



# Material Safety Data Sheet

**Product Name:** SPA FROG® Bromine Cartridge  
**Revision Date:** March 1, 2012  
**Supersedes:** Rev 3, 03/01/09  
**Revision:** 4

## 1. Identification of the substance and company

**Chemical Name:** 1-bromo-3-chloro-5,5-dimethylhydantion  
**Synonym(s):** BCDMH  
**Chemical Formula:** 1-bromo-3-chloro-5,5-dimethylhydantion  
**Chemical Family:** Halogenated hydantion  
**Type of product:** Spa and hot tub sanitizer  
**Supplier:** King Technology, Inc.  
530 11<sup>th</sup> Ave S, Hopkins, MN USA  
Phone (952) 933-6118  
**EPA Registration Number:** 53735-10  
**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-dimethylhydantion 16079-88-2	96	NE	NE

## 3. Hazards identification

**Emergency overview:**

- White granular material with halogen odor
- Highly corrosive; causes skin and eye damage
- May be fatal if swallowed
- Do not get in eyes, on skin, or on clothing. Wear goggles or safety glasses when handling this product.
- Irritating to nose and throat. Avoid breathing dust and fumes.
- Remove contaminated clothing and wash before reuse

### Potential Health Effects:

– **Eye Contact:** DANGER: Highly corrosive. Causes eye damage. Do not get in eyes.  
– **Skin Contact:** DANGER: Highly corrosive. Causes skin damage. Do not get on skin.  
– **Inhalation:** Irritating to nose and throat. Avoid breathing dust and fumes.  
– **Ingestion:** May be fatal if swallowed.

**Medical conditions aggravated:** Existing dermatitis may be aggravated by exposure

**Routes of Entry:** Skin contact, inhalation, ingestion, eye contact

**Comments Health:** There are no known chronic hazards



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**NFPA Ratings (scale 0-4):** Health = 3, Fire = 1, Reactivity = 1  
**NFPA Storage Classification:** NFPA Oxidizer Class 2  
**HMIS Ratings (scale 0-4):** Health = 3, Fire = 1, Reactivity = 1, Protection = B

## 4. First-aid measures

**Eye contact:** Hold eyes 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 advice.

**Skin contact:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. If irritation persists, call a doctor for treatment advice.

**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 advice.

**Ingestion:** Call poison control center or doctor immediately for treatment advice. 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. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

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

## 5. Fire fighting measures

**General hazard:** In large fires fueled by other materials, this product may smolder for prolonged periods emitting a dense black smoke. Any spilled material should be considered contaminated. Neutralize to a non-oxidizing material for safe disposal. Material which appears undamaged except for being damp on the outside should be opened and inspected immediately. If the material is damp, it should be neutralized to a non-oxidizing material for safe disposal.

**Suitable extinguishing media:** In case of fire or smoke, call the fire department. Do not attempt to extinguish the fire without a self-contained breathing apparatus (SCBA). Do not let the fire burn. Flood with copious amounts of water.

**Extinguishing media NOT to be used:** DO NOT use ABC or other dry chemical extinguishers since there is the potential for a violent reaction.

**Fire fighting procedure:** Fires fueled by other materials may release hydrogen bromide, bromine, hydrogen chloride or chlorine. Wear self-contained breathing apparatus. Ammonium phosphate (ABC) fire extinguishers should not be used.

**Explosion hazards:** A dust explosion severity determination was performed using the Hartmann Dust Explosibility Bomb designed at the U.S. Bureau of Mines. The product was determined not to be ignitable.



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## 6. Accidental release measures

- General procedures:**
- Using appropriate protective clothing and safety equipment, contain spilled material.
  - Do not add water to spilled material. Using clean dedicated equipment, sweep and scoop all spilled material, contaminated soil, and other contaminated material and place into clean dry containers for disposal.
  - Do not use floor sweeping compounds to clean up spills.
  - Do not close containers containing wet or damp material. They should be left open to disperse any hazardous gases that may form.
  - Do not transport wet or damp material.
  - Keep product out of sewers, watersheds and water systems.
  - Do not contaminate water, food, or feed by storage, disposal or cleaning of equipment.
  - Dispose of according to local, state and federal regulations.

## 7. Handling and storage

**Handling:** STRONG OXIDIZING AGENT: Do not mix with other chemicals. Mix only with water. Never add water to product. Always add product to large quantities of water. Use clean dry utensils. Do not add this product to any dispensing device containing remnants of any other product. Such use may cause a violent reaction leading to fire or explosion. Contamination with moisture, organic matter or other chemicals will start a chemical reaction and generate heat, hazardous gas, possible fire and explosion. In case of contamination or decomposition, do not reseal container. If possible, isolate container in open air or well ventilated area. Flood area with large volumes of water.

**Storage:** Keep this product in original closed container when not in use. Store in a cool, dry, well ventilated area away from heat or open flame. Do not contaminate water, food or feed by storage or disposal or cleaning of equipment. Do not store above 125 F (52 C).

## 8. Exposure controls / personal protection

### OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200)

				EXPOSURE LIMITS			
				OSHA PEL		ACGIH TLV	
				ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
1-bromo-3-chloro-5,5-dimethylhydantoin	TWA			N/E[1]		N/E	

#### OSHA TABLE COMMENTS:

1. N/E = Not Established

**Ventilation requirements:** General room ventilation plus local exhaust should be used to minimize exposure to dust/vapors.

**Personal protective equipment:**  
– **Respiratory protection:** A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.



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- Hand protection:** Wear rubber gloves when handling this product. Avoid contact with skin.
- Eye protection:** Wear goggles or safety glasses with side shields when handling this product.
- Skin and body protection:** Wear rubber gloves when handling this product. Avoid contact with skin.
- Hygiene measures:** Remove and wash contaminated clothing before reuse.
- Other Precautions:** Facilities using or storing this material should be equipped with an eyewash and safety shower.

## 9. Physical and chemical properties

**Appearance:** White granules  
**Odor:** Faint halogen odor  
**Melting point / range:** With decomposition  
**Boiling point / range:** Not determined  
**Vapor pressure:** Not applicable  
**Vapor density:** Not applicable  
**Solubility in water:** 0.15g/100g water  
**Bulk density:** 54 lb/ft<sup>3</sup> (granular form approx, 0.9 g/mL, test method ASTM B527)  
**pH:** 4.5 (0.1% solution in DI water)

## 10. Stability and reactivity

**Stability:** This product is stable under normal conditions

**Materials to avoid:** Avoid contact with water on concentrated material in the container. Avoid contact with easily oxidizable material; ammonia, urea, or similar nitrogen containing compounds; inorganic reducing compounds; floor sweeping compounds; calcium hypochlorite; other swimming pool/spa chemicals in their concentrated form; alkalis. Avoid contact with all other chemicals.

**Conditions to avoid:** High temperature. Poor ventilation. Contamination. Moisture / high humidity.

**Hazardous decomposition products:** Hydrogen bromide, bromine, hydrogen chloride, chlorine.

**Hazardous polymerization:** Hazardous polymerization will not occur under normal conditions.

## 11. Toxicological information

**Acute toxicity:**

- Rat oral LD50:** 578 mg/kg
- Rabbit dermal LD50:** The dermal LD50 is greater than 2.0 g/kg. The primary skin irritation index is 6.1 and the product is considered corrosive to skin
- Eye irritation (rabbit):** Toxicological studies indicate this product to be corrosive to eyes.

**Carcinogenicity:** This product is not listed as a carcinogen by IARC.  
This product is not listed as a carcinogen by NTP.  
This product is not listed as a carcinogen by OSHA



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## 12. Ecological information

**Ecotoxicological Information:** This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds or estuaries, oceans, or their waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

## 13. Disposal considerations

**Waste disposal:** Use or reuse if possible. Pesticide wastes are toxic. Improper disposal of excess pesticide or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, Contact your State Pesticide or Environmental Control Agency or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance. Do not contaminate water, food, or feed by storage or disposal or cleaning of equipment. Do not put product, spilled product, or filled or partially filled containers into the trash or waste compactor. Contact with incompatible materials could cause a reaction or fire. The user of the material has the responsibility to dispose of unused material, residues, and containers in compliance with all relevant local, state, and federal laws and regulations regarding treatment, storage, and disposal of hazardous waste.

**Empty container:** Do not reuse container. Rinse thoroughly before discarding in trash.

## 14. Transportation information

**DOT:**  
– **Proper shipping name:** Oxidizing Solid, N.O.S. (Bromo-chloro-dimethylhydantoin)  
– **Primary hazard class:** 5.1  
– **UN/NA Number:** 1479  
– **Packing group** II

## 15. Regulatory information

**USA:**  
– **Sara (311, 312) hazard class:** This product or its components are not listed.  
– **CERCLA:** This product or its components are not listed.  
– **TSCA Regulatory:** This product or its components are not subject to export notification.  
– **TSCA Status:** This product or its components are listed on the TSCA Inventory.  
– **OSHA Hazard Comm. Rule:** Product is hazardous by definition of the Hazardous Communication Standard.  
– **Clean Water Act:** Not listed  
– **FIFRA:** This product is a registered pesticide.  
– **SDWA:** Not listed  
– **Clean Air Act:** 40 CFR Part 68 – Not listed

**State Regulations:** Proposition 65 statement: This product or its components are not listed on any Proposition 65 lists of carcinogens or reproductive toxicants.



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## 16. Other information

Factors pertaining to certain conditions of storage, handling, and/or use of this product may involve other or additional safety considerations. This information is given without a warranty or guarantee. No suggestions for use are intended or shall be construed as a recommendation to infringe any existing patents or violate any Federal, State or local laws. Safe handling and use is the responsibility of the customer. Read the label before using this product. This information is true and accurate to the best of our knowledge.

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**End of safety data sheet**