

## MATERIAL SAFETY DATA SHEET

Product Name **Halobrom Bromine Tablets**  
Product id 8424M  
Revision date 18/07/2004  
Supersedes 08/11/2000

Revision: 4

### 1. Identification of the substance & the company

Chemical name 1-bromo-3-chloro-5,5-dimethylhydantoin  
Chemical formula  $C_5H_6BrClN_2O_2$   
Chemical family Halogenated hydantoin  
Molecular weight 241.5  
Type of product and use Controls bacteria, algae in swimming pool waters  
Supplier Clearon Corp.  
95 MacCorkle Ave. SW, South Charleston, WV 25303, USA  
Tel: (304) 746-3000  
Emergency Telephone Chemtrec (800)424-9300

### 2. Composition / information on ingredients

Components CAS	Weight %	ACGIH-TLV Data	OSHA (PEL) Data
1-bromo-3-chloro-5,5- dimethylhydantoin 16079-88-2	92.5	Not determined	Not determined

### 3. Hazards identification

Emergency overview *Oxidizer*  
*Corrosive to eyes*

Potential Health Effects:

- Eye Contact Severe irritant  
May cause temporary or permanent eye damage.
- Skin contact Exposure to wet skin may cause severe irritation.  
May cause skin sensitization
- Inhalation Irritant to upper respiratory tract  
Shortness of breath, headache and nausea.

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**NFPA Ratings (Scale 0-4)**                      Health = 3, Fire = 0, Reactivity = 1.

**HMIS Ratings (Scale 0-4)**                      Health = 3, Fire = 0, Reactivity = 1.

**4. First-aid measures**

**Eye contact**    Holding the eyelids apart, flush eyes promptly with copious flowing water for at least 20 minutes. Get medical attention immediately.

**Skin contact**    Remove contaminated clothing. Wash skin thoroughly with mild soap and plenty of water for at least 15 minutes. Wash clothing before re-use. Get medical attention immediately.

**Inhalation**    In case of dust inhalation or breathing fumes released from heated material, remove person to fresh air. Keep him quiet and warm. Apply artificial respiration if necessary and get medical attention immediately.

**Ingestion**    If swallowed, wash mouth thoroughly with plenty of water. Get medical attention immediately.  
 \*\*\*\*\*  
 NOTE: Never give an unconscious person anything to drink.  
 \*\*\*\*\*

**Note to physician**                                      Corrosive. No specific antidote. Treat symptomatically and supportively. In case of ingestion DO NOT induce vomiting.

**5. Fire - fighting measures**

<b>Flash point</b>	None
<b>Flammable/Explosion limits</b>	Not flammable
<b>Auto-ignition temperature</b>	Not applicable
<b>Suitable extinguishing media</b>	Dry powder, carbon dioxide or water spray
<b>Fire fighting procedure</b>	Cool containers with water spray. In closed stores, provide fire-fighters with self-contained breathing apparatus in positive pressure mode.
<b>Unusual fire and explosion hazards</b>	Strong oxidizing agent. Forms explosive mixtures with combustible, organic or other easily oxidizable materials. When heated to decomposition, may release poisonous and corrosive fumes of HBr, NOx and HCl.

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### 6. Accidental release measures

**Personal precautions** Evacuate area.  
Use dust respirator, rubber gloves and chemical safety goggles

**Methods for cleaning up** Sweep up, place in a suitable container and hold for waste disposal.  
Ventilate area and wash spill site after material pickup is complete. Avoid raising dust.  
Avoid access to streams, lakes or ponds. Additionally, if this Material Safety Data Sheet is more than three years old, you should contact Clearon at the phone number listed below to make certain that this sheet is current.

### 7. Handling and storage

**Handling** Keep containers tightly closed.

**Storage** Keep away from all sources of ignition.  
Recommended storage temperature below 30°C  
Store in a dry, cool, well-ventilated area away from incompatible materials (see "materials to avoid").

### 8. Exposure controls / personal protection

**Manufacturer's TLV-TWA Recommendation** 0.1 mg/m<sup>3</sup>

**Ventilation requirements** Use local exhaust as necessary, especially under dusty conditions.  
Ventilation must be sufficient to maintain atmospheric concentration below exposure limit.

**Personal protective equipment:**

- **Respiratory protection, USA** A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.
- **Hand protection** PVC gloves
- **Eye protection** Chemical safety goggles
- **Skin and body protection** Body covering clothes and boots

**Hygiene measures** Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking.  
Safety shower and eye bath should be provided.

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### 9. Physical and chemical properties

Appearance White to off-white tablet with faint halogenous odour  
Melting point/range Not applicable (decomposes)  
Boiling point/range Not applicable  
Vapour pressure  $9.35 \times 10^{-3}$  Pa (25°C)  
Vapor density Not applicable under standard conditions  
Evaporation rate (ether=1) Not applicable under standard conditions  
Solubility:  
- Solubility in water 0.2 g/100ml at 25°C  
- Solubility in other solvents Benzene: 2.5 g/100g at 25°C  
Specific gravity 1.8-2.0  
Decomposition temperature >160°C

### 10. Stability and reactivity

Stability Stable under normal conditions  
Materials to avoid Oxidizing agents  
Combustible organic materials  
Bases  
Conditions to avoid Heating above decomposition temperature  
Hazardous decomposition products HBr, Br<sub>2</sub>, HCl

### 11. Toxicological information

Acute toxicity:  
- Rat oral LD<sub>50</sub> 1020 mg/kg  
- Rabbit dermal LD<sub>50</sub> >2000 mg/kg  
- Rat inhalation LC<sub>50</sub> 0.53 mg/l/4 hour (nose only)  
- Dermal irritation (rabbit) Severe irritant  
- Dermal sensitization Mild sensitizer  
--(guinea pig)  
Chronic toxicity Not available  
Mutagenicity Mutagenic by the Ames Test  
Carcinogenicity Not known to be a carcinogen.  
Not classified by IARC.  
Not included in NTP 10th Report on Carcinogens.

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### 12. Ecological information

**Note:** The environmental toxicity data mentioned below are from studies conducted on the active ingredient.

**Aquatic toxicity :**

- 96 Hour-LC50, Fish  
1.2 mg/l (Eastern oyster, Acute flow through)  
1.9 mg/l (Mysid shrimp, Acute flow through)  
0.4 mg/l (Rainbow trout, Static)  
0.46 mg/l (Bluegill sunfish, Static)  
1.6 mg/l (Sheepshead minnow, Acute flow through)  
- 48 Hour-LC50, Daphnia magna  
0.75 mg/l (Static)

**Avian toxicity:**

- Oral LD50, Bobwhite quail 1839 mg/kg  
- Dietary LC50, Mallard duck >5620 ppm  
- Dietary LC50, Bobwhite quail >5620 ppm

### 13. Disposal considerations

**Waste disposal** Dispose of in approved landfill sites or an approved incinerator.  
Crush and bury empty containers.  
Avoid access to streams, lakes or ponds.  
Observe all federal, state and local environmental regulations when disposing of this material.

### 14. Transportation information

**UN No.** 1479

**DOT** Proper shipping name: Oxidizing solid, n.o.s  
Class: 5.1 - Oxidizing substances  
Label: OXIDIZER (5.1)  
Packing Group: II

**IMO** Class: 5.1 - Oxidizing substances  
Label: OXIDIZING AGENT (5.1)  
Marking: MARINE POLLUTANT  
Proper shipping name: Oxidizing solid, n.o.s  
Packing Group: II

**ICAO/IATA** Class: 5.1  
Label: OXIDIZING AGENT (5.1)  
Packing group: II

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### 15. Regulatory information

<b>USA</b>	This product is subject to registration under FIFRA
<b>EPCRA (SARA title III)</b>	
<b>Sara (311, 312) hazard class</b>	This product is categorized as an immediate health hazard, and fire physical hazard.
<b>Sara 313</b>	This product does not contain a chemical listed at or above de minimis concentrations.
<b>Canada</b>	Listed in DSL The product is registered in Canada
<b>- EEC No.</b>	240-230-0
<b>Japanese METI</b>	ENCS No.5-6368
<b>Australia</b>	Listed in AICS
<b>South Korea</b>	ECL Serial No.: KE-03634 Toxic chemical No.97-1-399
<b>Philippines</b>	Listed in PICCS

### 16. Other information

**This data sheet contains changes from the previous version in section(s)**

Product name,1, 2, 3, 7, 8,11,15

The information in this Material Safety Data Sheet should be provided to all who will use, handle, store, transport, or otherwise be exposed to this product.

This information has been prepared for the guidance of plant engineering, operations and management and for persons working with or handling this product.

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*In an event of discrepancy between the contents of this MSDS and the English version of it, the English version shall prevail.*

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**End of safety data sheet**