



MATERIAL SAFETY DATA SHEET

Product Name **1" Brominating Tablets**
Product id 8424B
Revision date 01/01/2008
Supersedes 25/03/2007

Revision: 4

1. Identification of the substance & the company

Chemical name Bromo-chloro-5,5-dimethylhydantoin
Synonym(s) BCDMH, Halobrom
Chemical formula $C_5H_6BrClN_2O_2$
Chemical family Halogenated hydantoin
Molecular weight 241.5
Type of product and use Swimming pool and Spa disinfectant
Supplier NAVA Water Products
95 MacCorkle Ave. SW, South Charleston, WV 25303, USA
Tel: (304) 746-3000
Emergency Telephone Chemtrec (800)424-9300
Medical 1-800-420-9236

2. Hazards identification

Emergency overview *White to off-white tablet with faint halogenous odour*
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.



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3. Composition / information on ingredients

Components	CAS No.	Weight %
Bromochloro-5,5-dimethylhydantoin	32718-18-6	98

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

5. 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



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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.

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.
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

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").

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



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Manufacturer's TLV-TWA Recommendation	0.1 mg/m ³
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	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. Safety shower and eye bath should be provided.

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
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	0.22g/100ml at 25°C
Specific gravity	1.8-2.0
Decomposition temperature	>160°C
Partition coefficient (n-octanol/water)	Kow = <1 (pH 5-9)

10. Stability and reactivity

Stability	Stable under normal conditions
Materials to avoid	COMBUSTIBLE ORGANIC MATERIALS, Bases, Oxidising agents
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



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Hazardous polymerization Will not occur

11. 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-vivo in micronucleous test in mice
Non genotoxic in in-vivo liver unscheduled DNA synthesis (USD) assay

Carcinogenicity Not classified by IARC
Not included in NTP 11th Report on Carcinogens

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



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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.

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)

14. Transportation information

UN No. 1479

DOT Proper shipping name: Oxidizing solid, n.o.s
(Bromo-Chloro-5,5-DimethylHydantoin)
Class: 5.1 - Oxidizing substances
Label: OXIDIZER (5.1)
Marking: MARINE POLLUTANT
Packing Group: II

IMO Proper shipping name: Oxidizing solid, n.o.s
(Bromo-Chloro-5,5-DimethylHydantoin)
Class: 5.1 - Oxidizing substances
Label: OXIDIZING AGENT (5.1)
Packing Group: II
Marking: MARINE POLLUTANT

ICAO/IATA Proper shipping name: Oxidizing solid, n.o.s
(Bromo-Chloro-5,5-DimethylHydantoin)
Class: 5.1
Label: OXIDIZER (5.1)
Packing group: II

15. 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.



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- 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

16. Other information

This data sheet contains changes from the previous version in section(s)
3, 5, 7, 8, 9, 14

Further information

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 NAVA Water products at the phone number listed below to make certain that this sheet is current.

Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, NAVA Water Products makes no representations as to the completeness or accuracy thereof.

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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