

MATERIAL SAFETY DATA SHEET

Product Name **Biobrom C - 100G**
Product id 8341G-US
Revision date 13/02/2008
Supersedes 25/07/2004

Revision: 5

1. Identification of the substance & the company

Chemical name 2,2-Dibromo-3-nitropropionamide
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 Clearon Corp.
95 MacCorkle Ave. SW, South Charleston, WV 25303, USA
Tel: (304) 746-3000
Emergency Telephone Chemtrec (800)424-9300

2. Hazards identification

Emergency overview *White to off-white granules*
Corrosive
Causes severe burns of eyes
Irritating to nose and throat
May be fatal if swallowed
May burn the skin

Potential Health Effects:

- Eye Contact Corrosive
- Skin contact Irritant
May cause skin sensitization
- Inhalation Irritant to upper respiratory tract.
In severe cases pulmonary oedema may be developed
- Ingestion Corrosive by ingestion
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 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)
Vapour 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
ethanol - 25 g/100g
dimethyl formamide - 120 g/100g
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
Heating above decomposition temperature
Hazardous decomposition products Br₂, HBr, CNBr, NO_x, C₂H₅Br, CH₃Br
Hazardous polymerization Will not occur

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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.
Not clastogenic in chromosome aberration test with Human lymphocytes.
Did not induce DNA repair synthesis in the hepatocytes of male rats in vitro.

Carcinogenicity

Not classified by IARC
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

Aquatic toxicity :

- 96 Hour-LC50, Fish 2.3 mg/l (Rainbow trout)
3.4 mg/l (Sheepshead minnow)
2.3 mg/l (Bluegill sunfish)

- 48 Hour-EC50, Daphnia magna 0.86 mg/l

Marine Invertebrate

0.72 mg/l (Mysid shrimp, 96h)
0.37 mg/l (Eastern oyster, 96h)

Avian toxicity:

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- 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

USA	This product is registered under FIFRA. 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-nitropropionamide 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 -EEC No.	Listed 233-539-7
Japan	ENCS No. 2-2795 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

This data sheet contains changes from the previous version in section(s)

1,2, 3, 5, 6, 8, 9, 14, 15

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 Clearon at the phone number listed below to make certain that this sheet is current.

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In an event of discrepancy between the contents of this MSDS and the English version of it, the English version shall prevail.

End of safety data sheet