

MATERIAL SAFETY DATA SHEET

Product Trade Name: BE-3S BACTERICIDE

Revision Date: 09-Jan-2015

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: BE-3S BACTERICIDE
Synonyms: None
Chemical Family: Blend
Application: Biocide

Manufacturer/Supplier Halliburton Energy Services
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Emergency Telephone: (281) 575-5000

Prepared By Chemical Compliance
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2. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT (w/w)	ACGIH TLV-TWA	OSHA PEL-TWA
2,2 Dibromo-3-nitrilopropionamide	10222-01-2	60 - 100%	Not applicable	Not applicable
2-Monobromo-3-nitrilopropionamide	1113-55-9	1 - 5%	Not applicable	Not applicable

3. HAZARDS IDENTIFICATION

Hazard Overview May cause eye burns. May cause skin and respiratory irritation. May be fatal if swallowed. May cause allergic skin reaction.

4. FIRST AID MEASURES

Inhalation If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

Skin In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Get medical attention if irritation persists. Remove contaminated clothing and launder before reuse.

Eyes Immediately flush eyes with large amounts of water for at least 20 minutes. Seek prompt medical attention.

Ingestion If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person. Rinse mouth with water many times. Get immediate medical attention.

5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	> 212
Flash Point/Range (C):	> 100
Flash Point Method:	CC
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined

Fire Extinguishing Media Carbon Dioxide, Dry Chemicals, Foam. Use water spray to cool fire exposed surfaces.

Special Exposure Hazards Decomposition in fire may produce toxic gases. Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 3, Flammability 0, Reactivity 0
HMIS Ratings: Health 3, Flammability 0, Physical Hazard 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment.

Environmental Precautionary Measures Prevent from entering sewers, waterways, or low areas.

Procedure for Cleaning / Absorption Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Wear appropriate respirator when opening containers. Wash hands after use. Launder contaminated clothing before reuse.

Storage Information Keep container closed when not in use. Store in a cool, dry location. Store in a well ventilated area. Store away from oxidizers. Store away from reducing agents. Store away from direct sunlight. Product has a shelf life of 6 months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Respiratory Protection	If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Organic vapor respirator with a dust/mist filter. (A2P2/P3)
Hand Protection	Chemical-resistant protective gloves (EN 374) Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Nitrile gloves. (>= 0.35 mm thickness) This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced. Manufacturer's directions for use should be observed because of great diversity of types.
Skin Protection	Rubber apron. Long-sleeve shirt, long pants, and shoes plus socks.
Eye Protection	Dust proof goggles.
Other Precautions	Eyewash fountains and safety showers must be easily accessible. Rubber boots

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Powder
Color:	White to yellow
Odor:	Slight Pungent
pH:	4.7-4.9
Specific Gravity @ 20 C (Water=1):	2.204-2.216
Density @ 20 C (lbs./gallon):	19.73-19.83
Bulk Density @ 20 C (lbs/ft3):	10.5
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	.934
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Partially soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	Keep away from heat, sparks and flame.

Incompatibility (Materials to Avoid)

Strong oxidizers. Reducing agents.

Hazardous Decomposition Products

Oxides of nitrogen. Bromine. Hydrogen bromide. Methyl and ethyl bromide. Cyanogen bromide. Carbon monoxide and carbon dioxide.

Additional Guidelines

Not Applicable

11. TOXICOLOGICAL INFORMATION**Principle Route of Exposure**

Eye or skin contact, inhalation.

Symptoms related to exposure**Acute Toxicity****Inhalation**

Causes severe respiratory irritation. May be harmful if inhaled.

Eye Contact

Causes severe eye irritation. May cause eye burns. May cause permanent eye damage.

Skin Contact

Causes moderate skin irritation. This product contains ingredients which may produce an allergic skin reaction. It should be treated as a skin sensitizer.

Ingestion

May be fatal if swallowed.

Chronic Effects/Carcinogenicity

No data available to indicate product or components present at greater than 1% are chronic health hazards.

LD50 Oral:

235 mg/kg; (rat)

LD50 Dermal:

> 2000 mg/kg; (rabbit, 4 hr)

LC50 Inhalation:

0.32 mg/L; (rat)

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
2,2 Dibromo-3-nitrilopropionamide	10222-01-2	235 mg/kg 206.5 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	0.32 mg/L (Rat) 4h
2-Monobromo-3-nitrilopropionamide	1113-55-9	206.5 mg/kg (Rat) (similar substance)	>2000 mg/kg (Rabbit) (similar substance)	0.32 mg/L (Rat) 4h (similar substance)

12. ECOLOGICAL INFORMATION**Ecotoxicological Information****Ecotoxicity Product****Acute Fish Toxicity:**

May be toxic to aquatic life.

TLM96: 2.3 mg/l (Oncorhynchus mykiss) TLM96: 3.4 mg/l (Cyprinodon variegatus) TLM96: 2.3 mg/l (Lepomis macrochirus)

Acute Crustaceans Toxicity:

TLM: 0.72 ppm (Mysidopsis bahia) LC50: 0.37 ppm (Crassostrea virginica)

Acute Algae Toxicity:

Not determined

Ecotoxicity Substance

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
2,2 Dibromo-3-nitrilopropionamide	10222-01-2	EC50 (96h) 0.3 mg/L (Selenastrum capricornutum)	LC50 2.3 mg/l (Oncorhynchus mykiss) EC50 0.72 mg/L (Mysidopsis bahia) LC50 1 mg/L (Oncorhynchus mykiss) MATC 0.47-0.98 (Oncorhynchus mykiss)	No information available	EC50 0.72 mg/L (Daphnia magna) EC50 < 0.07 mg/L (Crassostrea virginica) NOEL < 0.02 mg/L (Daphnia magna)

2-Monobromo-3-nitrilo propionamide	1113-55-9	EC50 (96h) 0.3 mg/L (Selenastrum capricornutum) (similar substance)	LC50: 2.3 mg/l (Oncorhynchus mykiss) LC50: 1 mg/L (Oncorhynchus mykiss) (similar substance) MATC: 0.47-0.98 mg/L (Oncorhynchus mykiss) (similar substance)	No information available	EC50: 0.9 mg/L (Daphnia magna) (similar substance) EC50: <0.07 mg/L (Crassostrea virginica) (similar substance) EC50: 0.72 mg/L (Mysidopsis bahia) (similar substance) NOEL: <0.02 mg/L (Daphnia magna) (similar substance)
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12.2. Persistence and degradability

Not readily biodegradable

Substances	CAS Number	Persistence and Degradability
2,2 Dibromo-3-nitrilopropionamide	10222-01-2	No information available
2-Monobromo-3-nitrilopropionamide	1113-55-9	Product is not biodegradable

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
2,2 Dibromo-3-nitrilopropionamide	10222-01-2	No information available
2-Monobromo-3-nitrilopropionamide	1113-55-9	No information available

12.4. Mobility in soil

12.5. Results of PBT and vPvB assessment

No information available.

Substances	PBT and vPvB assessment
2,2 Dibromo-3-nitrilopropionamide	No data available
2-Monobromo-3-nitrilopropionamide	No data available

12.6. Other adverse effects

13. DISPOSAL CONSIDERATIONS

Disposal Method Disposal should be made in accordance with federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

US DOT

UN Number: UN2811
UN Proper Shipping Name: Toxic Solid, Organic, N.O.S. (2, 2-Dibromo-3-Nitrilopropionamide)
Transport Hazard Class(es): 6.1
Packing Group: II
Environmental Hazards: , Marine Pollutant
NAERG: NAERG 154

US DOT Bulk

DOT (Bulk) Not applicable

Canadian TDG ul0

UN Number: UN2811
UN Proper Shipping Name: Toxic Solid, Organic, N.O.S. (2, 2-Dibromo-3-Nitrilopropionamide)
Transport Hazard Class(es): 6.1
Packing Group: II

Environmental Hazards: , Marine Pollutant

IMDG/IMO

UN Number: UN2811
UN Proper Shipping Name: Toxic Solid, Organic, N.O.S. (2, 2-Dibromo-3-Nitrilopropionamide)
Transport Hazard Class(es): 6.1
Packing Group: II
Environmental Hazards: , Marine Pollutant
EMS: EmS F-A, S-A

IATA/ICAO

UN Number: UN2811
UN Proper Shipping Name: Toxic Solid, Organic, N.O.S. (2, 2-Dibromo-3-Nitrilopropionamide)
Transport Hazard Class(es): 6.1
Packing Group: II
Environmental Hazards: , Marine Pollutant

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

Special Precautions for User: None

Labels: Toxic

15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory	Product contains one or more components not listed on the inventory.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	Acute Health Hazard
EPA SARA (313) Chemicals	2,2-Dibromo-3-nitrilopropionamide//10222-01-2
EPA CERCLA/Superfund Reportable Spill Quantity	Not applicable.
EPA RCRA Hazardous Waste Classification	If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.
Federal Insecticide, Fungicide and Rodenticide Act:	Label in accordance with Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requirements.
California Proposition 65	All components listed do not apply to the California Proposition 65 Regulation.
MA Right-to-Know Law	Does not apply.
NJ Right-to-Know Law	One or more components listed.
PA Right-to-Know Law	Does not apply.

Canadian Regulations

Canadian DSL Inventory Product contains one or more components not listed on the inventory.

WHMIS Hazard Class	D1A Very Toxic Materials
	D2B Toxic Materials
	D1B Toxic Materials

16. OTHER INFORMATION

The following sections have been revised since the last issue of this SDS

Not applicable

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

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*****END OF MSDS*****