



**PROFESSIONAL WATER
TECHNOLOGIES, Inc.**

High-Performance Reverse Osmosis Chemicals

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BIOGUARD SHOCK™ MSDS
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Version 12.20.07

MSDS

Material Safety Data Sheet
December 20, 2007

Section 01: Chemical Product Identification

Domestic Trade Name: BIOGUARD SHOCK™

Export Trade Name: BIOGUARD SHOCK™

Chemical Type: Biocide

Section 02: Information on Hazardous Ingredients

Environmentally Hazardous Substances, Liquid: Marine Pollutant

DOT Hazardous Classification: 9

PWT Product Name: BIOGUARD SHOCK™

Ingredient	CAS #
Dibromoacetonitrile Irritant (skin); IARC = 3 (carcinogen status Classifiable)	3252-43-5
DBNPA (2,2-Dibromo-3-nitrilopropionamide) Corrosive (eyes); highly toxic (by inhalation); toxic (by ingestion); potential sensitizer	10222-01-2
Sodium bromide Irritant	7647-15-6
Monobromo-3-nitrilopropanamide Potential irritant	1113-55-9
2, 2-Dibromopropanediamide Potential irritant	73003-80-2

Section 03: Hazards Identification:

Emergency Overview

May cause moderate irritation to the skin. Potential skin sensitizer. Corrosive to the eyes. Mist causes irritation to the upper respiratory tract.

Dot hazard: Environmentally hazardous substance: Marine pollutant Emergency Response Guide #171

Appearance: Yellow to amber liquid

Odor: Slight

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

Proper fire-extinguishing media: Flood with water. CO2 or foam may not be effective.

Health Hazards:

Primary Route of Exposure: Skin contact.

Inhalation: Exposure to spray may cause irritation to the respiratory tract.

Skin Contact: Exposure to skin can cause moderate irritation. Potential skin sensitizer.

Eye contact: Corrosive to the eyes.

Ingestion: May cause gastrointestinal irritation. Very large doses may cause diarrhea, depression, colic and death. May also cause severe allergic reactions in sensitive individuals.

Medical Conditions Aggravated by Exposure: None known

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Section 04: First Aid Measures

- First Aid For Ingestion:* If swallowed dilute with 3 – 4 glasses milk or water. Seek medical attention. Do not induce vomiting. Never give anything to an unconscious person.
- First Aid Inhalation:* Remove to Fresh Air. If not breathing give artificial respiration. If breathing is difficult give oxygen. Seek medical attention immediately.
- First Aid Eye Contact:* Immediately flush eyes with plenty of water for at least 15 minutes. Seek medical attention immediately.
- First Aid Skin Contact:* Wash exposed area with soap and water immediately. Remove and wash contaminated clothing.

Section 05: Fire Fighting Measures

- Autoignition Temp:* N/A.
- Flammable Limits:* LEL (Lower Explosive Limits) – Not applicable.
- Flammable Limits:* UEL (Upper Explosive Limits) – Not applicable.
- Flash Point:* >200oF > 93oC SETA (CC)
- Fire Fighting Media:* Flood with water. CO2 or foam may not be effective.
- Special Fire Fighting Procedures:* Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).
- Hazardous Decomposition Products:* Thermal decomposition yields elemental oxides
- Special Procedures:* Environmentally hazardous substance: Marine pollutant
UN3082: Emergency Response Guide #171. Contain run-off.

Section 06: Accidental Release Measures

Spill/Leak Clean-Up Procedures:

Absorb the spill with pillows or inert solids such as clay or vermiculite, and transfer contaminated materials to suitable containers for disposal. Flush area with water. Sprad sand or grit. Neutralize with soda ash. Dispose of solid waste according to all Federal, State, and local regulations and permits.

Personal protection:

Wear a NIOSH approved (or equivalent) respirator (with an organic/acid gas cartridge and a dust filter) during spill clean-up and deactivation of the material. Protective clothing including chemical splash goggles, Latex, nitrile, or buytl rubber full length gloves, rubber apron made of nitrile or buytl rubber, and rubber overshoes must be worn during spill clean-ups and deactivation of material. If this material comes into contact with the skin during clean-up operations, immediately remove all contaminated clothing and wash exposed skin areas with soap and water. See section 4, First Aid Measures, for further information.

Section 07: Handling and Storage

Precautionary Measures:

Acidic. Corrosive to eyes. See Section 8, Exposure Control/Personal Protection, prior to handling.

Storage Conditions:

Keep in a tightly closed container. Protect from physical damage. Store in a cool dry, ventilated area away from sources of heat and incompatible materials. Keep away from alkaline materials. Use with only appropriate protective equipment. Do not use in unventilated areas or confined spaces. Containers of this material may be hazardous when empty since they retain product residue. Observe all warnings and precautions listed for this product. Do not store this material in containers made of steel.

Section 08: Exposure Control/Personal Protection

Ventilation:

Use local exhaust ventilation at the point of dust or mist evolution.

Respiratory Protection:

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANZI Z88.2 requirements must be followed when ever workplace conditions warrant a respirator use. Use air purifying respirators within use limitations associated with the equipment or else use supplied air-respirators. If air – purifying respirator use is appropriate, use a respirator with organic/acid gas cartridge and dust/mist prefilters. For emergencies or instances where the exposure levels are not known, use a full- face piece positive-pressure, air supplied respirator. Warning air purifying respirators do not protect workers in oxygen deficient atmospheres.

Eye Protection:

Splash goggles and/or face shield (ANSI Z87.1 or approved equivalent).

Skin Protection:

Wear impervious protective clothing. Use butyl gloves, boots, and coveralls. Remove gloves after use. Wash hands with soap and water.

Personal Hygiene:

Observe ordinary measures of personal hygiene.

Chemical Name Exposure

Dibromoacetonitrile

PEL (OSHA): Not determined

TVL (ACGIH): Not determined

DBNPA (2,2-Dibromo-3-nitrilopropionamide)

PEL (OSHA): Not determined

TVL (ACGIH): Not determined

Misc: Recommended exposure limit: 2 mg/m³ (ceiling) – for powder

Sodium bromide

PEL (OSHA): Not determined

TVL (ACGIH): Not determined

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Monobromo-3-nitrilopropanamide
PEL (OSHA): Not determined
TVL (ACGIH): Not determined

2, 2-Dibromopropanediamide
PEL (OSHA): Not determined
TVL (ACGIH): Not determined

Section 09: Physical and Chemical Properties

Vapor Pressure: , 0.1 (mmHg)
Vapor Density: > 1.00 (air = 1)
Water Solubility: Complete.
Freezing Point: 0 °F, -18oC
Flash Point: > 200oF > 93oC
Appearance: Yellow to amber solution.
Specific Gravity: 1.269 g/ml
Viscosity (cps 70oF, 21oC): 64
Evaporation Rate: > 1.00 (Ether = 1)
pH of Solution: 1.9
Odor: Slight.

Section 10: Stability and Reactivity

Stability:

Stable under normal storage conditions. See Section 7, Handling and Storage, for specific conditions.

Hazardous Polymerization:

Will not occur.

Conditions to Avoid:

None Known.

Incompatible Materials:

Temperatures above 120oC. Bromine, cyanogens bromide and dibromoacetonitrile are formed. May react with strong oxidizers.

Hazardous Decomposition Products:

Thermal decomposition yields elemental oxides.

Internal Pumpout / Cleanout Categories: "B"

Section 11: Toxicological Information

Oral rat LD50: 510 mg/Kg

Dermal Rabbit: >2,000 mg/Kg

Inhalation rat: 1.325 mg/L/4hr

Note – Rat inhalation LC50: >200 ppm / 6hr

Skin Irritation Score Rabbit: Not corrosive

Note – Not DOT corrosive

Skin Sensitization G.Pig: Positive

Note - 7/10 Positive from 5% aqueous DBNPA (active)

Skin Sensitization Human: Negative

Note – 0/26 Positive from 1,250 ppm aqueous DBNPA (active)

AMES Assay: Negative

Non-AMES Mutagenicity: Negative

Note – CHO / HGPRT; Micronucleus Test; rat hepatocyte unscheduled DNA

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Section 12: Ecological Information

Aquatic Toxicity:

- Bluegill Sunfish 96 hour Static Acute Bioassay
LC50 = 6.5 mg/L
- Daphnia magna 21 day Flow-Thru Life-Cycle Chronic Bioassay
Reproduction EC50 = 0.65; Reproduction NOEL = 0.35 mg/L
- Daphnia Magna 48 hour Static Renewal Bioassay
LC50 = 3.3; No Effect Level = 2.15 mg/L
- Flathead Minnow 96 hour Static Acute Bioassay
LC50 = 8.7; No Effect Level = 3.1 mg/L
- Rainbow Trout 96 hour Static Acute Bioassay
LC50 = 2.3; No Effect Level = 1.8 mg/L
- Sheepshead Minnow 96 hour Static Acute Bioassay
LC50 = 7 mg/L

Bioderadation:

- BOD – 28 (mg/g): 0
- BOD – 5 (mg/g): 0
- COD (mg/g): 1090
- TOC (mg/g): 300

Section 13: Disposal

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is D002 = Corrosive (pH). Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from Federal disposal regulations.

Dispose of container and unused contents in accordance with Federal, State, and Local requirements.

Section 14: Transport Information

Domestic Data

- DOT Shipping Name: BioGuard Shock™ (Environmentally hazardous substance: Marine Pollutant)
- DOT Hazard Class: 9
- PG III
- UN Number: 3082
- ERG 171

Export Data

- DOT Shipping Name: BioGuard Shock™ (Environmentally hazardous substance: Marine Pollutant)
- DOT Hazard Class: 9
- Hazardous Ingredients:
- PG III
- UN Number: 3082
- ERG 171



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Section 15: Regulatory Information

TSCA: This is an EPA registered biocide and is exempt from TSCA inventory requirements.

CERCLA and/or SARA Reportable Quantity (RQ): No regulated constituent present at OSHA thresholds.

FIFRA Registration Number: 3876-95

Food and Drug Administration: The ingredients in this product are approved by FDA under 21 CFR 176.170, 176.300, and 173.320.

USDA Federally Inspected Meat and Poultry Plants: This product contains ingredients that have been determined as safe for use in systems for cooking or cooling containers of meat and/or poultry and in systems with no food contact. (G5, G7).

SARA Section 312 Hazard Class: Immediate (acute); Delayed (chronic).

SARA Section 302 Chemicals: No regulated constituent present at OSHA thresholds.

SARA Section 313 Chemicals: No regulated constituent present at OSHA thresholds.

California Regulatory Information

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65) Chemicals Present: No regulated constituent present at OSHA thresholds

Michigan Regulatory Information

No regulated constituent present at OSHA thresholds

Section 16: Other Information

NFPA Hazard Codes - Health/Flammability/Reactivity; 3,1,0

Special – Acid

(1) Protective Equipment – B

**For Chemical Emergency
Spill Leak Fire Exposure or Accident
Call CHEMTREC Day or Night**

**DOMESTIC NORTH AMERICA 800-424-9300
INTERNATIONAL, CALL 703-527-3887 (collect calls accepted)**

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