LEADING LIFE TECHNOLOGIES

GENERAL SAFETY DATA SHEET

Fetal Bovine Serum (FBS)

Document number	SDS-FBS-GEN-002
Version	2.0
Preparation date	August 19, 2026
Product form	Frozen liquid biological material
Intended audience	Laboratory, cell-culture, and manufacturing users

IMPORTANT - GENERAL TEMPLATE

This document is a general SDS content model adapted from the supplied Leading Life Technologies FBS SDS and reformatted using the supplied CA01α general SDS template. It is not a manufacturer-issued, lot-specific regulatory determination. Leading Life Technologies must validate the exact product, lot, additives, processing, jurisdiction, supplier information, and all applicable requirements before release or operational use.

For laboratory research, cell culture, diagnostic reagent manufacturing, or further manufacturing only, as permitted by the product label. Not for direct administration to humans or animals. Not for food, drug, household, or therapeutic use unless specifically approved and labeled.

SECTION 1 - IDENTIFICATION

Product identifier	Fetal Bovine Serum (FBS)
Other means of identification	Fetal calf serum; bovine fetal serum; FBS
Product / catalog no.	FMS500; confirm applicable Leading Life Technologies catalog number(s) before final issue.
Recommended use	Laboratory research, cell culture, diagnostic reagent manufacturing, or further manufacturing, as permitted by the product label.
Restrictions on use	Not for direct administration to humans or animals; not for food, drug, household, or therapeutic use unless specifically approved and labeled.
Responsible party	Leading Life Technologies
Emergency telephone	650-996-6078

SECTION 2 - HAZARD(S) IDENTIFICATION

GHS / OSHA classification	Not classified as hazardous under the OSHA Hazard Communication Standard based on information available for generic, unmodified fetal bovine serum. A product-specific assessment is required.
Signal word	None required.
Hazard pictograms	None required.
Hazard statements	None required for a non-hazardous classification.
Biological caution	Animal-derived material. Sterile filtration, heat treatment, or irradiation may reduce certain risks but cannot guarantee absence of all adventitious agents. Handle using standard microbiological practices and the institution risk assessment.

Avoid contact with eyes and prolonged skin contact. Protein-containing aerosols or repeated exposure may cause irritation or sensitization in susceptible persons.

Frozen containers can cause cold injury. Dry ice used for shipment presents separate cold-burn, pressure, and carbon dioxide asphyxiation hazards.

Unknown acute toxicity: the natural mixture has not been fully tested; a numerical acute toxicity estimate is not available.

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Fetal bovine serum is a complex, naturally derived mixture of water, proteins, lipids, salts, hormones, and other biological constituents. Confirm the formulation before issue. Antibiotics, antimycotics, preservatives, anticoagulants, stabilizers, or other additives can change the classification and must be disclosed at applicable concentrations.

Component	Fetal bovine serum - complex naturally derived mixture.
Identifier	No single CAS number assigned.
Typical concentration	Nominally 100%.
Hazardous ingredients	No hazardous ingredient identified for disclosure in this general template.

SECTION 4 - FIRST-AID MEASURES

Eye contact	Rinse cautiously with clean water for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Obtain medical advice if irritation persists.
Skin contact	Remove contaminated clothing. Wash skin thoroughly with soap and water. Seek medical advice for persistent irritation, rash, or signs of allergic reaction.
Inhalation	Move to fresh air. Keep at rest. Obtain medical attention for breathing difficulty, wheezing, or persistent symptoms. Trained personnel should provide oxygen or resuscitation if needed.
Ingestion	Rinse mouth with water. Do not induce vomiting unless directed by medical personnel. Never give anything by mouth to an unconscious person. Seek medical advice if symptoms occur or a significant amount was swallowed.
Most important symptoms	Possible eye, skin, or respiratory irritation. Protein exposure may cause allergic symptoms in susceptible individuals. Delayed or chronic effects are not well characterized.
Medical attention	Treat symptomatically. Inform medical personnel that the material is animal-derived and provide the product label, SDS, and exposure details.

SECTION 5 - FIRE-FIGHTING MEASURES

Suitable extinguishing media	Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide as appropriate for the surrounding fire.
Unsuitable media	No product-specific restriction known. Avoid a high-pressure stream if it could spread contaminated material.
Specific hazards	The aqueous serum is not expected to be readily flammable. Heating to decomposition may produce irritating smoke and carbon oxides, nitrogen oxides, and other products typical of proteinaceous material.
Protective equipment	Firefighters should wear self-contained breathing

	apparatus and full protective clothing when conditions warrant. Prevent contaminated runoff from entering drains where practicable.
Dry ice shipments	Dry ice sublimes to carbon dioxide gas. Ventilate enclosed areas and never place dry ice in a sealed, unvented container.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions

Restrict access. Wear gloves, protective clothing, and eye protection. Avoid splashes and aerosol generation.

Ventilate the area if aerosols could have formed. For frozen spills, avoid direct skin contact and allow controlled thawing only as needed for cleanup.

Containment and cleanup

Absorb with inert material such as disposable towels or compatible absorbent. Place in a closed, labeled container for disposal.

Clean, then disinfect the affected surface using a validated agent and contact time compatible with the facility biosafety procedure. Do not mix disinfectants.

Prevent uncontrolled release to drains, soil, or surface water. Do not use compressed air or vigorous spraying for cleanup.

SECTION 7 - HANDLING AND STORAGE

Precautions for safe handling

Use trained laboratory personnel and standard microbiological practices. Follow the institutional biological risk assessment and exposure-control plan.

Avoid contact with eyes, skin, and clothing. Do not eat, drink, smoke, apply cosmetics, or mouth-pipette in handling areas.

Minimize aerosol generation. Keep containers closed when not in use, label secondary containers, and maintain lot traceability.

Conditions for safe storage

Follow the product label and certificate of analysis. Generic FBS is commonly stored frozen at or below -10 °C; many products specify approximately -20 °C. Product-specific instructions take precedence.

Protect from contamination and excessive heat. Avoid repeated freeze-thaw cycles. Use suitable freezer-rated containers and secondary containment.

If shipped with dry ice, store and unpack in a well-ventilated area. Never seal dry ice in an airtight vessel.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational limits	No OSHA permissible exposure limit (PEL), ACGIH threshold limit value (TLV), or other product-specific exposure limit is established for fetal bovine serum.
Engineering controls	General laboratory ventilation is normally adequate. Use containment or local exhaust for procedures that may generate aerosols. Provide access to an eyewash and safety shower.
Eye / face protection	Safety glasses with side shields. Use splash goggles or a face shield when splash risk is significant.
Skin protection	Disposable laboratory gloves, such as nitrile, and a lab coat or protective gown. Select glove material and change frequency for the full procedure and co-handled chemicals.
Respiratory protection	Not normally required for routine, closed handling. If aerosols cannot be controlled, use a site-specific respiratory protection program compliant with applicable regulations.
Hygiene measures	Wash hands after handling and before leaving the work area. Remove contaminated clothing and launder or dispose of it according to facility procedure.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Liquid when thawed; solid when frozen.
Color / odor	Clear light straw to dark amber; mild / characteristic odor; no specification.
pH	Approximately 6.8-8.1; verify lot specification.
Melting / freezing point	No generic value; freezes below 0 °C.
Water solubility	Dispersible / miscible.
Flash point / flammability	Not applicable or no data for aqueous mixture; not expected to be flammable.
Boiling point, vapor pressure, density, viscosity, explosive / oxidizing properties	No data available for the complex natural mixture.
Particle characteristics	Not applicable to liquid.

SECTION 10 - STABILITY AND REACTIVITY

Reactivity	No dangerous reaction expected under normal laboratory conditions.
Chemical stability	Stable when stored and handled according to product-specific instructions. Biological performance may deteriorate with contamination, excessive heat, or repeated freeze-thaw cycles.
Hazardous reactions	Hazardous polymerization is not expected.
Conditions to avoid	Excessive heat, uncontrolled thawing, contamination, repeated freeze-thaw cycles, and conditions that create aerosols.
Incompatible materials	Strong oxidizing agents and other highly reactive chemicals. Assess compatibility for disinfectants or co-handled reagents.
Hazardous decomposition products	On combustion or severe heating: carbon oxides, nitrogen oxides, smoke, and other irritating decomposition products.

SECTION 11 - TOXICOLOGICAL INFORMATION

Likely routes of exposure	Eye contact, skin contact, ingestion, or inhalation of aerosols.
Acute toxicity	No adequate numerical data are available for the natural mixture. Not expected to present acute systemic toxicity during normal laboratory handling.
Skin / eye irritation	May cause mild skin irritation with prolonged or repeated contact. Direct eye contact may cause temporary irritation. Product-specific test data are not available.
Sensitization	Animal proteins may cause allergic skin or respiratory responses in susceptible individuals, particularly after repeated exposure or aerosol generation.
Mutagenicity, carcinogenicity, reproductive toxicity, STOT	No data available for the mixture. Review IARC, NTP, and OSHA listings if additives are present.
Aspiration hazard / symptoms	Not expected based on aqueous physical form; no test data available. Possible redness, tearing, skin irritation, coughing, wheezing, or allergic response.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity	No product-specific aquatic or terrestrial toxicity data are available.
Persistence / degradability	Proteinaceous biological constituents are expected to be biodegradable, but standardized data are not available.
Bioaccumulative potential	No data available.
Mobility in soil	No data available. Thawed material is water dispersible.
PBT / vPvB assessment	Not assessed for this generic natural mixture.
Other adverse effects	Large releases may contribute organic load to water systems. Avoid uncontrolled environmental discharge.

SECTION 13 - DISPOSAL CONSIDERATIONS

Do not discharge unused product or concentrated spill residues to sinks, drains, soil, or surface water unless specifically permitted.

Dispose of serum, absorbents, contaminated disposables, and packaging in accordance with federal, state, local, and institutional requirements for biological laboratory waste.

Use an approved decontamination method when required by the facility biological-waste procedure. Do not autoclave sealed containers.

Waste classification depends on use. Serum contaminated with cells, microorganisms, recombinant material, hazardous chemicals, pharmaceuticals, or radioisotopes may require a different waste stream.

SECTION 14 - TRANSPORT INFORMATION

U.S. DOT	Not expected to be regulated as dangerous goods in its generic form.
IMDG	Not expected to be regulated as dangerous goods in its generic form.
IATA / ICAO	Not expected to be regulated as dangerous goods in its generic form.
UN number / shipping name / class / packing group	Not applicable to generic FBS.
Marine pollutant	Not expected.
Special precautions	Protect from damage and temperature excursion.

	Confirm origin, treatment, import permits, and carrier requirements.
Dry ice	Dry ice is a separate dangerous good (UN 1845, Class 9) and must be packaged, marked, labeled, documented, and vented as required. Reclassify if infectious-substance criteria are met.

SECTION 15 - REGULATORY INFORMATION

OSHA Hazard Communication	Generic, unmodified FBS is not classified as hazardous based on information used for this template. The responsible party must document the product-specific hazard determination.
Biological / import controls	Country of origin, animal health status, processing, intended use, and destination can trigger USDA APHIS or other national import, permit, traceability, and documentation requirements.
Chemical inventories	Not evaluated for this generic natural biological mixture. Inventory requirements may differ for additives or processing aids.
State / local requirements	Not evaluated. Assess applicable workplace, waste, right-to-know, and environmental requirements.

SECTION 16 - OTHER INFORMATION

Document number	SDS-FBS-GEN-002
Version	2.0
Preparation date	August 19, 2026
Revision summary	New general FBS SDS reformatted using the CA01α general SDS template.
Abbreviations	ACGIH - American Conference of Governmental Industrial Hygienists; FBS - fetal bovine serum; GHS - Globally Harmonized System; IATA - International Air Transport Association; IMDG - International Maritime Dangerous Goods; OSHA - Occupational Safety and Health Administration; PEL - permissible exposure limit; SDS - safety data sheet; STOT - specific target organ toxicity; TLV - threshold limit value.

DISCLAIMER

The information in this document is prepared as a general guide and is believed to be accurate based on the supplied reference material. It does not constitute a product specification, certificate of safety, regulatory determination, or warranty. Leading Life Technologies must verify the exact formulation, lot information, applicable processing, storage and transport conditions, regulatory status, and contact details before issuing this document as an official SDS. The user is responsible for safe handling and compliance with applicable requirements.