Safety Data Sheet
acc. to OSHA HCS

Printing date 05/02/2016 Reviewed on 05/02/2016

1 Identification

· **Product identifier**

· **Trade name:** Durobrom

· **Article number:** 4731
· **Application of the substance / the mixture** Water treatment

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**

APTech Group Inc.
11411 Williamson Road
Cincinnati,
Ohio 45241
USA
1-866-489-9831
info@aptechsolids.com (email)

· **Information department:** Product safety department.
· **Emergency telephone number:** 1-866-489-9831 (not 24 hours)

2 Hazard(s) identification

· **Classification of the substance or mixture**

GHS03 Flame over circle

Ox. Sol. 2 H272 May intensify fire; oxidizer.

GHS08 Health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.

GHS07

Acute Tox. 4 H302 Harmful if swallowed.
Acute Tox. 4 H332 Harmful if inhaled.
Skin Sens. 1 H317 May cause an allergic skin reaction.

· **Label elements**
· **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms** GHS03, GHS05, GHS07, GHS08
· **Signal word** Danger

· **Hazard-determining components of labeling:**
3-bromo-1-chloro-5,5-dimethylimidazolidine-2,4-dione
1,3-dichloro-5,5-dimethylhydantoin
1,3-dichloro-5-ethyl-5-methylimidazolidine-2,4-dione
· **Hazard statements**
May intensify fire; oxidizer.
Harmful if swallowed or if inhaled.
Causes severe skin burns and eye damage.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.

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May cause an allergic skin reaction.

· **Precautionary statements**

Take any precaution to avoid mixing with combustibles.
Do not breathe dust.
Wear protective gloves/protective clothing/eye protection/face protection.
Do not eat, drink or smoke when using this product.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**

Health = 3
Fire = 3
Reactivity = 0

The substance possesses oxidizing properties.

· **HMIS-ratings (scale 0 - 4)**

Health = 4
Fire = 3
Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

126-06-7	3-bromo-1-chloro-5,5-dimethylimidazolidine-2,4-dione	50-100%
118-52-5	1,3-dichloro-5,5-dimethylhydantoin	25-50%
89415-87-2	1,3-dichloro-5-ethyl-5-methylimidazolidine-2,4-dione	10-25%

4 First-aid measures

· **Description of first aid measures**

· **General information:**

Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation:** Supply fresh air; consult doctor in case of complaints.

· **After skin contact:**

DO NOT DELAY!
Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.

· **After eye contact:**

DO NOT DELAY!
Check for and remove any contact lenses.
Rinse opened eye for several minutes under running water. Then consult a doctor.

· **After swallowing:**

DO NOT DELAY!

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Immediately call a doctor.
Wash mouth out with water
Drink copious amounts of water and provide fresh air. Immediately call a doctor.
Do not induce vomiting; immediately call for medical help.
If vomiting occurs spontaneously, keep head below hips to prevent aspiration.
· **Information for doctor:** Treat symptomatically and supportively.
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet
· **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
· **Advice for firefighters**
· **Protective equipment:**
Do not inhale explosion gases or combustion gases.
Wear self-contained respiratory protective device.
Wear fully protective suit.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Avoid formation of dust.
Ensure adequate ventilation
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:** Do not allow to penetrate the ground/soil.
· **Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Pick up mechanically.
Send for recovery or disposal in suitable receptacles.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of dust.
Avoid direct contact (skin/eye contact, ingestion and/or inhalation of fume/mist/dust) with the product.
The product must only be handled by authorised, trained and experienced professionals under strictly controlled conditions.
· **Information about protection against explosions and fires:** Keep respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Prevent any seepage into the ground.
· **Information about storage in one common storage facility:**
Store away from oxidizing agents.

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Store away from foodstuffs.
Do not store together with acids.
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Protect from heat and direct sunlight.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
At this time, the other constituents have no known exposure limits.

118-52-5 1,3-dichloro-5,5-dimethylhydantoin	
PEL	Long-term value: 0.2 mg/m³
REL	Short-term value: 0.4 mg/m³ Long-term value: 0.2 mg/m³
TLV	Short-term value: 0.4 mg/m³ Long-term value: 0.2 mg/m³

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Take note of assigned Workplace Exposure Limits.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Do not eat, drink, smoke or sniff while working.
Do not breath dust
A safe system of work must be formulated and followed to ensure safe working with this product. Relevant workers must receive suitable and sufficient training and supervision.
Ensure that eyewash stations and safety showers are close to the workstation location.
Depending on the degree of exposure, periodic medical examination is suggested.
· **Breathing equipment:**
Use suitable respiratory protective device in case of insufficient ventilation.
Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

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· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**

Tightly sealed goggles

· **Body protection:**
Impervious protective clothing
Body protection must be chosen depending on product properties, activity and possible exposure.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Granulate
Color:	White
· **Odor:**	Pungent
· **Odor threshold:**	Not determined.
· **pH-value (5 g/l) at 20 °C (68 °F):**	3-4
· **Change in condition**	
Melting point/Melting range:	120 °C (248 °F)
Boiling point/Boiling range:	165 °C (329 °F) (decomp)
· **Flash point:**	>100 °C (>212 °F)
· **Flammability (solid, gaseous):**	Not determined.
· **Ignition temperature:**	
Decomposition temperature:	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure:**	Not applicable.
· **Density:**	Not determined.
· **Relative density**	Not determined.
· **Vapor density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with**	
Water at 20 °C (68 °F):	5 g/l
· **Partition coefficient (n-octanol/water):**	-3 log POW
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Other information**	No further relevant information available.

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10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:**
Strong acids and oxidising agents
Strong bases.
· **Hazardous decomposition products:**
Carbon monoxide and carbon dioxide
Nitrogen oxides (NOx)
Chlorine
Bromine compounds

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** Caustic effect on skin and mucous membranes.
· **on the eye:**
Strong caustic effect.
Strong irritant with the danger of severe eye injury.
· **Sensitization:**
Sensitization possible through inhalation.
Sensitization possible through skin contact.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful
Corrosive
Irritant
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** Product is not expected to bioaccumulate.
· **Mobility in soil** No further relevant information available.

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· **Additional ecological information:**
· **General notes:**
Water hazard class 2 (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Danger to drinking water if even small quantities leak into the ground.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Recommended Hierarchy of Controls:
- Minimise waste;
- Reuse if not contaminated;
- Recycle, if possible; or
- Safe disposal (if all else fails).

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Contact waste processors for recycling information.
Used, degraded or contaminated product may be classified as hazardous waste. Anyone classifying hazardous waste and determining its fate must be qualified in accordance with state and international legislation.

· **Uncleaned packagings:**
· **Recommendation:**
Disposal must be made according to official regulations.
Container remains hazardous when empty. Continue to observe all precautions.
Containers, even those that are “empty,” may contain residues that can develop hazardous gases and vapours upon heating. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers.
· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN3085
· **UN proper shipping name**	
· **DOT**	Oxidizing solid, corrosive, n.o.s. (1,3-dichloro-5-ethyl-5-methylimidazolidine-2,4-dione)
· **ADR**	3085 Oxidizing solid, corrosive, n.o.s. (1,3-dichloro-5-ethyl-5-methylimidazolidine-2,4-dione)
· **IMDG, IATA**	OXIDIZING SOLID, CORROSIVE, N.O.S. (1,3-dichloro-5-ethyl-5-methylimidazolidine-2,4-dione)
· **Transport hazard class(es)**	
· **DOT**	

· **Class**	5.1 Oxidizing substances

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· **Label**	5.1, 8
· **ADR**	
· **Class**	5.1 Oxidizing substances
· **Label**	5.1+8
· **IMDG**	
· **Class**	5.1 Oxidizing substances
· **Label**	5.1/8
· **IATA**	
· **Class**	5.1 Oxidizing substances
· **Label**	5.1 (8)
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	III
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Warning: Oxidizing substances
· **Danger code (Kemler):**	80
· **EMS Number:**	F-A,S-Q
· **Stowage Category**	A
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **ADR**	
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· **IMDG**	
· **Limited quantities (LQ)**	5 kg
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· **UN "Model Regulation":**	UN 3085 OXIDIZING SOLID, CORROSIVE, N.O.S. (1,3-DICHLORO-5-ETHYL-5-METHYLIMIDAZOLIDINE-2,4-DIONE), 5.1 (8), III

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15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**
None of the ingredient is listed.

· **Section 313 (Specific toxic chemical listings):**
None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**
None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms** GHS03, GHS05, GHS07, GHS08
· **Signal word** Danger

· **Hazard-determining components of labeling:**
3-bromo-1-chloro-5,5-dimethylimidazolidine-2,4-dione
1,3-dichloro-5,5-dimethylhydantoin
1,3-dichloro-5-ethyl-5-methylimidazolidine-2,4-dione
· **Hazard statements**
May intensify fire; oxidizer.
Harmful if swallowed or if inhaled.
Causes severe skin burns and eye damage.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
· **Precautionary statements**
Take any precaution to avoid mixing with combustibles.
Do not breathe dust.
Wear protective gloves/protective clothing/eye protection/face protection.
Do not eat, drink or smoke when using this product.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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· **National regulations:**

Class	Share in %
I	15.9

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Date of preparation / last revision** 05/02/2016 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
LC50: Lethal concentration, 50 percent
BEI: Biological Exposure Limit
Ox. Sol. 2: Oxidizing solids – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Resp. Sens. 1: Respiratory sensitisation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1