

Material Safety Data Sheet

Durobrom™

Version 2.0

Revision Date 2014.08.18

Print Date 2014.08.19

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Durobrom™
 Product Use Description : Biocides

Company : APTech Group, Inc.
 11411 Williamson Road
 Cincinnati, Ohio 45241

Telephone : 1-866-489-9831

Emergency telephone number : Chem-Tel, (800) 255-3924

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Danger

Form: granules, Colour: off-white, Odour: slight pungent

Hazard Summary : Causes burns.
 Harmful to aquatic organisms.

OSHA Hazards : CORROSIVE
 OXIDIZER

Potential Health Effects

Primary Routes of Entry : Inhalation
 Ingestion
 Eyes
 Skin

Inhalation : No information available.

Skin : Causes skin burns.

Eyes : Causes eye burns.

Ingestion : Harmful or fatal if swallowed.

Environmental Effects

Environmental Effects : Harmful to aquatic organisms; may cause long-term adverse effects in the aquatic environment.
 Marine pollutant.

Material Safety Data Sheet

Durobrom™

Version 2.0

Revision Date 2014.08.18

Print Date 2014.08.19

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Weight percent
3-Bromo-1-chloro-5,5-dimethylimidazolidine-2,4-dione	126-06-7	60,00
1,3-Dichloro-5,5-dimethylhydantoin	118-52-5	27,40
1,3-dichloro-5-ethyl-5-methylimidazolidine-2,4-dione	89415-87-2	10,60
Sodium chloride	7647-14-5	1,00

SECTION 4. FIRST AID MEASURES

First aid procedures

- Inhalation** : 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.
- Skin contact** : Take off all contaminated clothing immediately.
After contact with skin, wash immediately with plenty of soap and water.
Call a physician immediately.
- Eye contact** : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Call a physician immediately.
- Ingestion** : 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

Flammable properties

- Flash point** : 210,79 °F (99,33 °C)
- Ignition temperature** : Remarks: no data available

Material Safety Data Sheet

Durobrom™

Version 2.0

Revision Date 2014.08.18

Print Date 2014.08.19

Lower explosion limit : Remarks: no data available

Upper explosion limit : Remarks: no data available

Fire fighting

Suitable extinguishing media : Dry powder
Foam

Further information : Use water spray to cool unopened containers.

Protective equipment and precautions for firefighters

Specific hazards during firefighting : Heating or fire can release toxic gas.

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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

Environmental precautions : Do not flush into surface water or sanitary sewer system.

Methods for containment /
Methods for 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

Handling

Handling : Provide sufficient air exchange and/or exhaust in work rooms.
Avoid contact with skin and eyes.
Avoid formation of respirable particles.

Advice on protection against fire and explosion : Keep away from combustible material.
Avoid dust formation.
Take precautionary measures against static discharges.

Dust explosion class : St1

Storage

Further information on : Avoid dust formation.

Material Safety Data Sheet

Durobrom™

Version 2.0

Revision Date 2014.08.18

Print Date 2014.08.19

storage conditions Keep container tightly closed.
Store in a cool and shaded area.

Advice on common storage : Keep away from combustible material.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
1,3-Dichloro-5,5-dimethylhydantoin	118-52-5	TWA	0,2 mg/m ³	2009	ACGIH
		STEL	0,4 mg/m ³	2009	ACGIH
		REL	0,2 mg/m ³	2005	NIOSH/GUIDE
		STEL	0,4 mg/m ³	2005	NIOSH/GUIDE

Engineering measures

Personal protective equipment

Eye protection : Tightly fitting safety goggles

Hand protection : Suitable material : Nitrile rubber
Break through time : > 480 min

Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

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.

Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.

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,

Material Safety Data Sheet

Durobrom™

Version 2.0

Revision Date 2014.08.18

Print Date 2014.08.19

Relative vapour density : Note: no data available
including the inside, before re-use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form : granules
Colour : off-white

Odour : slight
pungent

Safety data

Flash point : 210,79 °F (99,33 °C)

Ignition temperature : Remarks: no data available

Lower explosion limit : Note: no data available

Upper explosion limit : Note: 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)

pH : Note: no data available

Melting point/range : 248 - 298 °F (120 - 148 °C)

Decomposition temperature : 329 °F (165 °C)

Boiling point/boiling range : Note: no data available

Vapour pressure : Note: no data available

Density : Note: no data available

Water solubility : 0,54 g/l
at 77 °F (25 °C)

Viscosity, dynamic : Note: no data available

Dust explosion class : St1

Material Safety Data Sheet

Durobrom™

Version 2.0

Revision Date 2014.08.18

Print Date 2014.08.19

SECTION 10. STABILITY AND REACTIVITY

- | | |
|----------------------------------|---|
| Conditions to avoid | : Remarks: Elevated temperature and impurities (alkalis).
Protect from moisture.
Avoid dust formation.
Exposure to sunlight. |
| Materials to avoid | : Remarks: Strong acids
alkalines
Oxidizing agents |
| Hazardous decomposition products | : Note: nitrogen oxides (NOx)
Carbon oxides
Chlorine
Bromine |
| Hazardous reactions | : Hazardous polymerisation does not occur.
Note: Stable under normal conditions. |

SECTION 11. TOXICOLOGICAL INFORMATION

- | | |
|---------------------|---|
| Further information | : 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 (DCDMH) (CAS-No.: 118-52-5)

- | | |
|-----------------------|--|
| Acute oral toxicity | : LD50 rat
Dose: 618 mg/kg
Method: FIFRA |
| Acute dermal toxicity | : LD50 rabbit
Dose: > 20 g/kg |
| Skin irritation | : rabbit
Result: Corrosive |
| Eye irritation | : rabbit
Result: severe irritant
Method: FIFRA |
| Sensitisation | : Buehler Test guinea pig |

Material Safety Data Sheet

Durobrom™

Version 2.0

Revision Date 2014.08.18

Print Date 2014.08.19

Result: Sensitising

SECTION 12. ECOLOGICAL INFORMATION

Environmental Effects : Harmful to aquatic organisms; may cause long-term adverse effects in the aquatic environment.
Marine pollutant.

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 (DMH) (CAS-No.: 77-71-4)

Biodegradability : Die-Away Test
Concentration: 25 mg/l
Exposure time: 19 d
Result: Biodegradable
94 %

CO2 Evolution Test
Concentration: 10 mg/l
Exposure time: 28 d
Result: Readily biodegradable.
88 %
Method: OECD 301 B

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Exposure time: 42 d
Bioconcentration factor (BCF): 1,79
Method: OECD 305

Acute Fish toxicity : Acute toxicity LC50
Species: Oncorhynchus mykiss (rainbow trout)
Concentration: > 972,00 mg/l
Exposure time: 96 h
Analytical monitoring: no
Method: US-EPA

Acute toxicity LC50
Species: Pimephales promelas (fathead minnow)
Concentration: 16 500,00 mg/l
Exposure time: 96 h

Material Safety Data Sheet

Durobrom™

Version 2.0

Revision Date 2014.08.18

Print Date 2014.08.19

Early-life Stage NOEC

Species: Pimephales promelas (fathead minnow)

Concentration: 14,00 mg/l

Exposure time: 33 d

Analytical monitoring: yes

Method: FIFRA

Toxicity to daphnia and other aquatic invertebrates.

: Immobilization EC50

Species: Daphnia magna (Water flea)

Concentration: 6 200,00 mg/l

Exposure time: 48 h

Analytical monitoring: no

Method: EPA-FIFRA

Reproduction Test NOEC

Species: Daphnia magna (Water flea)

Concentration: 71,00 mg/l

Exposure time: 21 d

Analytical monitoring: yes

Method: OECD Test Guideline 202

Toxicity to algae

: Growth inhibition EC50

Species: Pseudokirchneriella subcapitata

Dose: > 1 000,00 mg/l

Exposure time: 96 h

Analytical monitoring: yes

Method: OECD Test Guideline 201

Toxicity to bacteria

: Respiration inhibition EC50

Species: activated sludge

Dose: > 1 000,00 mg/l

Exposure time: 3 h

Analytical monitoring: no

Method: OECD 209

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

Acute Fish toxicity

: static test LC50

Species: Oncorhynchus mykiss (rainbow trout)

Concentration: 1,10 mg/l

Exposure time: 96 h

Analytical monitoring: no

Method: US-EPA

static test LC50

Species: Lepomis macrochirus (Bluegill sunfish)

Concentration: 0,87 mg/l

Material Safety Data Sheet

Durobrom™

Version 2.0

Revision Date 2014.08.18

Print Date 2014.08.19

	Exposure time: 96 h Analytical monitoring: no Method: US-EPA
Toxicity to daphnia and other aquatic invertebrates.	: Immobilization EC50 Species: Daphnia magna (Water flea) Concentration: 0,95 mg/l Exposure time: 48 h
Toxicity to algae	: Growth inhibition EbC50 Species: Pseudokirchneriella subcapitata (green algae) Dose: 0,12 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to bacteria	: Respiration inhibition EC50 Species: activated sludge Dose: 26,20 mg/l Exposure time: 3 h Analytical monitoring: no Method: OECD 209

SECTION 13. DISPOSAL CONSIDERATIONS

Further information	: 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.

Material Safety Data Sheet

Durobrom™

Version 2.0

Revision Date 2014.08.18

Print Date 2014.08.19

SECTION 15. REGULATORY INFORMATION

OSHA Hazards : Corrosive, Oxidizer
SARA 311/312 Hazards : Acute Health Hazard

EPCRA - EMERGENCY PLANNING COMMUNITY RIGHT - TO - KNOW

SARA 302 Components : SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components : SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Massachusetts Right To Know Components : 1,3-Dichloro-5,5-dimethylhydantoin 118-52-5
Listed

Pennsylvania Right To Know Components : 1,3-Dichloro-5,5-dimethylhydantoin 118-52-5
Listed

New Jersey Right To Know Components : 1,3-Dichloro-5,5-dimethylhydantoin 118-52-5
Listed

California Prop. 65 Components : This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

Federal regulatory information:

This product is EPA registered : EPA registration No: 6836-237-55400

SECTION 16. OTHER INFORMATION

Further information

HMIS Classification : Health hazard: 3

Material Safety Data Sheet

Durobrom™

Version 2.0

Revision Date 2014.08.18

Print Date 2014.08.19

Flammability: 1

Reactivity: 1

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.

Prepared by: : APTech Group, Inc.
Email: info@aptechsolids.com