFORMATION

OXIDIZING SOLID, CORROSIVE, N.O.S., (contains Bromo-chloro-5, 5-dimethylhydantoin)
OXIDIZING SOLID, CORROSIVE, N.O.S.(contains Bromo-chloro-5, 5-dimethylhydantoin)
OXIDIZING SOLID, CORROSIVE, N.O.S., (contains Bromo-chloro-5, 5-dimethylhydantoin)
UN3085

5.1 8 +
III
BROMICIDE GRANULES

U.S DOT HAZARD LABEL  5.1 Oxidizer Corrosive
UN NO. SEA       3085
IMDG CLASS      5.1 + 8
IMDG PACK GR.   III
UN NO. AIR      3085
AIR CLASS       5.1 + 8
AIR PACK GR.    III
TDG CLASS       5.1 + 8
TDG PACKING GROUP III

15 REGULATORY INFORMATION

INVENTORIES

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<tr>
<th>COMPONENT</th>
<th>CAN</th>
<th>US</th>
<th>EU</th>
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<td>DSL</td>
<td>Yes.</td>
<td>EINECS</td>
<td>Yes.</td>
<td>Yes.</td>
<td>Yes.</td>
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COMPONENT | TSCA 12(b) Export Notification
Non Hazardous Materials | No.
1-Bromo-3-chloro-5,5-dimethylhydantoin | Yes.

US FEDERAL REGULATIONS

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<tr>
<th>COMPONENT</th>
<th>SARA 302-TP</th>
<th>CERCLA-RQ</th>
<th>SARA 313</th>
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<td>Non Hazardous Materials</td>
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CLEAN AIR ACT

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US STATE REGULATIONS

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<tr>
<td>Non Hazardous Materials</td>
<td>16079-88-2</td>
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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.

REGULATORY REFERENCES


WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM -WHMIS

LABEL(S) FOR SUPPLY


CONTROLLED PRODUCT CLASSIFICATION

Canadian WHMIS Classification C E

16 OTHER INFORMATION
BROMOCIDE GRANULES

HAZARDOUS MATERIAL INFORMATION SYSTEM (HMIS)

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

- HEALTH (3)
- FIRE (1)
- OX (1)
- INSTABILITY
- SPECIAL

REVISION COMMENTS
Section 14 Revised Transport classification.

ISSUED BY
J.B.

REVISION DATE 28/03/2011
VERSION No. 5
SDS NO. 11317