

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Substance

Product Name: BloodStor[®] 100

Synonyms: BS 100

CAS-No.: 67-68-5

1.2. Intended Use of the Product

Ultra-low temperature storage of biological material.

1.3. Name, Address, and Telephone of the Responsible Party

Company

BioLife Solutions, Inc.
3303 Monte Villa Parkway
Suite 310
Bothell, WA 98021
425-402-1400
www.biolifesolutions.com

1.4. Emergency Telephone Number

Emergency Number: 425-402-1400

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

GHS-US/CA Classification

Flam. Liq. 4 H227

Full text of hazard classes and H-statements : see section 16

2.2. Label Elements

GHS-US/CA Labeling

Signal Word (GHS-US/CA)	: Warning
Hazard Statements (GHS-US/CA)	: H227 - Combustible liquid.
Precautionary Statements (GHS-US/CA)	: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P280 - Wear protective gloves, protective clothing, and eye protection. P370+P378 - In case of fire: Use appropriate media (see section 5) to extinguish. P403 - Store in a well-ventilated place. P501 - Dispose of contents/container in accordance with local, regional, national territorial, provincial, and international regulations.

2.3. Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions. DMSO easily penetrates the skin, and may increase the rate of skin absorption of skin-permeable substances.

2.4. Unknown Acute Toxicity (GHS-US/CA)

No data available

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance*

Name : BS 100
CAS-No.: 67-68-5

Name	Product Identifier	% **	GHS Ingredient Classification
Dimethyl sulfoxide	(CAS-No.) 67-68-5	100	Flam. Liq. 4, H227

Full text of H-phrases: see section 16

*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

3.2. Mixture

Not applicable

SECTION 4: FIRST AID MEASURES

4.1. Description of First-aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists.

Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

General: Not expected to present a significant hazard under anticipated conditions of normal use. DMSO may enhance the rate of skin absorption of skin-permeable substances.

Inhalation: Prolonged exposure may cause irritation.

Skin Contact: Prolonged exposure may cause skin irritation. DMSO may enhance the rate of skin absorption of skin-permeable substances.

Eye Contact: May cause slight irritation to eyes.

Ingestion: Ingestion may cause adverse effects.

Chronic Symptoms: None known.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Dry chemical powder, alcohol-resistant foam, carbon dioxide (CO₂). Water may be ineffective but water should be used to keep fire-exposed container cool.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special Hazards Arising from the Substance or Mixture

Fire Hazard: Not considered flammable but may burn at high temperatures.

Explosion Hazard: Product is not explosive.

Reactivity: Hazardous reactions will not occur under normal conditions. Hazardous reactions may occur on contact with certain chemicals. Refer to incompatible materials.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers. Remove containers from fire area if this can be done without risk. Do not breathe fumes from fires or vapors from decomposition.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Irritating or toxic vapors. Carbon oxides (CO, CO₂). Nitrogen oxides. Methylmercaptan. Dimethyl sulfide. Sulfur oxides. Sodium oxides. Hydrogen chloride. Potassium oxides. Phosphorous oxide. Calcium oxides. Magnesium oxides. Formaldehyde. Formaldehyde is a potential carcinogen and can act as a potential skin and respiratory sensitizer. Formaldehyde can also cause respiratory and eye irritation.

5.4. Reference to Other Sections

Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures General Measures:

Avoid breathing (vapor, mist, spray). Do not get in eyes, on skin, or on clothing. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. Use special care to avoid static electric charges.

6.1.1. For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Ventilate area. Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

6.2. Environmental Precautions

Prevent entry to sewers and public waters.

6.3. Methods and Materials for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. As an immediate precautionary measure, isolate spill or leak area in all directions.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Absorb and/or contain spill with inert material. Do not take up in combustible material such as: saw dust or cellulosic material. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

6.4. Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Handle empty containers with care because residual vapors are flammable. DMSO increases the skin absorption of substances with it, and thereby their toxic effect may be greater than that of the substances alone. Care should be taken if working with DMSO and any other hazardous materials as they may be absorbed more readily by the skin.

Precautions for Safe Handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Avoid prolonged contact with eyes, skin and clothing. Avoid breathing vapors, mist, and spray. Take precautionary measures against static discharge. Use only non-sparking tools. Use appropriate personal protective equipment (PPE).

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations. Take action to prevent static discharges. Ground and bond container and receiving equipment. Use explosion-proof electrical, ventilating, and lighting equipment. Store contents under inert gas.

Storage Conditions: Store in a dry, cool and well-ventilated place. Hygroscopic. Store in glovebox, dry box or desiccator located in exhausted environment. Keep container tightly closed. Containers which are opened should be properly resealed and kept upright to prevent leakage. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials. Keep in fireproof place. Keep only in original container.

Incompatible Materials: Strong acids, strong bases, strong oxidizers. Strong reducing agents. Halogenated organic and mineral acids. Methylbromide. Sodium hydride. Halides. Metal salts of oxoacids. Metal salts. Zinc. Steel. Some plastics. Acid chlorides. Boron compounds.

Storage Temperature: 20-30°C

7.3. Specific End Use(s)

Ultra-low temperature, storage of biological material.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

Dimethyl sulfoxide (67-68-5)		
USA AIHA	WEEL TWA (ppm)	250 ppm

8.2. Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment: Gloves. Protective clothing. Protective goggles.

Materials for Protective Clothing: Chemically resistant materials and fabrics.



Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

Hand Protection: Wear protective gloves.

Eye and Face Protection: Chemical safety goggles.

Skin and Body Protection: In laboratory, medical or industrial settings, impervious disposable gloves and protective clothing are recommended if skin contact with the product is possible.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	Liquid
Appearance	Clear/colorless to slightly yellow
Odor	Odorless
Odor Threshold	Not available
pH	Not available
Evaporation Rate	Not available
Melting Point	Not available
Freezing Point	Not available
Boiling Point	Not available
Flash Point	Not available
Auto-ignition Temperature	Not available
Decomposition Temperature	Not available
Flammability (solid, gas)	Not applicable
Lower Flammable Limit	Not available
Upper Flammable Limit	Not available
Vapor Pressure	Not available
Relative Vapor Density at 20°C	Not available
Relative Density	Not available
Specific Gravity	1.1
Solubility	Miscible with water
Partition Coefficient: N-Octanol/Water	Not available
Viscosity	Not available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity: Hazardous reactions will not occur under normal conditions. Hazardous reactions may occur on contact with certain chemicals. Refer to incompatible materials.

10.2. Chemical Stability: Combustible liquid. May form flammable or explosive vapor-air mixture.

10.3. Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

10.4. Conditions to Avoid: Direct sunlight, extremely high or low temperatures, heat, hot surfaces, sparks, open flames, incompatible materials, and other ignition sources.

10.5. Incompatible Materials: Strong acids, strong bases, strong oxidizers. Strong reducing agents. Halogenated organic and mineral acids. Methylbromide. Sodium hydride. Halides. Metal salts of oxoacids. Metal salts. Zinc. Steel. Some plastics. Acid chlorides. Boron compounds.

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And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

10.6. Hazardous Decomposition Products: Thermal decomposition occurs at temperatures >190 °C (>374 °F). Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects - Product

Acute Toxicity (Oral): Not classified

Acute Toxicity (Dermal): Not classified

Acute Toxicity (Inhalation): Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Not classified. **pH:** Not available

Eye Damage/Irritation: Not classified. **pH:** Not available

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Prolonged exposure may cause irritation.

Symptoms/Injuries After Skin Contact: Prolonged exposure may cause skin irritation. DMSO easily penetrates the skin. DMSO may enhance the rate of skin absorption of skin-permeable substances.

Symptoms/Injuries After Eye Contact: May cause slight irritation to eyes.

Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects.

Chronic Symptoms: None known.

11.2. Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Dimethyl sulfoxide (67-68-5)	
LD50 Oral Rat	> 20000 mg/kg
LD50 Dermal Rat	≈ 40000 mg/kg
LC50 Inhalation Rat	> 5.33 mg/l/4h

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General: Not classified.

Dimethyl sulfoxide (67-68-5)	
LC50 Fish 1	34 g/l (Exposure time: 96 h - Species: Pimephales promelas)
LC50 Fish 2	33 - 37 g/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])

12.2. Persistence and Degradability

BS 100 (67-68-5)	
Persistence and Degradability	Not established.

12.3. Bioaccumulative Potential

BS 100 (67-68-5)	
Bioaccumulative Potential	Not established.
Dimethyl sulfoxide (67-68-5)	
Log Pow	-2.03

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And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

12.4. Mobility in Soil Not available

12.5. Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

Additional Information: Handle empty containers with care because residual vapors are flammable.

Ecology - Waste Materials: Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

14.1. In Accordance with DOT

Proper Shipping Name: COMBUSTIBLE LIQUID, N.O.S. (Dimethyl sulfoxide)
 Identification Number: NA1993
 Packing Group: III
 ERG Number : 128

14.2. In Accordance with IMDG Not regulated for transport

14.3. In Accordance with IATA Not regulated for transport

14.4. In Accordance with TDG Not regulated for transport

SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

BS 100 (67-68-5)	
SARA Section 311/312 Hazard Classes	Fire hazard
Dimethyl sulfoxide (67-68-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

15.2. US State Regulations

Dimethyl sulfoxide (67-68-5)
U.S. - New Jersey - Right to Know Hazardous Substance List

15.3. Canadian Regulations

Dimethyl sulfoxide (67-68-5)
Listed on the Canadian DSL (Domestic Substances List)

SECTION 16: OTHER INFORMATION

Other Information

This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR) SOR/2015-17.

GHS Full Text Phrases:

Flam. Liq. 4	Flammable liquids Category 4
H227	Combustible liquid

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

NA GHS SDS 2015 (Can, US, Mex)