1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product name: BSA, Molecular Biology Grade
Product No: B9000

Recommended use of the chemical and restrictions on use:
Recommended use: This product is for research and development only
Uses advised against: No information available

Details of the supplier of the safety data sheet:
Supplier Address: New England BioLabs
240 County Road
Ipswich, MA 01938
USA

Company Phone Number: 978-927-5054
800-632-5227 (toll free)

Telefax: 978-921-1350
E-mail address: info@neb.com
Emergency telephone number: 978-927-5054
800-632-5227 (toll free)
9:00am - 5:00pm Monday-Friday EST

Specification No: No information available
2. HAZARDS IDENTIFICATION

Emergency Overview
May cause adverse kidney effects

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Colorless</th>
<th>Physical state</th>
<th>Liquid</th>
<th>Odor</th>
<th>Mild</th>
</tr>
</thead>
</table>

Principle Routes of Exposure

Acute toxicity

Inhalation
May be harmful if inhaled.

Eyes
Redness. May cause slight irritation.

Skin
Prolonged contact may cause redness and irritation. Repeated exposure may cause skin dryness or cracking.

Ingestion
May cause drowsiness or dizziness. Ingestion causes burns of the upper digestive and respiratory tracts. Symptoms include burning sensation, coughing, wheezing, shortness of breath, headache, nausea, and vomiting.

Chronic Effects

Chronic toxicity
No information available

Symptoms
No information available.

Aggravated Medical Conditions

Interactions with Other Chemicals
No information available

Environmental hazard
See Section 12: ECOLOGICAL INFORMATION

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol</td>
<td>56-81-5</td>
<td>30-60</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>30-60</td>
</tr>
<tr>
<td>Bovine Serum Albumin</td>
<td>9048-46-8</td>
<td>1-5</td>
</tr>
<tr>
<td>Potassium Chloride</td>
<td>7447-40-7</td>
<td>1-5</td>
</tr>
<tr>
<td>Tris-HCl</td>
<td>1185-53-1</td>
<td>0.1-1</td>
</tr>
<tr>
<td>Ethylenediamine tetraacetic acid</td>
<td>60-00-4</td>
<td>0.1-1</td>
</tr>
</tbody>
</table>

The product contains no substances which at their given concentration, are considered to be hazardous to health

4. FIRST AID MEASURES

General advice
Immediate medical attention is required. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove from exposure, lie down. Do not breathe dust/fume/gas/mist/vapors/spray.

Eye contact
Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact
Wash skin with soap and water.

Inhalation
Remove to fresh air.

Ingestion
Clean mouth with water and drink afterwards plenty of water.

### 5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media**
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable extinguishing media**
CAUTION: Use of water spray when fighting fire may be inefficient.

**Specific hazards arising from the chemical**
No information available

**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.

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Stability</th>
<th>Special Hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Physical hazards</th>
<th>Personal protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Ensure adequate ventilation, especially in confined areas.

**Personal protective equipment [PPE]**
Use personal protection recommended in Section 8.

**Environmental precautions**
See Section 12 for additional Ecological Information.

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

**Methods for cleaning up**
Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. This material and its container must be disposed of as hazardous waste.

### 7. HANDLING AND STORAGE

**Advice on safe handling**
Handle in accordance with good industrial hygiene and safety practice.

**Storage temperature**
Refer to www.neb.com for specific information.

**Storage Conditions**
Keep/store only in original container.

**Incompatible materials**
None known based on information supplied.

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**Product name**  BSA, Molecular Biology Grade  
**Page** 3 / 8  
**Product No** B9000  
**Specification No**  No information available
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol 56-81-5</td>
<td>-</td>
<td>TWA: 15 mg/m³ mist, total particulate&lt;br&gt; TWA: 5 mg/m³ mist, respirable fraction&lt;br&gt; (vacated) TWA: 10 mg/m³ mist, total particulate&lt;br&gt; (vacated) TWA: 5 mg/m³ mist, respirable fraction</td>
<td>-</td>
</tr>
</tbody>
</table>

Other information
Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992)

Engineering controls
Showers. Eyewash stations.

Personal protective equipment (PPE)

Eye/face protection
Wear safety glasses with side shields (or goggles).

Skin and body protection
Wear suitable protective clothing and gloves.

Respiratory protection
Use in well ventilated areas.

General hygiene considerations
Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Mild</td>
</tr>
<tr>
<td>pH</td>
<td>Refer to <a href="http://www.neb.com">www.neb.com</a> for specific information</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>No information available</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>No information available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td>No information available</td>
</tr>
<tr>
<td>Upper flammability limit</td>
<td>No information available</td>
</tr>
<tr>
<td>Lower flammability limit</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No information available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No information available</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>No information available</td>
</tr>
<tr>
<td>Water solubility</td>
<td>No information available</td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No information available</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No information available</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>No information available</td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>No information available</td>
</tr>
</tbody>
</table>

Product name  BSA, Molecular Biology Grade

Product No  B9000

Specification No  No information available
10. STABILITY AND REACTIVITY

Reactivity
No data available.

Stability
Stable under normal conditions.

Possibility of hazardous reactions
Can react briskly with oxidizers - danger of explosion.

Conditions to avoid
Incompatible materials, Ignition sources, Heat.

Incompatible materials
Strong oxidizing agents.

Hazardous decomposition products
Thermal decomposition can lead to release of irritating and toxic gases and vapors. Carbon monoxide. Carbon dioxide (CO2).

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product information
Product does not present an acute toxicity hazard based on known or supplied information.

Inhalation
Avoid breathing vapors or mists. May cause irritation of respiratory tract.

Eye contact
Redness. May cause slight irritation.

Skin contact
Prolonged contact may cause redness and irritation. Repeated exposure may cause skin dryness or cracking.

Ingestion
May cause drowsiness or dizziness. Ingestion causes burns of the upper digestive and respiratory tracts. Symptoms include burning sensation, coughing, wheezing, shortness of breath, headache, nausea, and vomiting.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol</td>
<td>= 12600 mg/kg (Rat)</td>
<td>&gt; 10 g/kg (Rabbit)</td>
<td>&gt; 570 mg/m³ (Rat) 1 h</td>
</tr>
<tr>
<td>Water</td>
<td>&gt; 90 mL/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Potassium Chloride</td>
<td>= 2600 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ethylenediamine tetraacetic acid</td>
<td>= 1700 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Chronic toxicity
Skin corrosion/irritation Mild
Serious eye damage/eye irritation: Mild
Irritation: Mild
Corrosivity: Mild
Sensitization
  Skin: No information available
  Respiratory: No information available
Germ cell mutagenicity: No information available
Carcinogenicity: No information available
Reproductive toxicity: No information available
Developmental toxicity: No information available
Teratogenicity: No information available
STOT - single exposure: No information available
STOT - repeated exposure: No information available
Chronic toxicity: No information available
Subchronic toxicity: No information available
Target organ effects: Eyes, Kidneys, Respiratory system, Skin.
Neurological effects: No information available
Other adverse effects: No information available
Aspiration hazard: No information available

12. ECOLOGICAL INFORMATION

Marine pollutant: No information available
Ecotoxicity: No information available

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol</td>
<td></td>
<td>51 - 57: 96 h Oncorhynchus mykiss mL/L LC50 static</td>
<td>500: 24 h Daphnia magna mg/L EC50</td>
</tr>
<tr>
<td>Potassium Chloride</td>
<td>2500: 72 h Desmodesmus subspicatus mg/L EC50</td>
<td>1060: 96 h Lepomis macrochirus mg/L LC50 static</td>
<td>825: 48 h Daphnia magna mg/L EC50 83: 48 h Daphnia magna mg/L EC50 Static</td>
</tr>
<tr>
<td>Ethylenediamine tetraacetic acid</td>
<td>1.01: 72 h Desmodesmus subspicatus mg/L EC50</td>
<td>44.2 - 76.5: 96 h Pimephales promelas mg/L LC50 static</td>
<td>113: 48 h Daphnia magna mg/L EC50 Static</td>
</tr>
</tbody>
</table>

Persistence and degradability: No information available
Bioaccumulation: No information available
Mobility: No information available

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Partition coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol</td>
<td>-1.76</td>
</tr>
</tbody>
</table>

Other adverse effects: No information available
Ozone depletion potential (ODP): No information available

13. DISPOSAL CONSIDERATIONS

Relevant Information

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Product name: BSA, Molecular Biology Grade
Page: 6 / 8
Product No: B9000
Specification No: No information available
Keep out of drains, sewers, ditches and waterways.

Disposal considerations
Use a licensed professional waste disposal service to dispose of this product. Product may be dissolved in a combustible solvent or absorbed onto a combustible material and burned by a chemical incinerator.

Contaminated packaging
Empty containers must be tripled rinsed prior to disposal.

14. TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>DOT</th>
<th>Not regulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDG</td>
<td>Not regulated</td>
</tr>
<tr>
<td>MEX</td>
<td>Not regulated</td>
</tr>
<tr>
<td>ICAO (air)</td>
<td>Not regulated</td>
</tr>
<tr>
<td>IATA</td>
<td>Not regulated</td>
</tr>
<tr>
<td>IMDG</td>
<td>Not regulated</td>
</tr>
<tr>
<td>RID</td>
<td>Not regulated</td>
</tr>
<tr>
<td>ADR</td>
<td>Not regulated</td>
</tr>
<tr>
<td>ADN</td>
<td>Not regulated</td>
</tr>
</tbody>
</table>

15. REGULATORY INFORMATION

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol</td>
<td>Present</td>
<td>X</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Water</td>
<td>Present</td>
<td>X</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Bovine Serum Albumin</td>
<td>Present</td>
<td>X</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Potassium Chloride</td>
<td>Present</td>
<td>X</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Tris-HCl</td>
<td>Present</td>
<td>X</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Ethylenediamine tetraacetic acid</td>
<td>Present</td>
<td>X</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

Legend
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

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

CWA (Clean Water Act)
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylenediamine tetraacetic acid</td>
<td>5000 lb</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA/SARA RQ</th>
<th>Reportable Quantity (RQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylenediamine tetraacetic acid</td>
<td>5000 lb</td>
<td>-</td>
<td>RQ 5000 lb final RQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RQ 2270 kg final RQ</td>
</tr>
</tbody>
</table>

International Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Carcinogenicity</th>
<th>Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol</td>
<td>-</td>
<td>Mexico: TWA 10 mg/m³</td>
</tr>
</tbody>
</table>

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

16. OTHER INFORMATION

Prepared by: EH&S Manager
978-927-5054
Prepared by: New England BioLabs
Issue date: No data available
Revision note: SDS is valid 3 years from revision date. Contact info@neb.com for latest revision

Disclaimer
IMPORTANT: The information in this SDS is provided in good faith based on our knowledge as of the issue date (or subsequent revision date, if any), and is to be used only as a guide. This SDS does not constitute a guarantee (express or implied) of any kind and we make no warranties or merchantability or fitness for a particular purpose. This information relates only to the designated product as shipped and may not be valid if the product is used in combination with any other materials or is not used in accordance with our instructions. It is the responsibility of the buyer/user to ensure that its activities comply with all applicable governmental requirements. Since conditions of use of the product are not under the control of New England Biolabs, it is the duty of the buyer/user to determine the necessary conditions for the safe use of the product. New England Biolabs will not be liable for any damages resulting from handling or contact with the product.

End of Safety Data Sheet