

**Product Name:** FROG® Serene™ Bromine Cartridge  
**Revision Date:** March 15, 2018 **Revision:** 0  
**Supersedes:** New SDS

## 1. Identification

**Product Identifier:** FROG® Serene™ Bromine Cartridge

**Other Means of Identification:** 1-bromo-3-chloro-5,5-dimethylhydantion; BCDMH; Halogenated hydantoin

**Recommended Use:** 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:** 53735-16

**Emergency Telephone:** Chemtrec (800) 424-9300

## 2. Hazards identification

**GHS Classification:** Eye Damage: Category 1  
Skin Irritation: Category 1  
Oxidizing Solids: Category 2  
Specific Target Organ Toxicity (Single Exposure): Category 3  
Acute Toxicity (Inhalation): Category 4  
Acute Toxicity (Oral): Category 4  
Acute Toxicity (Dermal): Category 4

**GHS Label Elements:**

– **Signal Word:** DANGER

– **Pictograms:**



– **Hazard Statements:** Causes severe skin burns and eye damage  
May intensify fire; oxidizer  
May cause respiratory irritation  
Harmful if inhaled  
Harmful if swallowed  
Harmful in contact with skin

– **Precautionary Statements:** Keep away from heat.  
Keep away from clothing or other combustible materials.  
Take any precaution to avoid mixing with combustibles.  
In case of fire: Use large amounts of water to extinguish.  
Do not breathe dusts or mists.  
Use only outdoors or in a well-ventilated area.  
Wear protective gloves, protective clothing, and eye and face protection.  
Wash exposed areas thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
In in eyes: Rinse cautiously with water for several minutes. Remove contact

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lenses, if present and easy to do. Continue rinsing.  
 If inhaled: Remove person to fresh air and keep comfortable for breathing.  
 If swallowed: Rinse mouth. Do NOT induce vomiting.  
 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water.  
 Immediately call a poison center or doctor.  
 Specific treatment (see First-aid Measures on this safety data sheet).  
 Take off contaminated clothing and wash it before reuse.  
 Store locked up in a well-ventilated place. Keep container tightly closed.  
 Dispose of contents and container in accordance with local/regional/national/international regulations.

**Unclassified Hazards:** None

**Percentage of Ingredients with Unknown Toxicity:** Zero

### 3. Composition / Information on Ingredients

Components CAS	Weight %	ACGIH-TLV Data	OSHA (PEL) Data
1-bromo-3-chloro-5,5-dimethylhydantion 16079-88-2	98	NE	NE

### 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 the eye. Immediately 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. Immediately 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 mouth-to-mouth, if breathing is difficult, give oxygen. Immediately call a poison control center or doctor for further treatment advice.

**Ingestion:** Call poison control center or doctor immediately for treatment advice. Drink plenty of water in small gulps. 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.

**Most Important Symptoms, Acute and Delayed:** Causes severe skin burns and eye damage. May cause respiratory irritation. Harmful if inhaled, swallowed, or in contact with skin.

**Immediate Medical Attention Required:** If in eyes, immediately call a poison center or doctor. Otherwise, get medical attention if you feel unwell.

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## 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.
- Unsuitable Extinguishing Media:** DO NOT use ABC or other dry chemical extinguishers since there is the potential for a violent reaction.
- Special Protective Equipment and Precautions for Fire-fighters:** 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.
- Specific Hazards Arising From the Chemical:** 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.

## 6. Accidental Release Measures

- Personal Precautions:** Using appropriate protective clothing and safety equipment, contain spilled material.
- Methods for Cleaning Up:** 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.

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**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

**Exposure Limits:** None assigned

**Appropriate Engineering Controls:** 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.

– **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

**Odor threshold:** Not available

**Melting point / range:** Not available

**Boiling point / range:** Not available

**Flash point:** Not available

**Evaporation rate:** Not available

**Flammability:** Not available

**Vapor pressure:** Not available

**Vapor density:** Not available

**Bulk density:** 54 lb/ft<sup>3</sup> (granular form approx, 0.9 g/mL, test method ASTM B527)

**Solubility in water:** 0.15g/100g water

**Specific gravity:** Not available

**pH:** 4.5 (0.1% solution in DI water)

**Flammability limits:** Not available

**Partition coefficient:** Not available

**Auto-ignition temperature:** Not available

**Decomposition temperature:** Not available

**Viscosity:** Not available

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## 10. Stability and Reactivity

**Reactivity:** Not reactive under normal conditions.

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

**Incompatible materials:** 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.

**Possibility of hazardous reactions:** 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

## 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



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**16. Other information**

Date of preparation: March 15, 2018

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**