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LF1 – IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier:

Name: Bovine Serum

Other means of identification: Not applicable

1.2 Relevant identified uses of the substance or mixture and uses advised against:

Relevant uses: Used in biotechnology. For professional users/industrial users only.

Uses advised against: All uses not specified in this section or in section 7.3.

1.3 Details of the supplier of the safety data sheet:

Company name: Bio Nutrientes do Brasil Ltda

Address: Estrada Municipal KM 02, Bairro Timburi – Distrito Industrial – Taciba/SP – Brazil

Telephone: +55 (18) 3345-1047 (PABX)

E-mail: lucas@bionutrientes.com.br – Lucas Tadeu de Amorim Cardoso

Website: www.bionutrientes.com.br

1.4 Emergency telephone number:

Company emergency phone (24h): Lucas Tadeu de Amorim Cardoso - +55 11 94141-5894

2- HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

The product is not classified as hazardous according to ABNT NBR 14725:2023, incorporating the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), Revision 7. This classification is based on the absence of criteria that justify assignment of physical, human health, or environmental hazard.

2.2 Label elements:

Since the product is not classified as hazardous, no hazard pictograms, signal word, hazard statements or precautionary statements are required. For additional information on safety and handling, see sections 11 and 12.

2.3 Other hazards

Not applicable. The product does not present other known hazards resulting in classification according to ABNT NBR 14725:2023.

3- COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Chemical description: Biological Product

Common or technical chemical name: Bovine Serum

3.2 Mixture

Not applicable

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4- FIRST AID MEASURES

4.1 Description of first aid measures

If discomfort or any symptoms occur after contact with the product, seek medical advice, bringing this Safety Data Sheet.

Inhalation:

If symptoms such as cough, breathing difficulty or airway irritation occur, remove the affected person to fresh air and seek immediate medical attention.

Skin contact:

In case of contact, wash the affected area with water and neutral soap. If skin changes (redness, rash, blisters) occur, consult a physician with this SDS.

Eye contact:

Rinse immediately with plenty of water keeping eyelids open. Remove contact lenses if present and easy to do. If irritation persists or if pain, redness or blurred vision occurs, seek medical attention with this SDS.

Ingestion/aspiration:

If accidentally ingested, do not induce vomiting. Rinse mouth with water. If conscious, give small amounts of water to drink. If large quantities are ingested or if the person shows symptoms such as nausea, vomiting, abdominal pain or breathing difficulty, seek medical assistance immediately. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed:

No significant acute or delayed symptoms or effects are expected under normal conditions of use and handling, as the product is not classified as hazardous. However, in cases of individual sensitivity, mild irritation to skin or mucous membranes may occur.

4.3 Indication of any immediate medical attention and special treatment needed:

No specific antidote. Treatment should be symptomatic and supportive, according to the patient's clinical condition. In case of emergency, contact a poison center or physician, bringing this SDS.

5- FIREFIGHTING MEASURES

5.1 Extinguishing media:

The product is non-flammable and presents low fire risk under normal conditions of storage, handling and use. In case of fire involving the product or nearby, any extinguishing agent may be used such as ABC powder, carbon dioxide (CO₂), foam, or water. Choice of extinguishing media should be based on type of combustible material present.

5.2 Special hazards arising from the substance or mixture:

Due to its non-flammable nature, the product does not present a fire risk under normal conditions of storage, handling and use.

5.3 Advice for firefighters:

Minimum emergency facilities and equipment must be available and in compliance with local regulations. Act according to the company's Internal Emergency Plan and instructions on actions to be taken after an accident or other emergencies.

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6- ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

In case of spill or leak, isolate the affected area and signal the site to prevent entry of unauthorized personnel. Use appropriate personal protective equipment (PPE), even though the product is not classified as hazardous, to avoid unnecessary contact. Ensure adequate ventilation in the area.

6.2 Environmental Precautions:

This product is not classified as hazardous to the environment. However, prevent spilled products from reaching drains, surface or groundwater, or soil. In case of watercourse or sewage contamination, notify environmental authorities.

6.3 Methods and material for containment and cleaning up:

It is recommended to absorb spills with inert and non-combustible material such as sand, earth, vermiculite or universal absorbent. Do not use sawdust or other combustible absorbents. Collect contaminated absorbent and spilled products in suitable, properly labeled and sealed containers for later disposal. For disposal concerns, see section 13. Wash spill area with water and soap after removal of contaminated material.

6.4 Reference to other sections:

For information on exposure controls and personal protection, see section 8. For disposal considerations, see section 13.

7- HANDLING AND STORAGE

7.1 Precautions for Safe Handling:

A - Precautions for safe handling

Comply with current legislation on industrial risk prevention. Keep containers tightly closed when not in use. Control spills and waste with safe methods (see section 6). Avoid container leaks. Maintain order and cleanliness in handling.

B - Technical recommendations for fire and explosion prevention

The product is non-flammable.

See section 10 about conditions and materials to avoid.

C - Technical recommendations to prevent ergonomic and toxicological risks

Do not eat, drink or smoke during handling. Wash hands carefully after using it with appropriate cleaning products.

D - Technical recommendations for environmental risk prevention

No special measures are required beyond general precautions to avoid discharge into sewage systems or water bodies. For more information, see subsection 6.2.

7.2 Conditions for safe storage, including any incompatibility:

A - Technical storage measures

Store in a dry, well-ventilated place, protected from direct sunlight, maintained between -18°C and -40°C . Keep containers tightly closed when not in use.

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B - General storage conditions

Avoid sources of heat, radiation, static electricity and contact with food. For additional information on incompatible materials, see subsection 10.5.

7.3 Specific end use(s):

Except for the instructions already specified, no special recommendations for use are required for this product.

8- EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters:

Occupational exposure limits: No occupational exposure limits established, since the substances contained in the product are not classified as hazardous to human health at present concentrations.

DNEL (Derived No-Effect Level) / PNEC (Predicted No-Effect Concentration): Not applicable, as the product does not contain substances requiring determination of these parameters under ABNT NBR 14725:2023, adopting the GHS.

8.2 Exposure Control:

A - General safety and hygiene measures at the workplace

As a preventive measure, use basic protective equipment with corresponding certification, in compliance with occupational safety and health directives. Maintain good personal hygiene practices, such as washing hands after handling the product and before eating, drinking or smoking. All information contained in this document consists of recommendations that may require additional specifications from occupational risk prevention services, as the specific conditions of the company may require complementary measures.

B - Respiratory protection

Use disposable face mask (e.g., surgical mask) during handling.

C - Hand protection

Use suitable protective gloves (e.g., nitrile, latex) to avoid prolonged or repeated skin contact, especially for sensitive individuals. Choice of gloves should consider duration of contact, permeation, and degradation of glove material.

D - Eye and face protection

Use safety glasses with side protection or face shield to avoid splashes on the eyes.

E - Body protection

Wear appropriate clothing to avoid direct contact with the product.

F - Additional emergency measures

No specific additional emergency measures are required beyond general safety and industrial hygiene practices.

Environmental exposure controls:

According to environmental legislation, avoid disposal of products and waste into the environment. For more information, see subsection 7.1.D and section 13.

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9- PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

For full information on the product's physicochemical properties, consult the product's technical data sheet.

Appearance

Physical state at 20°C: Liquid.

Appearance: Fluid.

Color: Reddish Amber.

Odor: Not available (no characteristic odor for identification or hazard).

Volatility

Boiling Point at Atmospheric Pressure: Not Applicable*

Vapor pressure at 20°C: Not applicable*

Vapor pressure at 50°C: Not applicable*

Evaporation rate at 20°C: Not applicable*

Product Description

Density at 20°C: 1030 kg/m³

Relative density at 20°C: 1.03

Dynamic viscosity at 20°C: Not applicable*

Kinematic viscosity at 20°C: Not applicable*

Kinematic viscosity at 40°C: Not applicable*

Concentration: Not applicable*

pH: 7.5 – 8.5

Vapor density at 20°C: Not applicable*

Partition coefficient n-octanol/water 20°C: Not applicable*

Solubility in water at 20°C: Not applicable*

Solubility properties: Not applicable*

Decomposition temperature: Not applicable*

Melting point/freezing point: Not applicable*

Flammability

Flash Point: Not applicable*

Autoignition temperature: Not applicable*

Lower Explosive Limit (LES): Not applicable*

Upper Explosive Limit (LSE): Not applicable*

9.2 Other information

Surface tension at 20°C: Not applicable*

Refractive index: Not applicable*

*Not relevant due to the nature of the product, not providing proprietary information about its hazards.

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10- STABILITY AND REACTIVITY

10.1 Reactivity

No hazardous reactions are expected because the product is stable under recommended storage conditions.

10.2 Chemical Stability

Product is chemically stable under recommended use and handling conditions.

10.3 Possibility of hazardous reactions

Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected.

10.4 Conditions to avoid.

Applicable for handling and storage at room temperature:

Friction and shock	Contact with air	Increase in temperature	Sunlight	Moisture
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

10.5 Incompatible Materials

Acids	Water	Combustible materials	Other
Not applicable	Not applicable	Not applicable	Avoid alkalis or strong bases

10.6 Hazardous decomposition products

Stable product. Thermal decomposition can release typical compounds of organic origin, such as carbon monoxide and carbon dioxide.

11- TOXICOLOGICAL INFORMATION

Toxicological effect information:

Not classified as an acute oral toxicant, according to GHS criteria.

Dangerous health implications:

In case of repetitive and prolonged exposure or in concentrations higher than recommended by the occupational limit exposure (if applicable), adverse health effects may result, depending on the means of exposure. However, for this product, the classification criteria for the following effects are not established, indicating low or no significant risk under normal use:

A - Intake

-Acute toxicity: Based on available data, classification criteria are not established.

-Corrosion/irritation: Based on available data, classification criteria are not established.

B - Inhalation

-Acute toxicity: Based on available data, classification criteria are not established.

-Corrosion/irritation: Based on available data, classification criteria are not established.

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C - Contact with eyes and skin

- Eye contact: Based on available data, classification criteria are not established.
- Skin contact: Based on available data, classification criteria are not established.

D - CMR effects (carcinogenicity, mutagenicity and reproductive toxicity):

- Carcinogenicity: Based on available data, classification criteria are not established.
- Mutagenicity: Based on available data, classification criteria are not established.
- Reproductive toxicity: Based on available data, classification criteria are not established.

E - Sensitizing effects

- Respiratory: Based on available data, classification criteria are not established.
- Cutaneous: Based on available data, classification criteria are not established.

F - Specific Target Organ Toxicity (STOT) - Exposure Time

Based on available data, the classification criteria are not established.

G - Specific Target Organ Toxicity (STOT) - Repeated Exposure

Based on available data, the classification criteria are not established.

H - Aspiration hazard

Based on available data, the classification criteria are not established.

Other information:

Not applicable.

Information on substance-specific toxicity:

Not applicable.

12- ECOLOGICAL INFORMATION

Experimental information related to the eco-toxicological properties of the product itself is not available.

12.1 Toxicity:

Unavailable.

12.2 Persistence and Degradability:

Unavailable.

12.3 Bioaccumulation potential:

Unavailable.

12.4 Ground mobility:

Unavailable.

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12.5 PBT and vPvB assessment results:

Not applicable.

12.6 Other adverse effects:

Not described.

13- CONSIDERATIONS ON TREATMENT AND DISPOSITION

13.1 Recommended methods for final disposal:

Product: The final disposal of the product must be carried out in accordance with current local and national environmental legislation. Consult an authorized waste service agent in the evaluation and disposal operations. It is not recommended to dispose of the product in drains, sewers or bodies of water, because, although it is not classified as dangerous, it can cause environmental impact due to its organic load.

Packaging used: Empty packaging must be disposed of in a safe and environmentally appropriate manner, in accordance with local legislation. Do not reuse the packaging.

14- TRANSPORTATION INFORMATION

The product "Bovine Serum" is not classified as dangerous for transport, according to the national and international regulations applicable to the different modes (land, sea and air). Therefore, the following information is "Not applicable".

14.1 UN Number: Not applicable

14.2 UN Appropriate Name for Shipment: Not Applicable

14.3 Transport hazard class: Not applicable

Labels: Not applicable

14.4 Packing Group: Not Applicable

14.5 Hazards to the environment: Not applicable

14.6 Special precautions for the user

Special regulations: Not applicable

Tunnel restriction code: Not applicable.

Physicochemical properties: See section 9.

Limited quantities: Not applicable

14.7 Bulk transport in accordance with Annex II to the Marpol Convention and the IBC Code:

Not applicable

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15- REGULATIONS

15.1 Safety, health and specific regulations/legislation for the substance or mixture:

This Safety Data Sheet (SDS) was prepared in accordance with ABNT NBR 14725:2023, which establishes the requirements for the classification of chemical products and the preparation of Safety Data Sheets in Brazil, incorporating the Globally Harmonized System (GHS) Revision 7.

Other applicable legislation:

Environmental legislation: Federal, state, and municipal laws and regulations related to the protection of the environment, waste and effluent disposal.

Sanitary legislation: Regulations of the National Health Surveillance Agency (ANVISA) that may be applicable to the product or its components.

Transport legislation: Regulations of the National Land Transport Agency (ANTT) for land transport of dangerous products, if applicable.

Specific provisions in terms of protecting people or the environment:

It is recommended to use the information included in this safety data sheet as data used in a risk assessment of local circumstances in order to establish the risk prevention measures necessary for the handling, use, storage and disposal of this product.

15.2 Chemical safety assessment:

Not performed

16- OTHER INFORMATION

Legislation on safety data sheets:

This Safety Data Sheet (SDS) was prepared in accordance with ABNT NBR 14725:2023, which unifies the previous parts of the standard and incorporates the 7th revision of the UN Globally Harmonized System (GHS) for the classification of chemicals and the preparation of Safety Data Sheets.

Modifications related to the previous version of the safety data sheet:

This version of the SDS (Version 02, Issue Date: Jul 16, 2025) replaces the previous SDS (Ref.: FSPQ-02, Version: 01). The main modifications include the adaptation to ABNT NBR 14725:2023, with revision and detailing of the sections to align with the requirements of GHS Revision 7, especially in sections 2, 3, 4, 8, 9, 11 and 12, and the inclusion of more detailed information on safety and security measures.

Texts of the legislative phrases indicated in section 3:

The phrases indicated do not refer to the product itself; They are present for informational purposes only and refer to the individual components that appear in Section 3, if there were any hazard classifications for them.

Training related recommendations:

A minimum of training is recommended to avoid industrial hazards for personnel handling this product in order to facilitate their understanding and interpretation of the safety data sheet as well as the product label. The training should address the information contained in this SDS and good safety practices and hygiene at work.

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Main bibliographic sources:

ABNT NBR 14725:2023 - Chemicals - Safety, health and environmental information - Hazard classification, chemical labeling and Safety Data Sheet.

Globally Harmonized System of Classification and Labeling of Chemicals (GHS), 7th Revised Edition, UN. BIOWEST. Bovine Serum – S0250. Available at: <https://biowest.net/serum-bovin-s0250/>. Accessed on: Jul 16, 2025.

Abbreviations and Acronyms:

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Dangerous Sea Goods Code

IATA: International Air Transport Association

ICAO: International Civil Aviation Organization

COD: Chemical Oxygen Demand

BOD5: 5 days of biochemical oxygen demand

BCF: Bioconcentration factor

LD50: Lethal Dose 50 (dose that causes death in 50% of the animals evaluated)

LC50: Lethal Concentration 50 (concentration that causes death in 50% of the animals evaluated)

EC50: Effective Concentration 50 (concentration that causes a specific effect in 50% of the organisms evaluated)

Log-POW: Octanol-water partition coefficient.

Koc: Organic carbon partition coefficient

DNEL: Derived No-Effect Level

PNEC: Predicted No-Effect Concentration

GHS: Globally Harmonized System

SDS: Safety Data Sheet

MSDS: Safety Data Sheet for Chemicals

CLP: Classification, Labelling and Packaging

DISCLAIMER: The information in this SDS has been obtained from sources that we believe to be reliable. However, the information is provided without any warranty, express or implied, as to its accuracy. The conditions or methods of handling, storing, using or disposing of the product are beyond our control and may not be known to us. For this and other reasons, we assume no responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, use, or disposal of the product. This Safety Data Sheet has been prepared and should be used for this product only. If the product is used as a component in another product, this SDS information may not be applicable.

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