# MATERIAL SAFETY DATA SHEET

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|---|---|---|
| **Product Name** | **Biocide 7D** | |
| **Revision date** | 16/12/2009 | **Revision:** 1 |

## 1. Identification of the substance & the company

| | |
|---|---|
| **Chemical name** | 2,2-Dibromo-3-nitrilopropionamide |
| **Synonym(s)** | DBNPA |
| **Chemical formula** | $C_3H_2ON_2Br_2$ |
| **Chemical family** | Halogenated cyanoacetamide |
| **Molecular weight** | 241.84 |
| **Type of product and use** | A microbiocidal bactericide, fungicide, algicide and slimicide, in treating industrial cooling water systems and pulp & paper mills. |
| **Supplier** | Zee Company, Inc.<br>407 E 5th St, Chattanooga, TN 37403, USA<br>Tel: (423)265-7090 |
| **Emergency Telephone** | Chemtrec (800)424-9300 |

## 2. Hazards identification

| | |
|---|---|
| **Emergency overview** | *White to off-white granules*<br>*Corrosive*<br>*Causes severe burns of eyes*<br>*Irritating to nose and throat*<br>*May be fatal if swallowed*<br>*May burn the skin* |
| **Potential Health Effects:** | |
| **- Eye Contact** | Corrosive |
| **- Skin contact** | Irritant<br>May cause skin sensitization |
| **- Inhalation** | Irritant to upper respiratory tract.<br>In severe cases pulmonary oedema may be developed |
| **- Ingestion** | Corrosive by ingestion<br>Abdominal pain, nausea, vomiting and diarrhea |
| **NFPA Ratings (Scale 0-4)** | Health = 3, Fire = 0, Reactivity = 1. |

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**HMIS Ratings (Scale 0-4)** Health = 3, Fire = 0, Reactivity = 0

## 3. Composition / information on ingredients

| Components | CAS No. | Weight % |
|---|---|---|
| 2,2-Dibromo-3-nitrilopropion amide | 10222-01-2 | 98 |

## 4. First-aid measures

**Eye contact** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advise.

**Skin contact** Take off contaminated clothing.
Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advise.

**Inhalation** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advise.

**Ingestion** Call poison control center, or doctor immediately for treatment advise.
Have person sip a glass of water if able to swallow.
Do not induce vomiting unless told to do so by the poison control center or doctor.Do not give anything by mouth to an unconscious person.

**Note to physician** Probable mucosal damage may contraindicate the use of gastric lavage

## 5. Fire - fighting measures

**Suitable extinguishing media** Carbon dioxide, dry chemicals, foam, water spray (fog).

**Fire fighting procedure** Cool containers with water spray. Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) in positive pressure mode

**Unusual fire and explosion hazards** When heated to decomposition, may release poisonous and corrosive fumes.

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## 6. Accidental release measures

**Personal precautions** Use dust respirator, rubber gloves and chemical safety goggles

**Methods for cleaning up** Sweep up, place in a bag and hold for waste disposal or possible re-use
Ventilate area and wash spill site after material pickup is complete.

## 7. Handling and storage

**Handling** Keep containers tightly closed.
Avoid producing or diffusing dust into the air.

**Storage** Store in a dry, cool, well-ventilated and shaded area, away from heat sources away from incompatible materials (see "materials to avoid").

## 8. Exposure controls / personal protection

**Exposure Limits :**

| Components | ACGIH-TLV Data | OSHA (PEL) Data |
|---|---|---|
| 2,2-Dibromo-3-nitrilopropion amide<br>10222-01-2 | Not determined | Not determined |

**Note** The product was tested for "Particle size distribution". Results showed that it is non-inhalable.

**Manufacturer's TLV-TWA Recommendation** 0.25 mg/m³

**Ventilation requirements** Ventilation must be sufficient to maintain atmospheric concentration below recommended exposure limit.

**Personal protective equipment:**
- **Respiratory protection** Approved respirator
- **Hand protection** Protective gloves
- **Eye protection** Chemical safety goggles
- **Skin and body protection** Body covering clothes and boots

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**Hygiene measures** Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. Remove contaminated clothing after work is completed and wash skin thoroughly with soap and plenty of water.

## 9. Physical and chemical properties

| | |
|---|---|
| **Appearance** | White to off-white granules |
| **Melting point/range** | 123 - 125°C |
| **Boiling point/range** | Not applicable (decomposes) |
| **Flash point** | None |
| **Auto-ignition temperature** | Not applicable |
| **Vapour pressure** | 8.25x10(-4) mmHg (25°C) |
| **Vapor density** | Not applicable under standard conditions |
| **Evaporation rate (ether=1)** | Not applicable under standard conditions |
| **Solubility:** | |
| **- Solubility in water** | 17±0.05 g/l at 25.7°C |
| **- Solubility in other solvents** | acetone - 35 g/100g<br>ethanol - 25 g/100g<br>dimethyl formamide - 120 g/100g<br>polyethylene glycol (Mw 200) - 120 g/100g |
| **Specific gravity** | 2.375 (21°C) |
| **Decomposition temperature** | 190°C |
| **Partition coefficient (n-octanol/water)** | Log Kow - 6.3 |

## 10. Stability and reactivity

| | |
|---|---|
| **Stability** | Stable under normal conditions |
| **Materials to avoid** | Oxidizing agents, reducing agents |
| **Conditions to avoid** | Keep away from light and heat<br>Heating above decomposition temperature |
| **Hazardous decomposition products** | Br2, HBr, CNBr, NOx, C2H5Br, CH3Br |
| **Hazardous polymerization** | Will not occur |

## 11. Toxicological information

| | |
|---|---|
| **Acute toxicity:** | |
| **- Rat oral LD50** | 308 mg/kg |
| **- Rat dermal LD50** | >2000 mg/kg |
| **- Rat inhalation LC50** | 0.32 mg/l/4 hour (powder) |
| **- Eye irritation (rabbit)** | Corrosive |
| **- Dermal irritation (rabbit)** | Moderate irritant |
| **Dermal sensitization** | Sensitizer |
| **Sub-chronic toxicity:** | |
| **- NOEL** | 5 mg/kg/day (13 weeks oral, rat) |
| **Chronic toxicity** | Not available |
| **Mutagenicity** | Not mutagenic by the Ames Test |
| **Genotoxicity** | Not clastogenic in chromosome aberration test with Chinese hamster cells.<br>Not clastogenic in chromosome aberration test with Human lymphocytes.<br>Did not induce DNA repair synthesis in the hepatocytes of male rats in vitro. |
| **Carcinogenicity** | Not classified by IARC<br>Not included in NTP 11th Report on Carcinogens |
| **Reproductive toxicity** | In a 2-generation study in rats, the NOEL for reproduction parameters was >=30 mg/kg/day. |
| **Teratogenicity** | Not teratogenic. The NOAEL (for fetal toxicity in rabbits) = 10 mg/kg/day. |

## 12. Ecological information

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|---|---|
| **Aquatic toxicity :** | |
| **- 96 Hour-LC50, Fish** | 2.3 mg/l (Rainbow trout)<br>3.4 mg/l (Sheepshead minnow)<br>2.3 mg/l (Bluegill sunfish) |
| **- 48 Hour-EC50, Daphnia magna** | 0.86 mg/l |
| **Marine Invertebrate** | 0.72 mg/l (Mysid shrimp, 96h)<br>0.37 mg/l (Eastern oyster, 96h) |
| **Avian toxicity:** | |

| | |
|---|---|
| **- Oral LD50, Bobwhite quail** | 354 mg/kg |
| **- Dietary LC50, Mallard duck** | > 5620 ppm |
| **- Dietary LC50, Bobwhite quail** | > 5620 ppm |
| **Germany, water endangering classes (WGK)** | 3 |

## 13. Disposal considerations

**Waste disposal**

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
Observe all federal, state and local environmental regulations when disposing of this material.

## 14. Transportation information

**UN No.** 3077

**DOT**

Proper shipping name: Environmentally hazardous substance, solid, n.o.s (2,2-dibromo-3-nitrilopropionamide)
Class: 9 - Miscellaneous Hazardous Material
Label: 9
Packing Group: III
Marking: MARINE POLLUTANT

**IMO**

Proper shipping name: Environmentally hazardous substance, solid, n.o.s (2,2-dibromo-3-nitrilopropionamide)
Class: 9 - Miscellaneous Dangerous Substances and Articles
Label: 9
Packing Group: III
Marking: MARINE POLLUTANT

**ICAO/IATA**

Proper shipping name: Environmentally hazardous substance, solid, n.o.s (2,2-dibromo-3-nitrilopropionamide)
Class: 9
Hazard label(s): Miscellaneous
Packing group: III

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## 15. Regulatory information

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|---|---|
| **USA** | This product is registered under FIFRA.<br>Reported in the EPA TSCA Inventory (Acetamide, 2,2-dibromo-2-cyano-) |
| **- SARA 313** | On October 27, 1995, EPA published an administrative stay of the EPCRA section 313 reporting requirements for this chemical. Therefore, no Toxics Release Inventory reports are required for 2,2-dibromo-3-nitrilopropionamide until the stay is removed. |
| **- SARA (311, 312)** | This product is categorized as an immediate and delayed health hazard. |
| **- Workplace Classification** | This product is considered hazardous under the OSHA Hazard Communication Standard (29CFR 1910.1200). |
| **Canada** | Listed in NDSL |
| **- Cepa** | Listed |
| **-EEC No.** | 233-539-7 |
| **Japan** | ENCS No. 2-2795<br>ISHL No. 2-2795 |
| **Australia** | Listed in AICS |
| **New Zealand Inventory** | Listed in NZIoC |
| **China inventory** | Listed |
| **Korea** | Listed in the Korea Existing Chemicals Inventory (KECI), number KE-09944 |
| **Philippines** | Listed in PICCS |

## 16. Other information

**Further information**
The information in this Material Safety Data Sheet should be provided to all who will use, handle, store, transport, or otherwise be exposed to this product.
This information has been prepared for the guidance of plant engineering, operations and management and for persons working with or handling this product.
Additionally, if this Material Safety Data Sheet is more than three years old, you should contact Zee Co., Inc. at the phone number listed below to make certain that this sheet is current.

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| | | |
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| **Product Name** | **Biocide 7D** | |
| **Revision date** | 13/02/2008 | **Revision:** 1 |

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**End of safety data sheet**