

## MATERIAL SAFETY DATA SHEET

Product Name	<b>Halogene G</b>	
Product id	8424GU	
Revision date	05/10/2010	Revision: 8
Supersedes	20/12/2007	

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

Chemical name	Bromo-chloro-5,5-dimethylhydantoin
Synonym(s)	BCDMH, Halobrom
Chemical formula	C <sub>5</sub> H <sub>6</sub> BrClN <sub>2</sub> O <sub>2</sub>
Chemical family	Halogenated hydantoin
Type of product and use	A biocide used to control bacteria, algae, yeast and fungi in industrial water systems
Supplier	Clearon Corp. 95 MacCorkle Ave. SW, South Charleston, WV 25303, USA Tel: (304) 746-3000
Emergency Telephone	Chemtrec (800)424-9300

### 2. Hazards identification

Emergency overview	<i>White to off-white granular solid with faint halogenous odour</i> <i>Corrosive</i> <i>Causes irreversible eye damage and skin burns</i> <i>May be fatal if inhaled</i> <i>Irritating to nose and throat</i> <i>Harmful if absorbed through skin or swallowed</i> <i>Oxidizer</i>
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#### Potential Health Effects:

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

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**Supersedes**                          20/12/2007

**Revision: 8**

**NFPA Ratings (Scale 0-4)**        Health = 3, Fire = 0, Reactivity = 1.  
 Special Hazard Warning: OXIDIZER

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

### 3. Composition / information on ingredients

Components	CAS No.	Weight %
Bromochloro-5,5-dimethylhydantoin	32718-18-6	96-99.5

### 4. First-aid measures

**Eye contact**                                      Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advise.

**Skin contact**                                      Take off contaminated clothing.  
 Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advise.

**Inhalation**                                         Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advise.

**Ingestion**                                         Call poison control center, or doctor immediately for treatment advise.  
 Have person sip a glass of water if able to swallow.  
 Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

**Note to physician**                                Probable mucosal damage may contraindicate the use of gastric lavage.

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### 5. Fire - fighting measures

<b>Suitable extinguishing media</b>	Dry powder, carbon dioxide or water spray In case of exothermic decomposition and appearance of smoke, water should be used to suppress it.
<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>	Oxidizing agent. Dust may form a weak explosive mixture with air (class St1), but is not sensitive to ignition from electrostatic discharges. Forms explosive mixtures with combustible, organic or other easily oxidizable materials. When heated to decomposition, may release poisonous and corrosive fumes.

### 6. Accidental release measures

<b>Personal precautions</b>	Evacuate area. Use dust respirator, rubber gloves and chemical safety goggles
<b>Methods for cleaning up</b>	Sweep up, place in a suitable container and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete. Avoid access to streams, lakes or ponds.

### 7. Handling and storage

<b>Handling</b>	Keep containers tightly closed.
<b>Storage</b>	Keep away from all sources of ignition. Recommended storage temperature below 30°C For transportation purposes it is possible to store at temperature up to 50°C. Store in a dry, cool, well-ventilated area away from incompatible materials (see "materials to avoid").

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### 8. Exposure controls / personal protection

**Exposure Limits :**

Components	ACGIH-TLV Data	OSHA (PEL) Data
Bromochloro-5,5-dimethylhydantoin 32718-18-6	Not determined	Not determined

**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 recommended exposure limit.

**Personal protective equipment:**

- **Respiratory protection**                 Respirator with combined filter (inorganic gas and dust).
- **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.

### 9. Physical and chemical properties

<b>Appearance</b>	White to off-white granular solid with faint halogenous odour
<b>Boiling point/range</b>	Not applicable
<b>Melting point/range</b>	Not applicable (decomposes)
<b>Flash point</b>	Not applicable
<b>Flammable/Explosion limits</b>	Not available
<b>Auto-ignition temperature</b>	Not available
<b>Vapour pressure</b>	9.35x10(-3) Pa (25°C)
<b>Evaporation rate (ether=1)</b>	Not applicable under standard conditions
<b>Vapor density</b>	Not applicable under standard conditions
<b>Viscosity</b>	Not applicable
<b>Solubility:</b>	
- <b>Solubility in water</b>	0.22 g/100ml at 25°C
- <b>Solubility in other solvents</b>	Benzene: 2.5 g/100g at 25°C
<b>Bulk density</b>	1 g/ml

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### 9. Physical and chemical properties

<b>Specific gravity</b>	1.8-2.0
<b>Decomposition temperature</b>	160°C
<b>Partition coefficient (n-octanol/water)</b>	Kow = <1 (pH 5-9)
<b>Explosive properties</b>	Dust may form a weak explosive mixture with air (class St1), but is not sensitive to ignition from electrostatic discharges.
<b>Oxidising properties</b>	Oxidizer
<b>Particle size:</b>	Not available

### 10. Stability and reactivity

<b>Stability</b>	Stable under normal conditions.
<b>Materials to avoid</b>	bases COMBUSTIBLE ORGANIC MATERIALS Oxidizing agents
<b>Conditions to avoid</b>	Contact with combustible materials may initiate decomposition of the material and emission of smoke. Exposure to moisture Heating above decomposition temperature
<b>Hazardous decomposition products</b>	CO, HBr, Cl <sub>2</sub> , NO <sub>x</sub> , HCl, CO <sub>2</sub>
<b>Hazardous polymerization</b>	Will not occur

### 11. Toxicological information

<b>Acute toxicity:</b>	
- Rat oral LD50	929 mg/kg
- Rat inhalation LC50	1.1 mg/l/4 hour (powder)
- Dermal irritation (rabbit)	Corrosive
<b>Dermal sensitization</b>	Sensitizer
<b>Chronic toxicity</b>	Not available
<b>Mutagenicity</b>	Mutagenic by the Ames Test Mutagenic in the mouse lymphoma L5178Y test system. Non genotoxic in an in-vivo micronucleus test in mice Non genotoxic in an in-vivo liver unscheduled DNA synthesis (USD) assay
<b>Carcinogenicity</b>	Not classified by IARC Not included in NTP 11th Report on Carcinogens

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**Revision: 8**

### 12. Ecological information

**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

**Bioaccumulative potential**

Based on low Kow values, i.e less than one, BCDMH would not be predicted to significantly accumulate in aquatic organisms, or sorb to organic material in soil or sediment.

**Germany, water endangering classes (WGK)**

2

### 13. Disposal considerations

**Waste disposal**

Dispose of in approved landfill sites or an approved incinerator.  
Avoid access to streams, lakes or ponds.  
Observe all federal, state and local environmental regulations when disposing of this material. This material is classified as a RCRA hazardous waste with the characteristic of ignitability, hazardous waste number:D001.

**Disposal of Packaging**

Crush and bury empty containers.  
Do NOT throw into public waste disposal site. Avoid contact with organic materials and moisture. See conditions to avoid (Section 10)

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### 14. Transportation information

<b>DOT</b>	UN number 1479 Proper shipping name: Oxidising Solid, n.o.s. (Bromo-Chloro-5,5-DimethylHydantoin) Class: 5.1 - Oxidizing substances Label: OXIDIZER (5.1) Packing Group II
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### 15. Regulatory information

<b>USA</b>	This product is registered under FIFRA. TSCA: EPA Number P-94-34 Subject to reporting under SNUR (Significant New Use Rule) -any use, 60 FR 11037
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<b>- SARA 313</b>	This product does not contain a chemical listed at or above de minimis concentrations.
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<b>- SARA (311, 312)</b>	This product is a hazardous chemical under 29CFR 1910.1200, and categorized as an immediate and delayed health, and reactivity physical hazard.
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<b>- Waste Classifications</b>	Not listed under CERCLA If this product becomes a waste, it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have the following EPA hazardous waste number: D001.
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<b>EU EC No.</b>	251-171-5
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<b>Japanese METI</b>	ENCS No.:5-6368
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<b>China inventory</b>	Listed
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<b>Philippines</b>	Listed in PICCS
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### 16. Other information

This data sheet contains changes from the previous version in section(s)  
2, 3, 8, 9

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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. 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.

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**End of safety data sheet**