

SAFETY DATA SHEET

SPECTRUS* NX108

1. Identification

Product identifier SPECTRUS NX108
Other means of identification None.
Recommended use Biocide
Recommended restrictions None known.

Company/undertaking identification

GE Betz, Inc.
 4636 Somerton Road
 Trevoise, PA 19053
 T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Acute toxicity, oral	Category 4
	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
	Sensitization, skin	Category 1B
	Reproductive toxicity	Category 2
	Specific target organ toxicity, single exposure (dermal, inhalation, oral)	Category 2 (gastrointestinal tract, liver, kidney)
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
OSHA defined hazards	Specific target organ toxicity, repeated exposure (oral)	Category 2 (endocrine system, central nervous system)
	Not classified.	

Label elements



Signal word

Danger

Hazard statement

May be corrosive to metals. Harmful if swallowed. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Causes serious eye damage. Harmful if inhaled. May cause respiratory irritation. Suspected of damaging fertility or the unborn child. May cause damage to organs (gastrointestinal tract, liver, kidney) by skin contact. May cause damage to organs (gastrointestinal tract, liver, kidney) by ingestion. May cause damage to organs (gastrointestinal tract, liver, kidney) by inhalation. May cause damage to organs (endocrine system, central nervous system) through prolonged or repeated exposure by ingestion.

Precautionary statement

Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep only in original container. Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection.

Response

If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor/. Specific treatment (see on this label). If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.

Storage

Store in a well-ventilated place. Keep container tightly closed. Store locked up. Store in corrosive resistant/ container with a resistant inner liner.

Disposal

Dispose of contents/container to an approved facility. Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)

None known.

Supplemental information

4% of the mixture consists of component(s) of unknown acute inhalation toxicity.

3. Composition/information on ingredients

Mixtures

Components	CAS #	Percent
2,2-dibromo-3-nitrilopropionamide	10222-01-2	20 - 40
Dibromoacetone	3252-43-5	2.5 - 10
Sodium bromide	7647-15-6	2.5 - 10

Composition comments

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation

If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact

Remove contaminated clothing immediately and wash skin with soap and water. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

Ingestion

If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell.

Most important symptoms/effects, acute and delayed

Burning pain and severe corrosive skin damage. Decrease in motor functions. Edema. Behavioral changes. Narcosis. Jaundice. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation. Prolonged exposure may cause chronic effects.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information

IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media

Carbon dioxide, dry chemicals, foam, water spray (fog).

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical

During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Fire fighting equipment/instructions
Specific methods

In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Cool containers / tanks with water spray.
Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Use water spray to reduce vapors or divert vapor cloud drift. Dike far ahead of spill for later disposal. Absorb spillage to prevent material damage. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Environmental precautions

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Avoid discharge into drains, water courses or onto the ground. Water contaminated with this product may be sent to a sanitary sewer treatment facility, or a permitted waste treatment facility, in accordance with any local agreements.

7. Handling and storage

Precautions for safe handling

Do not breathe mist or vapor. Do not taste or swallow. Do not mix with alkaline material. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in a cool, dry place out of direct sunlight. Store in corrosive resistant container with a resistant inner liner. Keep only in the original container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Store in accordance with local/regional/national/international regulation.

8. Exposure controls/personal protection

Occupational exposure limits

US. Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value	Form
Poly(oxy-1,2-ethanediyl), α -hydro- ω -hydroxy-Ethane-1,2-diol, ethoxylated (CAS 25322-68-3)	TWA	10 mg/m ³	Particulate.

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection

Hand protection

Wear appropriate chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present.

Other

Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance

Color	Colorless,yellow,amber
Physical state	Liquid
Odor	Slight
Odor threshold	Not available.
pH (concentrated product)	1.9
pH in aqueous solution	3.3 (5% SOL.)
Melting point/freezing point	0 °F (-18 °C)
Initial boiling point and boiling range	Not available.
Flash point	Not applicable.
Evaporation rate	< 1 (Ether = 1)
Flammability (solid, gas)	Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.

Vapor pressure	< 0.1 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	> 1 (Air = 1)
Relative density	1.27
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	64 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Percent volatile	0 (Calculated)
Pour point	5 °F (-15 °C)
Specific gravity	1.27

10. Stability and reactivity

Reactivity	May be corrosive to metals.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Keep away from heat. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents. Metals. Contact with strong bases may cause a violent reaction releasing heat.
Hazardous decomposition products	Oxides of carbon and nitrogen evolved in fire. Hydrogen bromide.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Harmful if inhaled. May cause damage to organs by inhalation. May cause damage to organs through prolonged or repeated exposure by inhalation.
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Skin contact	Causes severe skin burns. May cause damage to organs by skin contact. May cause an allergic skin reaction.
Eye contact	Causes serious eye damage.
Ingestion	May cause damage to organs through prolonged or repeated exposure by ingestion. Causes digestive tract burns. Harmful if swallowed. May cause damage to organs by ingestion.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Behavioral changes. Decrease in motor functions. Edema. Narcosis. Jaundice. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.

Information on toxicological effects

Acute toxicity Harmful if swallowed. May cause an allergic skin reaction. May cause respiratory irritation.

Product	Species	Test Results
SPECTRUS NX108 (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
<i>Inhalation</i>		
LC50	Rat	1.3 mg/l, 4 hours, (Calculated according to GHS additivity formula)
<i>Oral</i>		
LD50	Rat	510 mg/kg, (Calculated according to GHS additivity formula)

Components	Species	Test Results
2,2-dibromo-3-nitrilopropionamide (CAS 10222-01-2)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2000 mg/kg
<i>Inhalation</i>		
LC50	Rat	0.32 mg/l, 4 Hour
<i>Oral</i>		
LD50	Rat	206 mg/kg
Dibromoacetonitrile (CAS 3252-43-5)		
Acute		
<i>Oral</i>		
LD50	Rat	245 mg/kg
Sodium bromide (CAS 7647-15-6)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2000 mg/kg
<i>Oral</i>		
LD50	Rat	4200 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Causes skin burns.
Serious eye damage/eye irritation	Causes serious eye damage.
Respiratory or skin sensitization	
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	May cause an allergic skin reaction.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	Risk of cancer cannot be excluded with prolonged exposure.

IARC Monographs. Overall Evaluation of Carcinogenicity

Dibromoacetonitrile (CAS 3252-43-5)

2B Possibly carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not available.

Reproductive toxicity	Suspected of damaging fertility or the unborn child.
Specific target organ toxicity - single exposure	May cause respiratory irritation. May cause damage to organs (gastrointestinal tract, liver, kidney) by skin contact. May cause damage to organs (gastrointestinal tract, liver, kidney) by ingestion. May cause damage to organs (gastrointestinal tract, liver, kidney) by inhalation.
Specific target organ toxicity - repeated exposure	May cause damage to organs (CNS and Endocrine Disruption) through prolonged or repeated exposure by ingestion.
Aspiration hazard	Based on available data, the classification criteria are not met. May be harmful if swallowed and enters airways.
Chronic effects	May cause damage to organs through prolonged or repeated exposure. Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity

Product	Species	Test Results	
SPECTRUS NX108 (CAS Mixture)			
Aquatic	LC50	Bluegill Sunfish	6.5 mg/L, Static Acute Bioassay, 96 hour
		Fathead Minnow	8.7 mg/L, Static Renewal Bioassay, 96 hour
		Marine Copepod (Acartia tonsa)	1.78 mg/L, Static Acute Bioassay, 48 hour
		Sheepshead Minnow	7 mg/L, Static Acute Bioassay, 96 hour
	NOEL	Fathead Minnow	3.1 mg/L, Static Renewal Bioassay, 96 hour
	Crustacea	EC50, reproduction	Daphnia magna
LC50		Daphnia magna	3.3 mg/L, Static Renewal Bioassay, 48 hour
NOEL		Daphnia magna	2.15 mg/L, Static Renewal Bioassay, 48 hour
Reproduction NOEL		Daphnia magna	0.35 mg/L, Flow-Thru Life-Cycle Chronic Bioassay, 21 day
Fish	LC50	Rainbow Trout	2.3 mg/L, Static Acute Bioassay, 96 hour
	NOEL	Rainbow Trout	1.8 mg/L, Static Acute Bioassay, 96 hour

* Estimates for product may be based on additional component data not shown.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

2,2-dibromo-3-nitrilopropionamide 0.79

Bioconcentration factor (BCF)

2,2-dibromo-3-nitrilopropionamide 13 Estimated Species: Fish

Mobility in soil No data available.

Other adverse effects Not available.

Persistence and degradability

78 % degradation in 28 days
CO2 Evolution (Modified Sturm Test) (OECD 301B)
(Refers to active component: 2,2-dibromo-3-nitrilopropionamide)

- COD (mgO2/g) 1090 (calculated data)

- BOD 5 (mgO2/g) 0 (calculated data)

- BOD 28 (mgO2/g) 0 (calculated data)

- Closed Bottle Test (% Degradation in 28 days) 0

- Zahn-Wellens Test (% Degradation in 28 days) 0

- TOC (mg C/g) 300 (calculated data)
- CO2 evolution (modified Sturm test) 78

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Dispose of in approved pesticide facility or according to label instructions.

Hazardous waste code D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number UN3265
UN proper shipping name CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (2,2,DIBROMO-3-NITRILOPROPIONAMIDE)
Transport hazard class(es)
 Class 8
 Subsidiary risk -
Packing group III
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
ERG number 153
Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.

IATA

UN number UN3265
UN proper shipping name CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (2,2,DIBROMO-3-NITRILOPROPIONAMIDE)
Transport hazard class(es)
 Class 8
 Subsidiary risk -
Packing group III
Environmental hazards No.
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number UN3265
UN proper shipping name CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (2,2 DIBROMO-3-NITRILOPROPIONAMIDE)
Transport hazard class(es)
 Class 8
 Subsidiary risk -
Packing group III
Environmental hazards
 Marine pollutant No.
EmS Not available.
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

DOT





15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

This is an EPA registered biocide and is exempt from TSCA inventory requirements. See FIFRA registry number.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
 Delayed Hazard - Yes
 Fire Hazard - No
 Pressure Hazard - No
 Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical

Yes

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)

Hazardous substance

Safe Drinking Water Act (SDWA)

Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

FIFRA registration number

3876-95

TSCA

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

FIFRA hazard statement

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

DANGER
Corrosive
Causes irreversible eye damage
Harmful if inhaled, swallowed, or absorbed through the skin
Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals
This pesticide is toxic to fish and aquatic organisms

Food and drug administration

The ingredients in this product are approved by FDA under 21 CFR 176.300.

US state regulations**US - Massachusetts RTK - Substance List**

Not regulated.

US - Pennsylvania RTK - Hazardous Substances

Not regulated.

US - Rhode Island RTK

2,2-dibromo-3-nitrilopropionamide (CAS 10222-01-2)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Dibromoacetonitrile (CAS 3252-43-5)

US. New Jersey Worker and Community Right-to-Know Act

2,2-dibromo-3-nitrilopropionamide (CAS 10222-01-2)

US. Pennsylvania Worker and Community Right-to-Know Law

Not listed.

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Dibromoacetonitrile (CAS 3252-43-5) Listed: May 3, 2011

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

16. Other information, including date of preparation or last revision

Issue date Oct-17-2014

Revision date Nov-13-2015

Version # 3.0

List of abbreviations

CAS: Chemical Abstract Service Registration Number
TWA: Time Weighted Average
STEL: Short Term Exposure Limit
LD50: Lethal Dose, 50%
LC50: Lethal Concentration, 50%
NOEL: No Observed Effect Level
COD: Chemical Oxygen Demand
BOD: Biochemical Oxygen Demand
TOC: Total Organic Carbon
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods Code
NFPA: National Fire Protection Association
ACGIH: American Conference of Governmental Industrial Hygienists
TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.

References: No data available

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Revision information

This document has undergone significant changes and should be reviewed in its entirety.

Prepared by

This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).

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