

Issuing Date 30-Nov-2015

Revision Date 21-Mar-2018

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1. PRODUCT AND COMPANY INFORMATION

Product Identifier

Product Name BOVINE SERA

Other means of identification

Product Code(s)	1600	1500	1300	2100	3100	4100
	89510-198	89510-194	89510-182	10158-360	10805-184	10018-828
	89510-200	89510-196	89510-184	10805-178	10799-384	10018-832
VWR Catalog Number(s)	97068-101	97068-085	89510-186	10158-358	10803-034	10018-826
	97068-102	97068-086	89510-188	10799-386	10805-180	10836-696
	97068-104	97068-088		10153-134	10805-182	10836-698
	97068-107	97068-091		10153-136	10799-390	10018-830

Synonyms FBS/BCS/Fetal Bovine Serum/Bovine Calf Serum/FB Essence
Other Information USA and USDA Approved Origin Countries (Mexico and Central America).

Recommended use of the chemical and restrictions on use

Recommended Use For further manufacturing or research use.
Uses advised against Not for therapeutic applications. NOT FOR HUMAN OR ANIMAL CONSUMPTION.

Details of the supplier of the safety data sheet

Company Address
VWR International, LLC
100 Matsonford Road
Radnor, PA 19087
Company Phone Number 1-866-508-7315
E-mail Address seradigmsupport@vwr.com

Emergency Telephone Number
Emergency Telephone Number Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.122)

Label elements

Emergency Overview

Appearance Yellowish-orange	Physical State Liquid	Odor Characteristic
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Hazards not otherwise classified (HNOC)

Not regulated

3. COMPOSITION/INFORMATION ON OTHER INGREDIENTS

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Synonyms FBS/BCS/Fetal Bovine Serum/Bovine Calf Serum/FB Essence

Chemical Name	CAS-No	EC No.	Weight %	Trade Secret
Bovine Blood	N	-	<=100	Not applicable
Inorganic Salts	N	-	<=40	Not applicable
Water	7732-18-5	231-791-2	<=25	Not applicable
Vitamins	N/A	-	<=2	Not applicable
Standard Cell Culture Media	N/A	-	<=1	Not applicable
Amino Acids	N/A	-	<=1	Not applicable
Ethanolamine	141-43-5	205-483-3	<=0.5	Not applicable
Ammonium Metavanadate	7803-55-6	232-261-3	<=0.5	Not applicable

4. FIRST AID MEASURES

First Aid Measures

- Eye Contact** Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
- Skin Contact** Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.
- Inhalation** Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
- Ingestion** Never give anything by mouth to an unconscious person. Rinse mouth.

Most important symptoms and effects, both acute and delayed

Most Important Symptoms

/Effects No information available.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media

Dry chemical, CO₂, water spray or regular foam.

Unsuitable Extinguishing Media No information available.

Specific Hazards Arising from the Chemical

No information available.

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Hazardous Combustion Products No information available.

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal protection Ensure adequate ventilation, especially in confined areas.

Environmental Precautions

Environmental Precautions See Section 12 for additional Ecological information.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up

Avoid dust formation. Pick up and transfer to properly labeled containers. Ventilate area and wash spill site after material pickup is complete.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Handling Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Store between -10 and -20 °C.

Incompatible Products Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Bovine Blood Component N/A	-	-	-
Inorganic Salts N/A	-	-	-
Water 7732-18-5	-	-	-
Vitamins N/A	-	-	-
Standard Cell Culture Media N/A	-	-	-

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Amino Acids N/A	-	-	-
Ethanolamine 141-43-5	6 ppm STEL TWA: 3 ppm	TWA: 3 ppm TWA: 6 mg/m ³	IDLH: 30 ppm TWA: 3 ppm TWA: 8 mg/m ³ STEL: 6 ppm STEL: 15 mg/m ³
Ammonium Metavanadate 7803-55-6	-	-	-

Appropriate engineering controls

Engineering Measures

Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/Face Protection

Safety glasses with side-shields.

Skin and Body Protection

Wear protective gloves/clothing.

Respiratory Protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State

Liquid

Appearance

Yellowish-orange

Odor

Characteristic

Color

Yellow-orange

Odor Threshold

No information available

Property

Values

Remarks • Method

pH

No information available

Melting point/freezing point

Boiling Point/Range

No information available

Flash Point (High in °C)

No information available

Evaporation Rate

No information available

Flammability (solid, gas)

No information available

Flammability Limit in Air

Upper flammability limit:

No information available

Lower flammability limit:

No information available

Vapor pressure

No information available

Vapor Density

No information available

Specific Gravity

No information available

Water Solubility

No information available

Solubility in other solvents

No information available

Partition coefficient

No information available

Autoignition Temperature

No information available

Decomposition Temperature

No information available

Kinematic viscosity

No information available

Dynamic viscosity

No information available

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Explosive Properties
Oxidizing Properties

No information available
No information available

Other Information

Softening Point
Molecular Weight
VOC Content
Density
Bulk Density

No information available
No information available
No information available
No information available
No information available

10. STABILITY AND REACTIVITY

Reactivity

No data available

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to Avoid

Extremes of temperature and direct sunlight.

Incompatible Materials

Strong oxidizing agents.

Hazardous Decomposition Products

No information available.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation

There is no data available for this product.

Eye Contact

There is no data available for this product.

Skin Contact

There is no data available for this product.

Ingestion

There is no data available for this product.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Bovine Blood Component N/A	-	-	-
Inorganic Salts N/A	-	-	-
Water 7732-18-5	> 90 mL/kg (Rat)	-	-
Vitamins N/A	-	-	-
Standard Cell Culture Media N/A	-	-	-
Amino Acids N/A	-	-	-
Ethanolamine 141-43-5	= 1720 mg/kg (Rat)	= 1 mL/kg (Rabbit) = 1000 mg/kg (Rabbit)	-
Ammonium Metavanadate 7803-55-6	= 58100 µg/kg (Rat) = 58.1 mg/kg (Rat)	= 2102 mg/kg (Rat)	= 7800 µg/m ³ (Rat) 4 h



Information on toxicological effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization No information available.

Mutagenic Effects No information available.

Carcinogenicity No information available.

Chemical Name	ACGIH	IARC	NTP	OSHA
Bovine Blood Component N/A	-	-	-	-
Inorganic Salts N/A	-	-	-	-
Water 7732-18-5	-	-	-	-
Vitamins N/A	-	-	-	-
Standard Cell Culture Media N/A	-	-	-	-
Amino Acids N/A	-	-	-	-
Ethanolamine 141-43-5	-	-	-	-
Ammonium Metavanadate 7803-55-6	-	-	-	-

Reproductive Toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document .

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Toxicity to Fish	Crustacea
Bovine Blood Component N/A	-	-	-
Inorganic Salts N/A	-	-	-
Water 7732-18-5	-	-	-
Vitamins N/A	-	-	-
Standard Cell Culture Media N/A	-	-	-
Amino Acids N/A	-	-	-

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Ethanolamine 141-43-5	15: 72 h Desmodemus subspicatus mg/L EC50	114 - 196: 96 h Oncorhynchus mykiss mg/L LC50 static 227: 96 h Pimephales promelas mg/L LC50 flow-through 300 - 1000: 96 h Lepomis macrochirus mg/L LC50 static 3684: 96 h Brachydanio rerio mg/L LC50 static 200: 96 h Oncorhynchus mykiss mg/L LC50 flow-through	65: 48 h Daphnia magna mg/L EC50
Ammonium Metavanadate 7803-55-6	-	1.5: 144 h Poecilia reticulata mg/L LC50	-

Persistence and Degradability

No information available.

Bioaccumulation/Accumulation

No information available.

Chemical Name	Partition coefficient
Bovine Blood Component N/A	-
Inorganic Salts N/A	-
Water 7732-18-5	-
Vitamins N/A	-
Standard Cell Culture Media N/A	-
Amino Acids N/A	-
Ethanolamine 141-43-5	-1.91
Ammonium Metavanadate 7803-55-6	-

Other Adverse Effects No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste Disposal Method

Dispose of material in accordance with all federal, state, and local regulations using a licensed waste disposal contractor. Safely dispose of spilled material and avoid contact with sewers, drains, water sources, and soil.

Contaminated Packaging

Do not re-use empty containers.

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Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Ethanolamine 141-43-5	-	-	-	-
Ammonium Metavanadate 7803-55-6	-	-	-	-

Chemical Name	RCRA - Halogenated Organic	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Bovine Blood Component N/A	-	-	-	-
Inorganic Salts N/A	-	-	-	-
Water 7732-18-5	-	-	-	-
Vitamins N/A	-	-	-	-
Standard Cell Culture Media N/A	-	-	-	-
Amino Acids N/A	-	-	-	-
Ethanolamine 141-43-5	-	-	-	-
Ammonium Metavanadate 7803-55-6	-	-	-	-

Chemical Name	California Hazardous Waste Status
Bovine Blood Component N/A	-
Inorganic Salts N/A	-
Water 7732-18-5	-
Vitamins N/A	-
Standard Cell Culture Media N/A	-
Amino Acids N/A	-
Ethanolamine 141-43-5	-
Ammonium Metavanadate 7803-55-6	-

14. TRANSPORTATION INFORMATION

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Note Bovine Serum is transported in the frozen state on dry ice.
DOT Not regulated
IATA Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA Does not comply
DSL/NDSL Does not comply
EINECS/ELINCS Does not Comply
ENCS Does not Comply
IECSC Does not Comply
KECL Does not Comply
PICCS Does not Comply
AICS Does not Comply

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372: N770 - Vanadium Compounds. SARA 313 Threshold Value: 1%

Component	SARA 313 - Threshold Values %
Bovine Blood Component N/A (<=100)	-
Inorganic Salts N/A (<=40)	-
Water 7732-18-5 (<=25)	-
Vitamins N/A (<=2)	-
Standard Cell Culture Media N/A (<=1)	-
Amino Acids N/A (<=1)	-
Ethanolamine 141-43-5 (<=0.5)	-
Ammonium Metavanadate 7803-55-6 (<=0.5)	-

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SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Bovine Blood Component N/A	-	-	-	-
Inorganic Salts N/A	-	-	-	-
Water 7732-18-5	-	-	-	-
Vitamins N/A	-	-	-	-
Standard Cell Culture Media N/A	-	-	-	-
Amino Acids N/A	-	-	-	-
Ethanolamine 141-43-5	-	-	-	-
Ammonium Metavanadate 7803-55-6	-	-	-	-

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

Chemical Name	California Prop. 65
Bovine Blood Component - N/A	-
Inorganic Salts - N/A	-
Water - 7732-18-5	-
Vitamins - N/A	-
Standard Cell Culture Media - N/A	-
Amino Acids - N/A	-
Ethanolamine - 141-43-5	-
Ammonium Metavanadate - 7803-55-6	-

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Bovine Blood Component N/A	-	-	-
Inorganic Salts N/A	-	-	-

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Water 7732-18-5	-	-	-
Vitamins N/A	-	-	-
Standard Cell Culture Media N/A	-	-	-
Amino Acids N/A	-	-	-
Ethanolamine 141-43-5	X	X	X
Ammonium Metavanadate 7803-55-6	X	-	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not regulated

16. OTHER INFORMATION

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Revision Date 24-Feb-2016
Revision Note No information available

Disclaimer

The information provided on this SDS 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.

End of Safety Data Sheet