Delta Chemical Corp.
The Difference in Water Treatment
P.O. Box 7430
Metaire, LA 70010

SAFETY DATA SHEET DCT 3000

1. IDENTIFICATION

Product Name	DCT 3000
Chemical Name	1-Bromo-3-chloro-5, 5-dimethylhydantoin
Identified uses	Biocides for water treatment.
Supplier	Delta Chemical Corporation P. O. Box7430 Metairie, LA 70010 USA T: +1 504 733 0630 E: deltadcc@bellsouth.net
Emergency Telephone	CHEM Phone: 1 800 255 3924

2. HAZARD(S) IDENTIFICATION

EMERGENCY OVERVIEW

EPA REGISTRATION No: 83451-4 EPA SIGNAL WORD: DANGER. EPA FIFRA Labelling information in Section 15 (PRN 2012-1)

Appearance	Tablet.
Color	White / off-white.
Odor	Slight odor. Halogen
GHS Pictogram	

Signal Word	Danger	
Hazard Statements		
	H272	May intensify fire; oxidizer.
	H302	Harmful if swallowed.
	H314	Causes severe skin burns and eye damage.
	H317	May cause an allergic skin reaction.
	H400	Very toxic to aquatic life.
Precautionary Statements	P273	Avoid release to the environment.
	P280	Wear protective gloves/protective clothing/eye protection/face protection.
	P301+330+331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
	P303+361+353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
	P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P310	Immediately call a POISON CENTER or doctor/physician.
	P501	Dispose of contents/container in accordance with national regulations.
Contains	1-Bromo-3-chloro-5,5-dimethylhydantoin	

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GHS Classification

Physical and Chemical Hazards	Ox. Sol. 3 - H272
Human health	Acute Tox. 4 - H302;Skin Corr. 1B - H314;Skin Sens. 1 - H317
Environment	Aquatic Acute 1 - H400

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM - WHMIS

WHMIS Label

Oxidizing Material.

Corrosive Material.

Controlled Product Classification

Canadian WHMIS Classification C E

Inhalation

May cause irritation to the respiratory system.

Ingestion

Harmful if swallowed.

Skin Contact: Causes burns. May cause sensitization by skin contact.

Eye Contact

Causes burns.

Health Warnings: This substance is corrosive. Contact with acids liberates toxic gas.

Route Of Entry: Skin and/or eye contact. Ingestion. Inhalation.

Other Health Effects: This substance has no evidence of carcinogenic properties.

3. COMPOSITION/INFORMATION ON INGREDIENTS

1-Bromo-3-chloro-5,5-dimethylhydantoin	60-100%
CAS No.: 16079-88-2 EC No.: 240-230-0	
GHS Classification Ox. Sol. 3 - H272; Acute Tox. 4 - H302; Skin Corr. 1B - H314; Skin Sens. 1 - H317; Aquatic Acute 1 - H400	

Composition Comments

1-bromo-3-chloro-5, 5-dimethylhydantoin

4. FIRST-AID MEASURES

Description of first aid measures

Inhalation: Provide fresh air, warmth and rest, preferably in a comfortable upright sitting position. Get medical attention.

Ingestion: DO NOT INDUCE VOMITING! NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Rinse mouth thoroughly. Get medical attention immediately!

Skin Contact: Remove contaminated clothing. Rinse the skin immediately with lots of water. Get medical attention immediately!

Eye Contact: Remove victim immediately from source of exposure. Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention immediately

Most important symptoms and effects, both acute and delayed

Inhalation: Inhalation of dust may cause irritation of the respiratory tract.

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Ingestion: May cause stomach pain or vomiting. May cause chemical burns in mouth and throat. Due to the physical nature of this material it is unlikely that swallowing will occur.
Skin Contact: Chemical burns. Burning pain and severe corrosive skin damage.
Eye Contact: Extreme irritation of eyes and mucous membranes, including burning and tearing.

Indication of any immediate medical attention and special treatment needed

Notes To The Physician

If lavage is performed suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. Chemical eye burns may require extended irrigation. Obtain prompt consultation preferably from an opthalmologist.If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE-FIGHTING MEASURES

Auto Ignition Temperature (°C)
Not available.
Flammability Limit - Lower(%)
Not applicable.
Flammability Limit - Upper(%)
Not applicable.
Flash point (°C)
Not available.
Extinguishing Media
Use: Water spray, fog or mist. Alcohol resistant foam. DO NOT use CO_2 or dry chemicals.
Unsuitable extinguishing media
Carbon dioxide (CO_2). Dry chemicals.
Unusual Fire & Explosion Hazards
Fire causes formation of toxic gases.
Specific Hazards
Toxic gases/vapors/fumes of: Bromine. Chlorine. Oxides of: Carbon. Nitrogen.
Special Fire Fighting Procedures
Move container from fire area if it can be done without risk. Keep run-off water out of sewers and water sources. Dike for water control.
Protective Equipment For Fire-Fighters
Self contained breathing apparatus and full protective clothing must be worn in case of fire.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Follow precautions for safe handling described in this material safety data sheet. For personal protection, see section 8.
Environmental Precautions: Avoid release to the environment. To prevent release, place container with damaged side up.
Spill Clean Up Methods: Provide ventilation and confine spill. Do not allow runoff to sewer. Collect and reclaim or dispose in sealed containers in licensed waste. Containers with collected spillage must be properly labelled with correct contents and hazard symbol. Wash thoroughly after dealing with a spillage. Avoid generation and spreading of dust. Avoid contact with water.
Reference to other sections: For personal protection, see section 8. For waste disposal, see section 13.

7. HANDLING AND STORAGE

Handling: Ventilate well, avoid breathing vapors. Use approved respirator if air contamination is above accepted level. Do not use in confined spaces without adequate ventilation and/or respirator. Avoid spilling, skin and eye contact. Avoid acids, moisture, and combustible materials. Avoid handling which leads to dust formation.
Storage: Store in tightly closed original container in a dry, cool and well-ventilated place. Keep containers tightly closed. Protect from light, including direct sunrays. Keep away from heat, sparks and open flame.

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Storage Class
Oxidizer storage. NFPA STORAGE CLASSIFICATION:NFPA Oxidiser Class 2.
Specific end use(s)
The identified uses for this product are detailed in Section 1.2.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredient Comments No exposure limits noted for ingredient(s).

Protective Equipment

Process Conditions
Use engineering controls to reduce air contamination to permissible exposure level. Provide eyewash station.
Engineering Measures All handling to take place in well-ventilated area.
Respiratory Equipment
Use specified dust masks.
Hand Protection
Selection of a suitable glove depends on work conditions and whether the product is present on its own or in combination with other substances. Use protective gloves made of: Neoprene, nitrile, polyethylene or PVC. Gloves should be replaced immediately if signs of degradation are observed.
Eye Protection
Use approved safety goggles or face shield.
Other Protection
Wear appropriate clothing to prevent any possibility of skin contact.
Wear dust masks in dusty areas.
Hygiene Measures
No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals. Isolate contaminated clothing and wash before reuse.
Skin Protection
Wear apron or protective clothing in case of contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Tablet.
Color	White / off-white.
Odor	Slight odor. Halogen
Solubility	Slightly soluble in water.
Initial boiling point and boiling range (°C)	
Not available.	
Melting point (°C)	156 - 162
Relative density	
Not applicable.	
Bulk Density	~900 kg/m3
Vapor density (air=1)	
Not available.	
Vapor pressure	0.0038 Pa 25°C
Evaporation rate	
Not available.	
Evaporation Factor	
Not available.	
pH-Value, Conc. Solution	
Not available.	
pH-Value, Diluted Solution	3.5 @ 0.15 %

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Viscosity
Not available.

Solubility Value (G/100G H2O@20°C)	0.15
Decomposition temperature (°C)	162°C

Odour Threshold, Lower
Not available.
Odour Threshold, Upper
Not available.
Flash point (°C)
Not available.
Auto Ignition Temperature (°C)
Not available.
Flammability Limit - Lower(%)
Not applicable.
Flammability Limit - Upper(%)
Not applicable.
Partition Coefficient
(N-Octanol/Water)

Explosive properties	log Pow
Scientifically unjustified.	0.35

This material is oxidising keep away from fire/heat/sources of ignition.
Not available.

10. STABILITY AND REACTIVITY

Reactivity: This material has oxidizing properties.
Stability Stable: under normal temperature conditions. Avoid Moisture.
Hazardous Polymerization: Will not polymerize.
Conditions to Avoid: Generates toxic gas in contact with acid. Avoid heat, flames and other sources of ignition. Avoid excessive heat for prolonged periods of time.
Materials to Avoid: Strong acids. Strong alkalis. Strong reducing agents.
Hazardous Decomposition Products: Toxic gases/vapors/fumes of: Hydrogen bromide (HBr). Bromine. Hydrogen chloride (HCl). Chlorine. Oxides of: Carbon. Nitrogen.

11. TOXICOLOGICAL INFORMATION

Other Health Effects
This substance has no evidence of carcinogenic properties.

Acute toxicity:
Acute Toxicity (Oral LD50)
578 mg/kg Rat

Acute Toxicity (Dermal LD50)
> 2000 mg/kg Rabbit

Germ cell mutagenicity:
Genotoxicity - In Vitro
Ames Test Negative.

12. ECOLOGICAL INFORMATION

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Ecotoxicity
The product contains a substance which is very toxic to aquatic organisms.

Acute Toxicity - Fish
LC50 96 hours 0.87 mg/l Onchorhynchus mykiss (Rainbow trout)

Acute Toxicity - Aquatic Invertebrates
EC50 48 hours 0.46 mg/l Daphnia magna

Degradability
DMH is readily biodegradable in a CO2 Evolution study and passes the 10-day window criteria. DMH has also been shown to be rapidly degraded in a water/sediment system.

Chemical Oxygen Demand
1.005 g O2/g substance

Bioaccumulative potential
Low bioaccumulation potential

Partition coefficient
log Pow 0.35

Mobility:
Information not available.

Results of PBT and vPvB assessment
An assessment of the substance's properties indicates it is neither a PBT or vPVB.

Acute Toxicity. Lc50 96 640 American Oyster

Hours, Mg/L

13. DISPOSAL CONSIDERATIONS

Waste Management: When handling waste, consideration should be made to the safety precautions applying to handling of the product.

Disposal Methods: Dispose of waste and residues in accordance with local authority requirements. Absorb in vermiculite or dry sand and dispose of at a licenced hazardous waste collection point. Liquid material should be incinerated. Material absorbed onto sand or earth should be disposed of as solid waste in accordance with local regulations. Empty packaging may contain product residues and due consideration should be given prior to disposal.

14. TRANSPORT INFORMATION

UN No. (DOT/TDG)	1479
NA No.	1479
UN No. (IMDG)	1479
UN No. (ICAO)	1479
DOT Proper Shipping Name	OXIDIZING SOLID, N.O.S., (contains bromo-chloro-dimethylhydantoin) 5.1, PGIII, MARINE POLLUTANT
TDG Proper Shipping Name	OXIDIZING SOLID, N.O.S., (contains bromo-chloro-dimethylhydantoin) 5.1, PGIII, MARINE POLLUTANT
DOT Hazard Class	5.1
DOT Hazard Label	Oxidiser
TDG Class	5.1
IMDG Class	5.1
ICAO Class	5.1

Transport Labels

DOT Pack Group III

DCT 3000

TDG Pack Group III

IMDG Pack Group III

Air Pack Group III

Environmentally Hazardous Substance/Marine Pollutant

EMS F-A, S-Q

Markings
MARINE POLLUTANT

Transport in Bulk according to Annex II of MARPOL 73/78 and the IBC Code Notes
Not applicable.

Classification Code (Adr) O2

15. REGULATORY INFORMATION

Regulatory Status (US)
SECTION 313: This product does not contain toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372. PROPOSITION 65: This product does not contain chemicals considered by the State of California's Safe Drinking Water and Toxic Enforcement Act of 1986 as causing cancer or reproductive toxicity and for which warnings are now required. TSCA: The ingredients of this product are on the TSCA Inventory. TSCA Export Notification Section 12b. EPA REGISTRATION NUMBER: 83451-4

Regulatory References
29 CFR 1910.1010 Federal Regulations (OSHA Standard).

US Federal Regulations

SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities
None of the ingredients are listed.

CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)
None of the ingredients are listed.

SARA 313 Emission Reporting
None of the ingredients are listed.

US State Regulations

California Proposition 65 Carcinogens and Reproductive Toxins: None of the ingredients are listed.

Massachusetts "Right To Know" List: None of the ingredients are listed.
Rhode Island "Right To Know" List: None of the ingredients are listed.
Minnesota "Right To Know" List: None of the ingredients are listed. New Jersey "Right To Know" List None of the ingredients are listed.
Pennsylvania "Right To Know" List: None of the ingredients are listed.
Fifra Information: This chemical is a pesticide product registered by the 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, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:
DANGER.
Causes irreversible eye damage and skin burns.
Harmful if swallowed.
Irritating to nose and throat.

Do not get in eyes, on skin, or on clothing.

International Inventories

EU - EINECS/ELINCS The following ingredients are listed.
1-Bromo-3-chloro-5, 5-dimethylhydantoin
Canada – DSL/NDSL All ingredients are listed or exempt.
US – TSCA All ingredients are listed or exempt.
US – TSCA 12(b) Export Notification All ingredients are listed or exempt.
Australia - AICS All ingredients are listed or exempt.
Japan – MITI All ingredients are listed or exempt.
Korea – KECI All ingredients are listed or exempt.
China – IECSC All ingredients are listed or exempt.
Phillippines – PICCS All ingredients are listed or exempt.

16. OTHER INFORMATION

HAZARDOUS MATERIAL INFORMATION SYSTEM (HMIS)

HEALTH	3
FLAMMABILITY	1
PHYSICAL	1
PERSONAL PROTECTION	C

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)