



SAFETY DATA SHEET

Nutrition & Biosciences USA 1, LLC

Product name: BIOBAN™ BP-30 Preservative

Issue Date: 09/07/2021

Print Date: 09/07/2021

Nutrition & Biosciences USA 1, LLC encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: BIOBAN™ BP-30 Preservative

Recommended use of the chemical and restrictions on use

Identified uses: Cosmetics. Personal care.

COMPANY IDENTIFICATION

Nutrition & Biosciences USA 1, LLC
3490 Winton Place
Rochester NY 14623
UNITED STATES

Customer Information Number:

1-800-526-3649

SDS.ENABLERS@iff.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 1-800-424-9300

Local Emergency Contact: 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification

GHS classification in accordance with 29 CFR 1910.1200

Corrosive to metals - Category 1

Acute toxicity - Category 4 - Oral

Acute toxicity - Category 4 - Inhalation

Serious eye damage - Category 1

Specific target organ toxicity - single exposure - Category 3

Label elements

Hazard pictograms



Signal word: **DANGER!**

Hazards

May be corrosive to metals.
Harmful if swallowed or if inhaled.
Causes serious eye damage.
May cause respiratory irritation.

Precautionary statements**Prevention**

Keep only in original container.
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear eye protection/ face protection.

Response

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
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.
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 waste disposal plant.

Other hazards

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

| Component | CASRN | Concentration |
|------------------|--------------|----------------------|
| Propylene glycol | 57-55-6 | >= 57.5 - <= 62.5 % |
| Bronopol | 52-51-7 | 30.0% |
| Water | 7732-18-5 | >= 7.0 - <= 10.0 % |

4. FIRST AID MEASURES

Description of first aid measures

General advice:

If potential for exposure exists refer to Section 8 for specific personal protective equipment. First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection).

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice. If breathing is difficult, oxygen should be administered by qualified personnel.

Skin contact: Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly.

Eye contact: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Call a poison control center or doctor immediately for treatment advice. 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. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Maintain adequate ventilation and oxygenation of the patient. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. Probable mucosal damage may contraindicate the use of gastric lavage. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen bromide. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Evacuate area. Keep upwind of spill. Ventilate area of leak or spill. Refer to section 7, Handling, for additional precautionary measures. Only trained and properly protected personnel must be involved in clean-up operations. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental Precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Dilute with large quantities of water. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Do not get in eyes. Do not swallow. Avoid breathing vapor or mist. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

Conditions for safe storage: Store away from incompatible materials. See STABILITY AND REACTIVITY section.

Storage stability

Shelf life: Use within 24 Month

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

| Component | Regulation | Type of listing | Value |
|------------------|------------|-----------------|----------------------|
| Propylene glycol | US WEEL | TWA | 10 mg/m ³ |

Exposure controls

Engineering controls: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Butyl rubber. Neoprene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Viton. Examples of acceptable glove barrier materials include: Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Avoid gloves made of: Polyvinyl alcohol ("PVA"). **NOTICE:** The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Wear clean, body-covering clothing.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

| | |
|----------------------------|------------------------|
| Physical state | Liquid. |
| Color | Colorless to yellow |
| Odor | Mild |
| Odor Threshold | No test data available |
| pH | 4.5 <i>Calculated.</i> |
| Melting point/range | <i>Not applicable</i> |

| | |
|---|---|
| Freezing point | No test data available |
| Boiling point (760 mmHg) | No test data available |
| Flash point | closed cup >148 °C (298 °F) <i>ASTM D 93</i> |
| Evaporation Rate (Butyl Acetate = 1) | No test data available |
| Flammability (solid, gas) | Not applicable to liquids |
| Lower explosion limit | <i>Not applicable</i> |
| Upper explosion limit | <i>Not applicable</i> |
| Vapor Pressure | No test data available |
| Relative Vapor Density (air = 1) | No test data available |
| Relative Density (water = 1) | <i>No data available.</i> |
| Water solubility | Not applicable |
| Partition coefficient: n-octanol/water | No data available |
| Auto-ignition temperature | No test data available |
| Decomposition temperature | No test data available |
| Dynamic Viscosity | 29.3 cP at 25 °C (77 °F) <i>Literature</i> (Brookfield Viscosity) |
| Kinematic Viscosity | 24.5 cSt at 25 °C (77 °F) <i>Calculated.</i> |
| Explosive properties | No data available |
| Oxidizing properties | No data available |
| Liquid Density | 1.19 - 1.21 g/cm ³ at 20 °C (68 °F) <i>Literature</i> |
| Molecular weight | No test data available |

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Avoid temperatures above 100°C (212°F). Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Avoid direct sunlight.

Incompatible materials: Avoid contact with oxidizing materials. Avoid contact with: Amines. Bases. Strong acids. Strong reducing agents. Avoid contact with metals such as: Aluminum. Brass. Copper. Tin. Galvanized metals. Iron. Mild steel.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aldehydes. Formaldehyde. Hydrogen bromide. Ketones. Nitrogen oxides. Organic acids. Toxic flammable gases and heat are released under decomposition.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Low toxicity if swallowed. Swallowing may result in gastrointestinal irritation or ulceration. Swallowing may result in burns of the mouth and throat.

Single dose oral LD50 has not been determined.

For similar material(s):
LD50, Rat, 540 mg/kg

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

The dermal LD50 has not been determined.

For similar material(s):
LD50, Rabbit, > 2,000 mg/kg

Acute inhalation toxicity

Prolonged excessive exposure may cause serious adverse effects, even death. Mist may cause irritation of upper respiratory tract (nose and throat).

Skin corrosion/irritation

Brief contact is essentially nonirritating to skin.

Serious eye damage/eye irritation

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Effects may be delayed.

Mist may cause eye irritation.

Sensitization

For the active ingredient(s):

Skin contact may cause an allergic skin reaction in a small proportion of individuals.

Did not demonstrate the potential for contact allergy in mice.

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant information found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Contains component(s) which are classified as specific target organ toxicant, single exposure, category 3.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For the active ingredient(s):

In animals, effects have been reported on the following organs:

Kidney.

Salivary glands.

May cause nausea and vomiting.

In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.

Carcinogenicity

Contains component(s) which did not cause cancer in laboratory animals.

Teratogenicity

Contains component(s) which did not cause birth defects in animals; other fetal effects occurred only at doses toxic to the mother.

Reproductive toxicity

Contains component(s) which did not interfere with reproduction in animal studies.

Mutagenicity

For the component(s) tested: In vitro genetic toxicity studies were predominantly negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

COMPONENTS INFLUENCING TOXICOLOGY:

Propylene glycol

Acute inhalation toxicity

LC50, Rabbit, 4 Hour, dust/mist, > 158.71 mg/l

Bronopol

Acute inhalation toxicity

LC50, Rat, male and female, 4 Hour, dust/mist, > 0.588 mg/l

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity

Propylene glycol

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 Hour, 40,613 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

LC50, Ceriodaphnia dubia (water flea), static test, 48 Hour, 18,340 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), 96 Hour, Growth rate inhibition, 19,000 mg/l, OECD Test Guideline 201

NOEC, Pseudokirchneriella subcapitata (green algae), 14 day, 15,000 mg/l

Toxicity to bacteria

NOEC, Pseudomonas putida, 18 Hour, > 20,000 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Ceriodaphnia dubia (water flea), semi-static test, 7 d, number of offspring, 13,020 mg/l

Bronopol

Acute toxicity to fish

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

LC50, Lepomis macrochirus (Bluegill sunfish), flow-through test, 96 Hour, 11 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna, 48 Hour, 1.08 mg/l

EC50, eastern oyster (Crassostrea virginica), 96 Hour, 0.77 mg/l

Acute toxicity to algae/aquatic plants

ErC50, green alga Pseudokirchneriella subcapitata (formerly known as Selenastrum capricornutum), Static, 72 Hour, Growth rate inhibition, 0.25 mg/l

NOEC, green alga Pseudokirchneriella subcapitata (formerly known as Selenastrum capricornutum), Static, 72 Hour, Growth rate inhibition, 0.03 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), flow-through test, 21 d, 0.06 mg/l

Toxicity to Above Ground Organisms

Material is slightly toxic to birds on a dietary basis (LC50 between 1001 and 5000 ppm).

Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg).

oral LD50, Anas platyrhynchos (Mallard duck), 510 mg/kg

Persistence and degradability

Propylene glycol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Biodegradation may occur under anaerobic conditions (in the absence of oxygen).

10-day Window: Pass

Biodegradation: 81 %

Exposure time: 28 d

Method: OECD Test Guideline 301F or Equivalent

10-day Window: Not applicable

Biodegradation: 96 %

Exposure time: 64 d

Method: OECD Test Guideline 306 or Equivalent

Theoretical Oxygen Demand: 1.68 mg/mg

Chemical Oxygen Demand: 1.53 mg/mg

Biological oxygen demand (BOD)

| Incubation Time | BOD |
|-----------------|----------|
| 5 d | 69.000 % |
| 10 d | 70.000 % |
| 20 d | 86.000 % |

Photodegradation

Atmospheric half-life: 10 Hour

Method: Estimated.

Bronopol

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Fail

Biodegradation: 51 - 57 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

10-day Window: Not applicable

Biodegradation: 99 %

Exposure time: 1 hrs

Method: Simulation study

Theoretical Oxygen Demand: 0.56 mg/mg

Chemical Oxygen Demand: 0.56 - 0.61 mg/mg

Bioaccumulative potential

Bioaccumulation: No data available

Mobility in soil

Propylene glycol

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): < 1 Estimated.

Bronopol

Potential for mobility in soil is very high (Koc between 0 and 50).

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Partition coefficient (Koc): 10 Estimated.

13. DISPOSAL CONSIDERATIONS

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred option is to contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance. The preferred option in other jurisdictions is to contact the regulatory authority for this product for guidance.

14. TRANSPORT INFORMATION

DOT

| | |
|-----------------------------|---|
| Proper shipping name | Corrosive liquid, acidic, organic, n.o.s.(2-BROMO-2-NITRO-1,3-PROPANEDIOL SOLUTION) |
| UN number | UN 3265 |
| Class | 8 |
| Packing group | III |

Classification for SEA transport (IMO-IMDG):

| | |
|---|---|
| Proper shipping name | CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.(2-BROMO-2-NITRO-1,3-PROPANEDIOL SOLUTION) |
| UN number | UN 3265 |
| Class | 8 |
| Packing group | III |
| Marine pollutant | 2-BROMO-2-NITRO-1,3-PROPANEDIOL SOLUTION |
| Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code | Consult IMO regulations before transporting ocean bulk |

Classification for AIR transport (IATA/ICAO):

| | |
|-----------------------------|---|
| Proper shipping name | Corrosive liquid, acidic, organic, n.o.s.(2-BROMO-2-NITRO-1,3-PROPANEDIOL SOLUTION) |
| UN number | UN 3265 |
| Class | 8 |
| Packing group | III |

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Specific target organ toxicity (single or repeated exposure)
Serious eye damage or eye irritation
Acute toxicity (any route of exposure)

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Pennsylvania Worker and Community Right-To-Know Act:

The following chemicals are listed because of the additional requirements of Pennsylvania law:

| Components | CASRN |
|-------------------|--------------|
| Propylene glycol | 57-55-6 |

California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

United States TSCA Inventory (TSCA)

This product contains chemical substance(s) exempt from U.S. EPA TSCA Inventory requirements. It is regulated as a pesticide subject to Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requirements.

Federal Insecticide, Fungicide and Rodenticide Act

EPA Registration Number: 464-685

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 and skin burns
Harmful if swallowed, absorbed through the skin or inhaled
Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals.
This pesticide is toxic to fish.

16. OTHER INFORMATION

Revision

Identification Number: 11092360 / A749 / Issue Date: 09/07/2021 / Version: 8.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

| | |
|---------|---|
| TWA | 8-hr TWA |
| US WEEL | USA. Workplace Environmental Exposure Levels (WEEL) |

Full text of other abbreviations

AllC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

Nutrition & Biosciences USA 1, LLC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The

information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

US