



MATERIAL SAFETY DATA SHEET

I. IDENTIFICATION

Product: **K-BROM G**
General Description: Biocide
Revision Date: 03/15/13
24 hour Transportation Emergency: 1-800-255-3924
(ChemTel)

NFPA Rating	
Health	3
Fire	0
Reactivity	1
Personal Protection	D

Rating Scale

4 = Extreme
3 = High
2 = Moderate
1 = Slight
0 = Insignificant

II. HAZARD IDENTIFICATION

Emergency overview *White to off-white granular solid with faint, halogenous odor. Corrosive. Causes irreversible eye damage and skin burns. Irritating to nose and throat; may be fatal if inhaled. Harmful if absorbed through skin or swallowed. Oxidizer*

Potential Health Effects:

- **Eye Contact** Corrosive
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.
- 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.

III. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS	Weight %
Bromochloro-5,5-dimethylhydantoin	32718-18-6	96-99.5

IV. 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 advice.
- 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 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.
- Note to physician:** Probable mucosal damage may contraindicate the use of gastric lavage

V. FIRE-FIGHTING MEASURES

- Suitable extinguishing media:** Dry powder, carbon dioxide or water spray. In case of exothermic decomposition and appearance of smoke, water should be used to suppress it.
- Fire fighting procedure:** Cool containers with water spray. In closed stores, provide fire-fighters with self-contained breathing apparatus in positive pressure mode.
- Unusual fire and explosion hazards:** Oxidizing agent. Forms explosive mixtures with combustible, organic or other easily oxidizable materials. When heated to decomposition, may release poisonous and corrosive fumes.

VI. 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. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete. Avoid access to streams, lakes or ponds.

VII. HANDLING AND STORAGE

- Handling:** Keep containers tightly closed.
- Storage:** 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, well-ventilated area. Store away from incompatible materials (see "materials to avoid").

VIII. 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 Recommendation0.1 mg/m³**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** Approved respirator
- **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.

IX. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance** White to off-white granular solid with faint halogenous odor
- Melting point/range** Not applicable (decomposes)
- Boiling point/range** Not applicable
- Flash point** Not applicable
- Flammable/Explosion limits** Not available
- Auto-ignition temperature** Not available
- Vapour pressure** 9.35x10⁽⁻³⁾ Pa (25°C)

Vapor density	Not applicable under standard conditions
Evaporation rate (ether=1)	Not applicable under standard conditions
Solubility:	
- Solubility in water	0.22 g/100ml at 25°C
- Solubility in other solvents	Benzene: 2.5 g/100g at 25°C
Bulk Density	1 g/mL
Decomposition temperature	>160°C
Partition coefficient (n-octanol/water)	Kow = <1 (pH 5-9)

X. STABILITY AND REACTIVITY

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

XI. TOXICOLOGICAL INFORMATION

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

XII. 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, <i>Daphnia magna</i>	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

XIII. 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.
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)

XIV. TRANSPORT INFORMATION**DOT**

UN number:	UN1479
Proper shipping name:	Oxidizing Solid, n.o.s.(Bromo-Chloro-5,5-DimethylHydantoin)
Class:	5.1 - Oxidizing substances
Label:	OXIDIZER (5.1)
Packing Group:	II

XV. REGULATORY INFORMATION

USA	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
- SARA 313	This product does not contain a chemical listed at or above de minimis concentrations.
- SARA (311, 312)	This product is a hazardous chemical under 29CFR 1910.1200, and categorized as an immediate and delayed health, and reactivity physical hazard.
- Waste Classifications	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.
EEC No.	251-171-5
Japanese METI	ENCS No.:5-6368
China inventory	Listed
Philippines	Listed in PICCS

XVI. OTHER INFORMATION

The information accumulated herein is believed to be accurate based on the information provided, although no guarantee or warranty, either expressed or implied is made as to the accuracy or completeness of this information, whether originating with this company or not. Recipients are advised to confirm in advance of need that the information is correct, applicable and suitable to their circumstances. The conditions or methods of handling, storage, use and disposal of the product and container are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage or use of this information or product. If the product is used as a component in another product, this information may not be applicable.

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