MATERIAL SAFETY DATA SHEET

BIOCIDE 9D

1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME	BIOCIDE 9D
CHEMICAL NAME	1 -Bromo-3-chloro-5, 5-dimethylhydantoin
PRODUCT NO.	BWA71017
PRODUCT USE	Industrial Water Treatment
SUPPLIER	ZEE COMPANY, INC. 4146 South Creek Road Chattanooga, TN 37 406 TEL 423-698-1401 CUSTOMER SERVICE
EMERGENCY TELEPHONE	CHEMTREC Phone: 800-424-9300
IDENTIFICATION No.	UN 1479

2 HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

INHALATION: May cause irritation to the respiratory system.
INGESTION: Harmful if swallowed.
SKIN CONTACT: Causes burns.
EYE CONTACT: Causes burns.
HEALTH WARNINGS: This substance is corrosive.
ROUTE OF ENTRY: Skin and/or eye contact. Inhalation. Ingestion.
Other Health Effects: This substance has no evidence of carcinogenic properties.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Name	EC No.	CAS-No.	Weight
1 -Bromo-3-chloro-5,5-dimethylhydantoin	240-230-0	16079-88-2	60-100%

EC No. 240-230-0
CAS-No. 16079-88-2
COMPOSITION COMMENTS
1 -bromo-3-chloro-5, 5-dimethylhydantoin

4 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 if irritation persists after washing.

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 promptly if symptoms occur after washing.

5 FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA

Use: Water spray, fog or mist. Alcohol resistant foam. DO NOT use CO_2 or dry chemicals.

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.

UNUSUAL FIRE & EXPLOSION HAZARDS

Fire causes formation of toxic gases.

SPECIFIC HAZARDS

Toxic gases/vapors/fumes of Bromine. Chlorine. Oxides of: Carbon. Nitrogen.

PROTECTIVE MEASURES IN FIRE

Use self-contained breathing apparatus

6 ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS

Follow precautions for safe handling described in this safety data sheet. For personal protection, see section 8.

ENVIRONMENTAL PRECAUTIONS

Avoid release to the environment.

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.

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 cool, dry well-ventilated place. Keep containers tightly closed. Protect from light, including direct sunrays. Keep away from heat, sparks and open flame.

STORAGE CLASS

Oxidizer storage.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

INGREDIENT COMMENTS

No exposure limits noted for ingredient(s).

PROCESS CONDITIONS

Use engineering controls to reduce air contamination to permissible exposure level. Provide eyewash station.

PROTECTIVE EQUIPMENT

ENGINEERING MEASURES

All handling to take place in well-ventilated area.

RESPIRATORY EQUIPMENT

Use specified dust masks.

HAND PROTECTION

It has been found that gloves made from rubber, neoprene or PVC provide short-term splash protection. Gloves should be replaced immediately if signs of degradation are observed.

BIOCIDE 9D

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	Granular
COLOR	White / off-white
ODOR	Slight odor Halogen
SOLUBILITY	Slightly soluble in water.
MELTING POINT (°C)	145 - 160
RELATIVE DENSITY	0.96
BULK DENSITY	0 . 9 k g / l
pH-VALUE, DILUTED SOLUTION	3.5 @ 0.15 %
PARTITION COEFFICIENT (N-Octanol/Water)	0.35
SOLUBILITY VALUE (g/1 00g H2O@20°C)	0.15

10 STABILITY AND REACTIVITY

STABILITY

Stable under normal temperature conditions. Avoid: Moisture.

CONDITIONS TO AVOID

Avoid contact with oxidizers or reducing agents. Avoid contact with acids and alkalies. Avoid heat, flames and other sources of ignition.

HAZARDOUS POLYMERISATION

Will not polymerize.

MATERIALS TO AVOID

Strong acids. Strong alkalies. Strong oxides. 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

TOXIC DOSE 1 - LD 50	578 mg/kg (oral rat)
TOXIC DOSE 2 - LD 50	>2000 mg/kg (skin-rabbit)

TOXICOLOGICAL INFORMATION

Ames Test negative

INHALATION

May cause irritation to the respiratory system.

INGESTION

Harmful if swallowed.

SKIN CONTACT

Causes burns.

EYE CONTACT

Causes burns.

HEALTH WARNINGS

This substance is corrosive.

Other Health Effects

This substance has no evidence of carcinogenic properties.

12 ECOLOGICAL INFORMATION

LC 50, 96 hrs, Fish mg/l	0.87

EC 50, 48 hrs, Daphnia, mg/l 0.46

BIOACCUMULATION

Low bioaccumulation potential

Chemical Oxygen Demand, COD 1.005 g/g

Acute Toxicity. LC50 96 hours, mg/l >640 American Oyster

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, dispose in licensed hazardous waste. 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

TDG SHIPPING NAME	OXIDIZING SOLID, CORROSIVE, N.O.S., (contains Bromo-chloro-dimethylhydantoin)
TDG SHIPPING NAME	OXIDIZING SOLID, CORROSIVE, N.O.S., (contains Bromo-chloro-dimethylhydantoin)
IDENTIFICATION No.	UN 1479
DOT HAZARD CLASS	5.1
TDG PACKING GROUP	II
U.S DOT HAZARD LABEL	Oxidizer
UN NO. SEA	1479
IMDG CLASS	5.1
IMDG PACK GR.	II
EMS	F-A, S-Q
UN NO. AIR	1479
AIR CLASS	5.1
AIR PACK GR.	II
TDG CLASS	5.1
TDG PACKING GROUP	II

15 REGULATORY INFORMATION

INVENTORIES

COMPONENT	CAN	US	EU	AUS	JAP	KOR	CHN	PHLP
1 -Bromo-3-chloro-5,5-dimethylhydantoin	DSL	Yes	EINECS					

COMPONENT	TSCA 12(b) Export Notification
1 -Bromo-3-chloro-5,5-dimethylhydantoin	Yes

COMPONENT	CAS	CA	FL	MA	MN	NJ	PA	RI
1-Bromo-3-chloro-5,5-dimethylhydantoin	16079-88-2	No	No No		No	No	No	No

BIOCIDE 9D

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.

REGULATORY REFERENCES

29 CFR 1910.1010 Federal Regulations (OSHA Standard).

ENVIRONMENTAL LISTING

EPA REGISTRATION NUMBER:83451-3

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM -WHIMIS

LABEL(S) FOR SUPPLY

Oxidizing Corros ive
Material. M aterial.

CONTROLLED PRODUCT CLASSIFICATION

Canadian WHMIS Classification C E

16 OTHER INFORMATION

HAZARDOUS MATERIAL INFORMATION SYSTEM (HMIS)

HEALTH	3
FLAMABILITY	1
REACTIVITY	1
PERSONAL PROTECTION	B

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

REVISION COMMENTS

New company name & new format

ISSUED BY

G.B.

REVISION DATE 29th October 2007

VERSION No. 2

SAFETY DATA SHEET STATUS

Approved.

DISCLAIMER

For safety reasons it is IMPERATIVE that customers:-

1. Ensure that all those within their control who use the products are supplied with all relevant information contained within the Safety Data Sheet and Technical Bulletin concerning the applications for which the product is designed and any instructions and warnings contained therein.

2. Consult ZEE COMPANY, INC. before using or supplying the product for any other applications. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.