

SAFETY DATA SHEET



Durobrom

Version 1.2

MSDS Number: 00000003574

Revision Date: 2015.07.06

SECTION 1. IDENTIFICATION

Product name : Durobrom™
Product code : 00000003574

Manufacturer or supplier's details

Company : **APTech Group, Inc.**
11411 Williamson Road
Cincinnati, OH 45241
USA
Business Telephone 1-513-761-8111


E-mail address : info@aptechgroup.com
Emergency telephone number : Chem-Tel, (800) 255-3924

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Oxidizing solids : Category 1
Acute toxicity (Oral) : Category 4
Acute toxicity (Inhalation) : Category 4
Skin corrosion : Category 1A
Serious eye damage : Category 1
Skin sensitisation : Category 1
Specific target organ toxicity - single exposure : Category 3 (Respiratory system)

GHS Label element

Hazard pictograms : 

Signal word : Danger

Hazard statements : H271 May cause fire or explosion; strong oxidiser.
H302 + H332 Harmful if swallowed or if inhaled

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H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H335 May cause respiratory irritation.

Precautionary statements

: **Prevention:**

P210 Keep away from heat.

P220 Keep/Store away from clothing/ combustible materials.

P221 Take any precaution to avoid mixing with combustibles.

P260 Do not breathe dust or mist.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

P272 Contaminated work clothing should not be allowed out of the workplace.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P283 Wear fire/ flame resistant/ retardant clothing.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.

P306 + P360 IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.

P312 Call a POISON CENTER or doctor/ physician if you feel unwell.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P363 Wash contaminated clothing before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

P371 + P380 + P375 In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components

Chemical Name	CAS-No.	Concentration (%)
3-Bromo-1-chloro-5,5-dimethylimidazolidine-2,4-dione	126-06-7	54.20
1,3-Dichloro-5,5-dimethylhydantoin	118-52-5	28.90
1,3-dichloro-5-ethyl-5-methylimidazolidine-2,4-dione	89415-87-2	15.90
Sodium chloride	7647-14-5	1.00

SECTION 4. FIRST AID MEASURES

- If inhaled : Move to fresh air.
If breathing is irregular or stopped, administer artificial respiration.
Give oxygen.
First aider needs to protect himself.
Call a physician immediately.
- In case of skin contact : Take off all contaminated clothing immediately.
After contact with skin, wash immediately with plenty of soap and water.
Call a physician immediately.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Call a physician immediately.
- If swallowed : Call a physician immediately.
Clean mouth with water and drink afterwards plenty of water.
Do not induce vomiting without medical advice.
Never give anything by mouth to an unconscious person.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Dry powder
Foam
- Specific hazards during firefighting : Heating or fire can release toxic gas.
- Further information : Use water spray to cool unopened containers.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : In the case of respirable dust and/or fumes, use self-contained breathing apparatus and dust impervious protective suit.

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Environmental precautions

- General advice : Do not flush into surface water or sanitary sewer system.
- Methods and materials for containment and cleaning up : Do not flush into surface water or sanitary sewer system. Sweep up or vacuum up spillage and collect in suitable container for disposal.

SECTION 7. HANDLING AND STORAGE

- Advice on safe handling : Provide sufficient air exchange and/or exhaust in work rooms. Avoid contact with skin and eyes. Avoid formation of respirable particles.
- Conditions for safe storage : To maintain product quality, do not store in heat or direct sunlight. Keep containers tightly closed in a dry, cool and well-ventilated place.
- Materials to avoid : Keep away from combustible material.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
1,3-Dichloro-5,5-dimethylhydantoin	118-52-5	TWA	0.2 mg/m ³	ACGIH
		STEL	0.4 mg/m ³	ACGIH
		REL	0.2 mg/m ³	NIOSH/GUIDE
		STEL	0.4 mg/m ³	NIOSH/GUIDE
		PEL	0.2 mg/m ³	OSHA_TRANS
		TWA	0.2 mg/m ³	Z1A
		STEL	0.4 mg/m ³	Z1A
		TWA	0.2 mg/m ³	CAD ON OEL
STEL	0.4 mg/m ³	CAD ON OEL		

Appropriate engineering controls

Personal protective equipment

- Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.
- Hand protection
- Material : Nitrile rubber
- Rate of permeability : > 480 min
- Eye protection : Tightly fitting safety goggles
- Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place. No special protective equipment required.

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Hygiene measures : Wash hands before breaks and immediately after handling the product.
Avoid contact with skin, eyes and clothing.
Remove and wash contaminated clothing and gloves, including the inside, before re-use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : granules

Colour : white

Odour : slight, pungent

Odour Threshold : no data available

pH : 3.6, Concentration: 10 g/l (25 °C)

Melting point/range : 120 °C

Decomposition temperature : 165 °C

Boiling point/boiling range : no data available

Flash point : 287 °F
Method: closed cup

Evaporation rate : no data available

Upper explosion limit : no data available

Lower explosion limit : no data available

Vapour pressure : no data available

Relative vapour density : no data available

Relative density : no data available

Density : no data available

Solubility(ies)
Water solubility : 5 g/l (25 °C)

Partition coefficient: n-octanol/water : no data available

Auto-ignition temperature : no data available

Decomposition temperature : no data available

Viscosity
Viscosity, dynamic : no data available

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Viscosity, kinematic	: no data available
Oxidizing properties	: The product has been shown not to be oxidising in a test following Directive 67/548/EEC (Method A17, oxidising properties). Method: Oxidizing properties (solids)

SECTION 10. STABILITY AND REACTIVITY

Possibility of hazardous reactions	: Stable under normal conditions.
Conditions to avoid	: Elevated temperature and impurities (alkalis). Protect from moisture. Avoid dust formation. Exposure to sunlight.
Incompatible materials	: Strong acids alkalines
Hazardous decomposition products	: Nitrogen oxides (NOx) Carbon oxides Chlorine Bromine

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	: Inhalation Ingestion Eyes Skin
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Further information

Remarks: Information given is based on data on the components and the toxicology of similar products.
No data is available on the product itself.

The following toxicological data refer to:

1,3-Dichloro-5,5-dimethylhydantoin (CAS-No.: 118-52-5)

Acute toxicity

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Acute oral toxicity (LD50) : 766 mg/kg
Species: Rat
Method: FIFRA
GLP: yes

Acute oral toxicity (LD50) : 618 mg/kg
Species: Rat (female)
Method: FIFRA
GLP: yes

Acute oral toxicity (LD50) : 737 mg/kg
Species: Mouse
Method: FIFRA
GLP: yes

Acute dermal toxicity (LD50) : > 20 g/kg
Species: Rabbit
Exposure time: 24.0 h

Skin corrosion/irritation

Skin irritation : Corrosive
Species: Rabbit

Serious eye damage/eye irritation

Eye irritation : severe irritant
Species: Rabbit
Method: FIFRA
GLP: yes

Respiratory or skin sensitisation

Sensitisation : Test Type: Buehler Test
Species: Guinea pig
Result: Sensitising
GLP: yes

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

no data available

Persistence and degradability

no data available

Bioaccumulative potential

Components:

Sodium chloride

Partition coefficient: n-octanol/water : log Pow: -3

Mobility in soil

no data available

Other adverse effects

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Additional ecological information : Information given is based on data on the components and the ecotoxicology of similar products.

The following ecotoxicological data refer to:

5,5-Dimethylhydantoin (CAS-No.: 77-71-4)

Ecotoxicity

- Toxicity to fish (LC50) : > 972 mg/l
Species: Oncorhynchus mykiss (rainbow trout)
Acute toxicity
Exposure time: 96 h
Analytical monitoring: no
Method: US-EPA
GLP: yes
- Toxicity to fish (LC50) : 16,500 mg/l
Species: Pimephales promelas (fathead minnow)
Acute toxicity
Exposure time: 96 h
- Toxicity to fish (NOEC) : 14 mg/l
Species: Pimephales promelas (fathead minnow)
Early-life Stage
Exposure time: 33 d
Analytical monitoring: yes
Method: FIFRA
GLP: yes
- Toxicity to daphnia and other aquatic invertebrates (EC50) : 6,200 mg/l
Species: Daphnia magna (Water flea)
Immobilization
Exposure time: 48 h
Analytical monitoring: no
Method: EPA-FIFRA
GLP: no
- Toxicity to daphnia and other aquatic invertebrates (NOEC) : 71 mg/l
Species: Daphnia magna (Water flea)
Reproduction Test
Exposure time: 21 d
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes
- Toxicity to algae (EC50) : > 1,000 mg/l
Species: Pseudokirchneriella subcapitata
Growth inhibition
Exposure time: 96 h
Test Type: Growth inhibition
Analytical monitoring: yes
Method: OECD Test Guideline 201

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Toxicity to bacteria (EC50) : > 1,000 mg/l
Species: activated sludge
Respiration inhibition
Exposure time: 3 h
Test Type: Respiration inhibition
Analytical monitoring: no
Method: OECD Test Guideline 209
GLP: yes

Persistence and degradability

Biodegradability : Test Type: Die-Away Test
Inoculum: activated sludge
Concentration: 25 mg/l
Result: Biodegradable
Biodegradation: 94 %
Exposure time: 19 d
GLP: no

Test Type: CO2 Evolution Test
Inoculum: activated sludge
Concentration: 10 mg/l
Result: Readily biodegradable
Biodegradation: 88 %
Exposure time: 28 d
Method: OECD Test Guideline 301B
GLP: yes

Stability in water : Test Type: Abiotic degradation
Degradation half life(t1/2): > 360 d (25 °C) pH: 5 - 9
Method: EPA-FIFRA
GLP: yes

Bioaccumulative potential

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 1.79
Exposure time: 42 d
Method: OECD Test Guideline 305
GLP: yes

Mobility in soil

no data available

Other adverse effects

no data available

1,3-dichloro-5-ethyl-5-methylimidazolidine-2,4-dione (CAS-No.: 89415-87-2)

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Ecotoxicity

- Toxicity to fish (LC50) : 1.1 mg/l
Species: Oncorhynchus mykiss (rainbow trout)
static test
Exposure time: 96 h
Analytical monitoring: no
Method: US-EPA
GLP: no
- Toxicity to fish (LC50) : 0.87 mg/l
Species: Lepomis macrochirus (Bluegill sunfish)
static test
Exposure time: 96 h
Analytical monitoring: no
Method: US-EPA
GLP: no
- Toxicity to daphnia and other aquatic invertebrates (EC50) : 0.95 mg/l
Species: Daphnia magna (Water flea)
Immobilization
Exposure time: 48 h
GLP: yes
- Toxicity to algae (EbC50) : 0.12 mg/l
Species: Pseudokirchneriella subcapitata (green algae)
Growth inhibition
Exposure time: 72 h
Test Type: Growth inhibition
Method: OECD Test Guideline 201
GLP: yes
- Toxicity to bacteria (EC50) : 26.2 mg/l
Species: activated sludge
Respiration inhibition
Exposure time: 3 h
Test Type: Respiration inhibition
Analytical monitoring: no
Method: OECD Test Guideline 209
GLP: yes

Persistence and degradability

- Stability in water : Test Type: Abiotic degradation
Test substance: yes
GLP: yes

Bioaccumulative potential

no data available

Mobility in soil

no data available

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Other adverse effects

no data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

- Waste from residues : Dispose of in accordance with local regulations.
The organic ingredients can be incinerated in a suitable installation when in accordance with local regulations.
For accidental release measures for each mixture refer to attached material safety data sheets.
- Contaminated packaging : CONTAINER DISPOSAL - METAL CONTAINERS: Neutralize residue in containers as noted in Section 6 of this MSDS ("Accidental Release Measures"). Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.
CONTAINER DISPOSAL - PLASTIC CONTAINERS: Neutralize residue in containers as noted in Section 6 of this MSDS ("Accidental Release Measures"). Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION

IATA

- UN number : 3085
Proper shipping name : Oxidizing solid, corrosive, n.o.s.
(Bromochloro-5,5-dimethylimidazolidine-2,4-dione)
Transport hazard class : 5.1
Packing group : III
Labels : 5.1 (8)
Environmental hazards : no

IMDG

- UN number : 3085
Proper shipping name : Oxidizing solid, corrosive, n.o.s.
(Bromochloro-5,5-dimethylimidazolidine-2,4-dione)
Transport hazard class : 5.1
Packing group : III
Labels : 5.1 (8)
EmS Number 1 : F-A
EmS Number 2 : S-Q
Environmental hazards : Marine pollutant: yes

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ADR

UN number : 3085
Proper shipping name : OXIDIZING SOLID, CORROSIVE, N.O.S.
(Bromochloro-5,5-dimethylimidazolidine-2,4-dione)
Transport hazard class : 5.1
Packing group : III
Classification Code : OC2
Hazard Identification Number : 58
Labels : 5.1 (8)
Environmental hazards : no

RID

UN number : 3085
Proper shipping name : OXIDIZING SOLID, CORROSIVE, N.O.S.
(Bromochloro-5,5-dimethylimidazolidine-2,4-dione)
Transport hazard class : 5.1
Packing group : III
Classification Code : OC2
Hazard Identification Number : 58
Labels : 5.1 (8)
Environmental hazards : no

DOT

UN number : 3085
Proper shipping name : Oxidizing solid, corrosive, n.o.s.
(Bromochloro-5,5-dimethylimidazolidine-2,4-dione)
Transport hazard class : 5.1
Packing group : III
Labels : 5.1 (8)
Emergency Response Guidebook Number : 140
Environmental hazards : no

TDG

UN number : 3085
Proper shipping name : OXIDIZING SOLID, CORROSIVE, N.O.S.
(Bromochloro-5,5-dimethylimidazolidine-2,4-dione)
Transport hazard class : 5.1
Packing group : III
Labels : 5.1 (8)
Environmental hazards : no

Special precautions for user : none

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not applicable

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SECTION 15. REGULATORY INFORMATION

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals.

Signal word : DANGER!
Hazard statements : Causes substantial but temporary eye injury.
Corrosive. Causes skin burns.
Corrosive. Causes irreversible eye damage.
This pesticide is toxic to fish.

SARA 311/312 Hazards : Acute Health Hazard

US State Regulations

Massachusetts Right To Know

1,3-Dichloro-5,5-dimethylhydantoin	118-52-5	20 - 30 %
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Pennsylvania Right To Know

3-Bromo-1-chloro-5,5-dimethylimidazolidine-2,4-dione	126-06-7	50 - 70 %
1,3-Dichloro-5,5-dimethylhydantoin	118-52-5	20 - 30 %
1,3-dichloro-5-ethyl-5-methylimidazolidine-2,4-dione	89415-87-2	10 - 20 %

New Jersey Right To Know

3-Bromo-1-chloro-5,5-dimethylimidazolidine-2,4-dione	126-06-7	50 - 70 %
1,3-Dichloro-5,5-dimethylhydantoin	118-52-5	20 - 30 %
1,3-dichloro-5-ethyl-5-methylimidazolidine-2,4-dione	89415-87-2	10 - 20 %
Sodium chloride	7647-14-5	1 - 5 %

California Prop 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16. OTHER INFORMATION

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.