

## MATERIAL SAFETY DATA SHEET

EMERGENCY TELEPHONE: 800-424-9300 (Chemtrec)

Health : 3  
Flammability : 2  
Reactivity : 1

Lonza Inc.  
90 Boroline Road Allendale, NJ 07401  
800-777-1875 (9am - 5pm) 309-697-7200 (After 5pm)

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98297 Dantobrom RW Granular

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<b>MATERIAL</b>	<b>DATE ISSUED</b>	<b>DOT HAZARD CLASSIFICATION</b>
Dantobrom RW Granular	09/12/07 - Rev.	5.1, PG III
<b>CAS NO.</b> Mixture	<b>SUPERCEDES</b>	<b>DOT SHIPPING NAME</b>
	06/29/07	Oxidizing Solid, N.O.S.
<b>FORMULA</b> Mixture		<b>DOT LABEL</b> Oxidizer
<b>CHEMICAL NAME</b> Mixture		<b>IMO SHIPPING NAME</b>
		Oxidizing Solid, Corrosive, N.O.S. Marine Pollutant

\*\*\*\*\* I - INGREDIENTS \*\*\*\*\*

	<b>APPROXIMATE WEIGHT %</b>	<b>TWA/TLV</b>
3-Bromo-1-chloro-5,5-dimethylhydantoin (CAS No. 126-06-7)	*	0.2 mg/m <sup>3</sup> (Lonza Internal Standard)
1-Bromo-3-chloro-5,5-dimethylhydantoin (CAS No. 16079-88-2)	*	0.2 mg/m <sup>3</sup> (Lonza Internal Standard)
1,3-Dichloro-5,5-dimethylhydantoin (CAS No. 118-52-5)	28	0.2 mg/m <sup>3</sup> (OSHA PEL) 0.4 mg/m <sup>3</sup> (OSHA STEL) 0.2 mg/m <sup>3</sup> (ACGIH TLV)
1,3-Dichloro-5-ethyl-5-methylhydantoin (CAS No. 89415-87-2)	11	0.2 mg/m <sup>3</sup> (Lonza Internal Standard)
Sodium chloride (CAS No. 7647-14-5)	1	None established

\*The sum of the two asterisked components is approximately 60%.

\*\*\*\*\* II - PHYSICAL AND CHEMICAL PROPERTIES \*\*\*\*\*

<b>APPEARANCE</b> Fine white granule	<b>pH</b> 3.6 (10 g/l @ 25°C)
<b>VISCOSITY</b> Not applicable	<b>ODOR</b> Very slight pungent
<b>BOILING POINT</b> Not applicable	<b>MELTING OR FREEZING POINT</b> 120-148°C
<b>VAPOR DENSITY (Air=1)</b> Not applicable	<b>VAPOR PRESSURE (mm Hg)</b> Not applicable
<b>PERCENT VOLATILE (by volume)</b> <0.5	<b>SOLUBILITY IN WATER</b> 5 g/l @ 25°C
<b>EVAPORATION RATE (Butyl Acetate=1)</b> <1	<b>SPECIFIC GRAVITY (WATER = 1)</b> Not known

\*\*\*\*\* III - FIRE AND EXPLOSION INFORMATION \*\*\*\*\*

<b>FLASH POINT</b> 287°F (COC)	<b>AUTO IGNITION TEMPERATURE</b> Not known		
<b>LOWER EXPLOSION LIMIT (%)</b> Not applicable	<b>UPPER EXPLOSION LIMIT (%)</b> Not applicable		
<b>EXTINGUISHING MEDIA</b>	<b>FOAM</b> X	<b>ALCOHOL FOAM</b>	<b>CO<sub>2</sub></b>
	<b>DRY CHEMICAL</b> X	<b>WATER</b> X	<b>OTHER</b>



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\*\*\*\*\* IV - HEALTH EFFECTS INFORMATION (continued) \*\*\*\*\*

Inhalation: Remove from area to fresh air. If not breathing, clear airway and start artificial respiration. If victim is having trouble breathing, give supplemental oxygen, if available. Get immediate medical attention.

CHEMICALS LISTED AS CARCINOGEN BY:

NATIONAL TOXICOLOGY PROGRAM - No  
I. A. R. C. MONOGRAPHS - No  
OSHA - No

\*\*\*\*\* V - REACTIVITY INFORMATION \*\*\*\*\*

STABILITY: STABLE X CONDITIONS TO AVOID  
UNSTABLE None known (Decomposes at 165°C)

HAZARDOUS DECOMPOSITION PRODUCTS

Thermal decomposition may produce toxic vapors/fumes of chlorine, bromine, organic materials and oxides of carbon and nitrogen.

HAZARDOUS POLYMERIZATION CONDITIONS TO AVOID  
MAY WILL NOT X None known  
OCCUR OCCUR

INCOMPATIBILITY (MATERIALS TO AVOID)

WATER OTHER X Strong acids and alkalis, high storage temperatures, moisture and readily oxidizable material.

\*\*\*\*\* VI - SPILL AND DISPOSAL INFORMATION \*\*\*\*\*

STEPS TO BE TAKEN IN CASE OF MATERIAL SPILL OR RELEASE

DANGER! Oxidizing material. Possible dust explosion hazard. Do not get in eyes or on skin. Repeated or prolonged contact can result in sensitization and/or irreversible tissue damage. Do not breathe dust. For spills, wear appropriate protective equipment, and respiratory protection. Where dust may be generated, wear full-face respiratory protection, and remove all sources of ignition. For large spills, or when spilled material comes in contact with water, self-contained breathing apparatus is preferred.

Carefully sweep up spilled material (avoid generating dust) and place in an appropriate container for disposal. Do not contaminate with oxidizable materials. Neutralize any residue with dilute, alkaline sodium bisulfite or thiosulfate solution; absorb with sand or vermiculite and place in a compatible container for disposal. If spilled material is wet, neutralize and proceed as stated above.

Material is toxic to fish. Do not discharge into lakes, streams, ponds or public water unless in accordance with an NPDES permit.

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\*\*\*\*\* VI - SPILL AND DISPOSAL INFORMATION (continued)\*\*\*\*\*

### WASTE DISPOSAL METHODS

Dispose of in compliance with all Federal, state and local laws and regulations. Incineration is the preferred method. Relatively small quantities of product may be neutralized as stated above, and, if in accordance with local laws and the operators of the local sewage treatment plant, the neutralized material may be discharged into the sewer system.

\*\*\*\*\* VII - PERSONAL PROTECTION INFORMATION \*\*\*\*\*

### ENGINEERING CONTROLS

In processes where dusts or airborne particulates may be generated, proper ventilation must be provided in accordance with good ventilation practices.

### RESPIRATORY PROTECTION

In processes where dusts or airborne particulates may be generated, a NIOSH/MSHA jointly approved respirator is advised.

### PROTECTIVE GLOVES

Rubber or neoprene, to prevent skin contact.

### EYE PROTECTION

Wear chemical goggles where there is a potential for eye contact. Use safety glasses with side shields where there is no potential for contact.

### OTHER PROTECTIVE EQUIPMENT

Eye wash; safety shower; protective clothing (long sleeves, coveralls or other, as appropriate), to prevent skin contact.

\*\*\*\*\* VIII - STORAGE AND HANDLING \*\*\*\*\*

### PRECAUTIONS FOR STORAGE AND HANDLING:

Do not breathe dust. Avoid generating dust. Store in a cool, dry place, isolated from all organic material. Product is a strong oxidizer and is corrosive. Avoid heat and direct sunlight. Do not allow product to come in contact with oxidizable material. Keep container closed. Please also see "Unusual Fire and Explosion Hazards" in Section III of this MSDS for information on the dust explosivity of this material.

Empty containers retain product residues and can be dangerous. Do not pressurize, cut weld, braze, solder, drill, grind or expose such containers to heat or flame. They may explode and cause injury. Follow all MSDS precautions in handling empty containers.

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\*\*\*\*\* IX - TOXICOLOGY & ECOTOXICOLOGY INFORMATION \*\*\*\*\*

The toxicity and ecotoxicity information provided is for this material and component(s) of this material(s).

### TOXICICITY

#### ACUTE

- oral LD<sub>50</sub> (rat): 468 - 477 mg/kg
  - eye irritation (rabbit): Severe irritant and corrosive
  - skin irritation (rabbit - Draize test): Corrosive to both abraded and unabraded skin
  - skin corrosivity (rabbit - US DOT test): Not corrosive
- For Bromochloro-5,5-dimethylhydantoin:
- dermal LD<sub>50</sub> (rabbit): >2000 mg/kg
  - skin sensitization (guinea pig - Buehler Test): Skin sensitizer.

For 1,3-Dichloro-5,5-dimethylhydantoin:

- skin sensitization (guinea pig - Buehler Test): Skin sensitizer.

### ECOTOXICITY

#### AQUATIC

For Dantobrom RW Granular:

- LC<sub>50</sub> (rainbow trout - 96 hours): 0.5 mg/l
- LC<sub>50</sub> (bluegill sunfish - 96 hours): 1.2 mg/l
- LC<sub>50</sub> (Daphnia magna - 48 hours): 0.4 mg/l
- LC<sub>50</sub> (mysid shrimp - 96 hours): 0.93 mg/l
- LC<sub>50</sub> (sheepshead minnow - 96 hours): 1.4 mg/l (as Br<sub>2</sub>)
- EC<sub>50</sub> (eastern oysters - 96 hours): 0.84 mg/l (as Br<sub>2</sub>)

For 1,3-Dichloro-5-ethyl-5-methylhydantoin:

- EC<sub>50</sub> (Algae - Selenastrum sp. - 72 hours): 0.12 mg/l

\*\*\*\*\* X - MISCELLANEOUS AND REGULATORY INFORMATION \*\*\*\*\*

#### INTERNATIONAL LEVEL REGULATIONS:

#### CANADIAN WORKPLACE HAZARDOUS MATERIAL INFORMATION SYSTEM (WHMIS) CLASSIFICATION

Class C

#### DOMESTIC SUBSTANCE LIST (DSL) STATUS

The components of this material are currently listed on the Canadian DSL.

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\*\*\*\*\* X - MISCELLANEOUS AND REGULATORY INFORMATION (Continued)\*\*\*\*\*

### FEDERAL LEVEL REGULATIONS:

#### TOXIC SUBSTANCES CONTROL ACT (TSCA INVENTORY) STATUS:

This product is currently listed on U.S. EPA TSCA 8(b) inventory list.

#### TSCA Section 12(b) Export Notification:

Components present in this product which, if exported, could require either annual

or one-time reporting under this regulation are as follows:

<u>Chemical Name</u>	<u>CAS Number</u>	<u>Typical Maximum Concentration</u>
EXEMPT - FIFRA registered product		

#### EPA REGULATION ON PESTICIDES, FIFRA:

This product is an EPA FIFRA registered pesticide (EPA Registration No. 6836-237).

This product may only be used in the EPA registered application(s) stated on the product label.

CERCLA (Comprehensive Environmental Response, Compensation and Liability Act of 1980 requires notification of the National Response Center (Telephone 800-424-8802) in the event of a release of quantities of the following hazardous materials contained in this product, if the release is equal to or greater than the Reportable Quantities (RQs) listed in 40 CFR 302.4:

<u>Chemical Name</u>	<u>CAS Number</u>	<u>Typical Maximum Concentration</u>
None known		

SARA Title III, Sections 302/304 (Superfund Amendments and Reauthorization act of 1986) - This act requires emergency planning, including agency notification, for possible release of the following components of this material, based upon the Threshold Planning Quantities (TPQs) and release Reportable Quantities (RQs) listed for the Components in 40 CFR 355:

<u>Chemical Name</u>	<u>CAS Number</u>	<u>Typical Maximum Concentration</u>
None known		

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\*\*\*\*\* X - MISCELLANEOUS AND REGULATORY INFORMATION (continued) \*\*\*\*\*  
FEDERAL LEVEL REGULATIONS (continued):

SARA Title III Sections 311/312 - This act requires reporting under the Community Right-to-Know provisions due to the inclusion of the following components of this material in one or more of the five hazard categories listed in 40 CFR 370:

<u>Chemical Name</u>	<u>CAS Number</u>	<u>Hazard *) Categories</u>
3-Bromo-1-chloro-5,5-dimethylhydantoin	126-06-7	A, F
1-Bromo-3-chloro-5,5-dimethylhydantoin	16079-88-2	A, F
1,3-Dichloro-5,5-dimethylhydantoin	118-52-5	A, F
1,3-Dichloro-5-ethyl-5-methylhydantoin	89415-87-2	A, F

\*) The five hazard categories are as follows: F= FIRE HAZARD; S= SUDDEN RELEASE OF PRESSURE; R= REACTIVE; A= IMMEDIATE (ACUTE) HEALTH HAZARD; C= DELAYED (CHRONIC) HEALTH HAZARD

SARA Title III Section 313 - This act requires submission of annual reports off the releases of the following components of this material if the threshold reporting quantities as listed in 40 CFR 372, are met or exceeded:

<u>Chemical Name</u>	<u>CAS Number</u>	<u>Typical Maximum Concentration</u>
None known		

### STATE RIGHT-TO-KNOW REGULATIONS:

CALIFORNIA PROPOSITION 65 - Components present in this material which the State of California has found to cause cancer, birth defects or other reproductive harm are as follows:

AS A CANCER HAZARD

<u>Chemical Name</u>	<u>CAS Number</u>	<u>Typical Maximum Concentration</u>
Bromoform	75-25-2	12 ppm

MASSACHUSETTS Right-to-Know - The following components of this material are included in the Massachusetts Substance List and are present at or above reportable levels:

<u>Chemical Name</u>	<u>CAS Number</u>	<u>Typical Maximum Concentration</u>
None known		

MICHIGAN Critical Materials - The following components of this material are included in the Michigan Critical Materials List:

<u>Chemical Name</u>	<u>CAS Number</u>
None known	

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\*\*\*\*\* X - MISCELLANEOUS AND REGULATORY INFORMATION (continued) \*\*\*\*\*

### STATE RIGHT-TO-KNOW REGULATIONS (Continued) :

**NEW JERSEY Right-to-Know** - The following components of this material are included in the New Jersey Hazardous Substance List and are present at or above reportable levels:

<u>Chemical Name</u>	<u>CAS Number</u>	<u>Typical Maximum Concentration</u>
3-Bromo-1-chloro-5,5-dimethylhydantoin	126-06-7	*
1-Bromo-3-chloro-5,5-dimethylhydantoin	16079-88-2	*
(* The sum of the two asterisked components is approximately 60%.)		
1,3-Dichloro-5,5-dimethylhydantoin	118-52-5	28%
1,3-Dichloro-5-ethyl-5-methylhydantoin	89415-87-2	11%

**PENNSYLVANIA Right-to-Know** - The following components of this material are included in the Pennsylvania Hazardous Substance List and are present at or above reportable levels:

<u>Chemical Name</u>	<u>CAS Number</u>	<u>Typical Maximum Concentration</u>
None known		