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Revision Number 7

## 1. PRODUCT AND COMPANY INFORMATION

Product Identifier

**Product Name** AVANTOR SERADIGM  
BOVINE SERA

Other means of identification

Product Code(s)	1600	1500	1300	1700	2100	3100	4100
	89510-198	89510-194	89510-182	76294-120	10158-360	10805-184	10018-828
	89510-200	89510-196	89510-184	76294-178	10158-358	10799-384	10018-832
<b>VWR Catalog Number(s)</b>	97068-101	97068-085	89510-186	76294-180	10153-134	10803-034	10018-826
	97068-102	97068-086	89510-188	76294-122	10153-136	10805-180	10836-696
	97068-104	97068-088		76294-124		10805-182	10836-698
	97068-107	97068-091		76294-182		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**

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

Not regulated

## 3. COMPOSITION/INFORMATION ON OTHER INGREDIENTS

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

Chemical Name	CAS-No	EC No.	Weight %	Trade Secret
Bovine Blood Component	N	-	<=100	Not applicable

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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

<b>Eye Contact</b>	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
<b>Skin Contact</b>	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.
<b>Inhalation</b>	Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
<b>Ingestion</b>	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, CO<sub>2</sub>, water spray or regular foam.

**Unsuitable Extinguishing Media** No information available.

### Specific Hazards Arising from the Chemical

No information available.

**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.

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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	-	-	-
Amino Acids N/A	-	-	-
Ethanolamine 141-43-5	6 ppm STEL TWA: 3 ppm	TWA: 3 ppm TWA: 6 mg/m <sup>3</sup>	IDLH: 30 ppm TWA: 3 ppm TWA: 8 mg/m <sup>3</sup> STEL: 6 ppm STEL: 15 mg/m <sup>3</sup>
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.

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**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

<b>Physical State</b>	Liquid	<b>Odor</b>	Characteristic
<b>Appearance</b>	Yellowish-orange	<b>Odor Threshold</b>	No information available
<b>Color</b>	Yellow-orange		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
<b>pH</b>	No information available	
<b>Melting point/freezing point</b>		
<b>Boiling Point/Range</b>	No information available	
<b>Flash Point (High in °C)</b>	No information available	
<b>Evaporation Rate</b>	No information available	
<b>Flammability (solid, gas)</b>	No information available	
<b>Flammability Limit in Air</b>		
<b>Upper flammability limit:</b>	No information available	
<b>Lower flammability limit:</b>	No information available	
<b>Vapor pressure</b>	No information available	
<b>Vapor Density</b>	No information available	
<b>Specific Gravity</b>	No information available	
<b>Water Solubility</b>	No information available	
<b>Solubility in other solvents</b>	No information available	
<b>Partition coefficient</b>	No information available	
<b>Autoignition Temperature</b>	No information available	
<b>Decomposition Temperature</b>	No information available	
<b>Kinematic viscosity</b>	No information available	
<b>Dynamic viscosity</b>	No information available	
<b>Explosive Properties</b>	No information available	
<b>Oxidizing Properties</b>	No information available	

### Other Information

<b>Softening Point</b>	No information available
<b>Molecular Weight</b>	No information available
<b>VOC Content</b>	No information available
<b>Density</b>	No information available
<b>Bulk Density</b>	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.

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## 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 <sup>3</sup> ( 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

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

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Ammonium Metavanadate 7803-55-6	-
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**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.

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 Compounds	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	-

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Ethanolamine 141-43-5	-
Ammonium Metavanadate 7803-55-6	-

## 14. TRANSPORTATION INFORMATION

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

## 15. REGULATORY INFORMATION

### International Inventories

<b>TSCA</b>	Does not comply
<b>DSL/NDSL</b>	Does not comply
<b>EINECS/ELINCS</b>	Does not Comply
<b>ENCS</b>	Does not Comply
<b>IECSC</b>	Does not Comply
<b>KECL</b>	Does not Comply
<b>PICCS</b>	Does not Comply
<b>AICS</b>	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 )	-



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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	-	-	-
Water 7732-18-5	-	-	-

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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 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**