1. IDENTIFICATION

1.1. Product identifier

Product name: Disodium Succinate
Chemical name: Sodium succinate anhydrous

CAS number: 150-90-3
EC number: 205-778-7
Index number: Not applicable
Registration number: Not applicable

1.2. Relevant identified uses of the substance and uses advised against

Relevant identified uses: Flavor enhancer in food
Uses advised against: Not available

1.3. Details of the supplier of the safety data sheet

Name: BIOAMBER Inc.
Address: 3850 Annapolis Lane North
       Plymouth, MN 55447, USA
Phone: +1 519 344 0065 #110
Contact email: Sarnia.CustomerService@bio-amber.com

1.4. Emergency phone number

Phone: For Hazardous Materials [or Dangerous Goods] Incidents
Spill, Leak, Fire, Exposure, or Accident, Call CHEMTREC Day or Night:
Within USA and Canada: 1-800-424-9300
Outside USA and Canada: +1 703-527-3887 (collect calls accepted)
France: + 33 (9) 75 18 14 07
Germany: 0800 – 181 - 7059
Holland: + 31 (8) 58 88 05 96
Belgium: + 32 (2) 80 83 237
Poland: + 48 (2) 23 98 80 29
Japan (Tokyo): + 81 (3) 45 20 96 37
China: 4001 – 204937
South Korea: 00 – 3087 – 13 – 2549
Taiwan: 00801 – 14 – 8954

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or the mixture

2.1.1. Classification of the substance according to DSD (67/548/EC)

Xi; Irritant R36/37/38 Irritating to eyes, respiratory system and skin

2.1.2. Classification of the substance according to CLP (1272/2008/EC)

Skin Irrit. 2 H315 Causes skin irritation
2.2. Label elements according to the regulation (EC) n° 1272/2008 (CLP)

Hazard pictograms

- Warning

Signal word

Hazard statements

- H315 Causes skin irritation
- H319 Causes serious eye irritation
- H335 May cause respiratory irritation

Precautionary statements - Prevention

- P280 Wear protective gloves/protective clothing/eye protection/face protection
- P261 Avoid breathing dust/fume/gas/mist/vapors/spray

Precautionary Statement - Response

- P362 Take off contaminated clothing and wash before reuse
- P312 Call a POISON CENTER or doctor/physician if you feel unwell

Precautionary Statement - Storage

- P403 + P233 Store in a well ventilated place. Keep container tightly closed

Precautionary Statement - Disposal

- P501 Dispose of container as conventional waste in accordance with all national regulations

2.3. Other hazards

Routes of entry

Inhalation, ingestion, and dermal and eye contact

Potential health effects

- Inhalation: May be harmful if inhaled. Causes respiratory tract irritation
- Skin: May be harmful if absorbed through skin. Causes skin irritation
- Eyes: Causes eye irritation
- Ingestion: May be harmful if swallowed

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS Nr.</th>
<th>EC Nr.</th>
<th>Index Nr.</th>
<th>Concentration [%]</th>
<th>Classification DSD/CLP</th>
<th>Specific concentration limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium</td>
<td>150-90-3</td>
<td>205-778-7</td>
<td>-</td>
<td>98 - 100</td>
<td>Xi; R36/37/38</td>
<td>-</td>
</tr>
</tbody>
</table>
4. FIRST AID MEASURES

4.1. Description of first aid measures

General descriptions
Call a POISON CENTER or doctor/physician if you feel unwell. Show this safety data sheet to the doctor to help him provide the right assistance. Move away from the danger zone.

After inhalation
Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, perform artificial respiration. Consult a doctor.

After skin contact
Wash with soap and plenty of water. If skin irritation occurs: Get medical advice/attention.

After eye contact
Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. If eye irritation persists get medical advice/attention.

After ingestion
Never administer anything by mouth to an unconscious person. Rinse the mouth with water. Consult a doctor.

4.2. Most important symptoms and effects, both acute and delayed
Not determined

4.3. Indication of immediate medical attention and special treatment
Treat symptomatically

5. FIREFIGHTING MEASURES

5.1. Extinguishing media

Appropriate: water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Inappropriate: not determined

5.2. Special hazards arising from the substance or mixture
Hazardous decomposition products formed under fire conditions: carbon oxides, sodium oxides

5.3. Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.
6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

6.2. Environmental precautions
Do not let the product get into the drains.

6.3. Methods and material for containment and cleaning up
Gather and dispose of without creating dust. Store in closed containers that are appropriate for disposal.

6.4. Reference to other sections
Refer to sections 7, 8 and 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling
Avoid contact with skin and eyes. Use only outdoors or in a well-ventilated area. Wash thoroughly after handling. Provide appropriate ventilation in locations where dust is generated. Apply the usual preventive measures for protecting against fire.

7.2. Conditions for safe storage, including any incompatibilities
Use tightly sealed containers and store them in a dry and well-ventilated space. Store locked up.

7.3. Specific end use(s)
Not available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters
Contains no substances with occupational exposure limit values.

8.2. Exposure controls

Appropriate engineering controls
Use mechanical exhaust or laboratory fume hood to avoid exposure. Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Personal protective equipment
Respiratory protection: If the risk assessment shows that gas masks with air purifying filters are appropriate, use a type N95 mask (US) or a type P1 (EN 143) respirator. For higher level protection use type OV/AG/P99 (US) or type
ABEK-P2 (EU EN 143) respirator cartridges. Use masks that have been tested and approved to the appropriate standards such as NIOSH (US) or CEN (EU).

**Hand protection**: Wear gloves when handling. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Select bodily protection measures depending on the quantity and concentration of the hazardous substance in the workplace.

**Eye protection**: Wear eye protection/face protection. Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

**Hygiene measures**: Handle in accordance with industrial good hygiene and safety practices. Wash hands before breaks, after handling and at the end of the day.

### Environmental exposure controls

Not available

**9. PHYSICAL AND CHEMICAL PROPERTIES**

#### 9.1. Information of basic physical and chemical properties

- **Physical state**: Solid
- **Colour**: White
- **Odour**: Not available
- **Odour threshold**: Not applicable
- **pH**: Not applicable
- **Melting point / range**: Not available
- **Boiling point / range**: Not available
- **Flashpoint**: Not available
- **Evaporation rate**: Not available
- **Auto-ignition temperature**: Not available
- **Flammability**: Not flammable
- **Upper/Lower flammability or explosive limits**: Not available
- **Vapour pressure**: Not available
- Vapor density Not available
- Relative density Not available
- Water solubility Not available
- Other solvents Not available
- Partition coefficient n-Octanol/Water (log \( P_{O/W} \)) Not available
- Decomposition temperature Not available
- Viscosity Not applicable
- Explosion properties Not available
- Oxidizing properties Not available

9.2. Other information
None

10. STABILITY AND REACTIVITY

10.1. Reactivity Not available
10.2. Chemical stability Stable under the recommended storage conditions.
10.3. Possibility of hazardous reactions Not available
10.4. Conditions to avoid Not available
10.5. Incompatible materials Strong oxidising agents, strong acids
10.6. Hazardous decomposition materials Hazardous decomposition products formed under fire conditions: carbon oxides, sodium oxides.

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects
- Acute Toxicity Oral LD\(_{50}\) : not available
11.2. Other information
None

12. ECOLOGICAL INFORMATION

12.1. Toxicity
Not available

12.2. Persistence and degradability
Not available

12.3. Bioaccumulation potential
Not available

12.4. Mobility in the soil
Not available

12.5. Results of PBT and vPvB assessment
Not a PBT or vPvB
12.6. Other adverse effects
Not available

12.7. Additional information
Not available

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods
*Product:* Respect the regulations in force. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact an accredited service professional for disposal of this product.

*Contaminated packaging:* dispose of with unused product

13.2. Waste code numbers / Waste identification
13.2.1. Waste code numbers product
Not available

13.2.2 Waste identification of uncleaned packaging
Not available

14. TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th></th>
<th>Overland transport (ADR/RID)</th>
<th>River transport (ADN)</th>
<th>Sea transport (IMDG)</th>
<th>Air transport (ICAO-TI / IATA-DGR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.1. UN Number</td>
<td></td>
<td></td>
<td></td>
<td>Not regulated</td>
</tr>
<tr>
<td>14.2. UN proper shipping name</td>
<td></td>
<td></td>
<td></td>
<td>Not regulated</td>
</tr>
<tr>
<td>14.3. Transport hazard classes</td>
<td></td>
<td></td>
<td></td>
<td>Not regulated</td>
</tr>
<tr>
<td>14.4. Packing group</td>
<td></td>
<td></td>
<td></td>
<td>Not regulated</td>
</tr>
<tr>
<td>14.5. Environmental hazards</td>
<td></td>
<td></td>
<td></td>
<td>Not regulated</td>
</tr>
<tr>
<td>14.6. Classification</td>
<td></td>
<td></td>
<td></td>
<td>Not regulated</td>
</tr>
<tr>
<td>14.7. Classification code</td>
<td></td>
<td></td>
<td></td>
<td>Not regulated</td>
</tr>
<tr>
<td>14.8. Danger</td>
<td></td>
<td></td>
<td></td>
<td>Not regulated</td>
</tr>
</tbody>
</table>
14.9. Limited amount (LQ)  Not regulated

14.10. Additional information  -

14.11. Special precautions for user  
Not available

14.12. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code  
Not available

15. REGULATORY INFORMATION

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

<table>
<thead>
<tr>
<th>U.S. Regulations:</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSHA Hazards: Irritant</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS Classification:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health hazard: 2</td>
</tr>
<tr>
<td>Flammability: 0</td>
</tr>
<tr>
<td>Physical hazards: 0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SARA 302 Components:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SARA 313 Components:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SARA 311/312 Hazards:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Health Hazard</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Massachusetts Right To Know Components:</th>
</tr>
</thead>
<tbody>
<tr>
<td>No components are subject to the Massachusetts Right to Know Act.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pennsylvania Right To Know Components:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disodium succinate CAS-No.150-90-3 Revision Date</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>New Jersey Right To Know Components:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disodium succinate CAS-No.150-90-3 Revision Date</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>California Prop. 65 Components:</th>
</tr>
</thead>
<tbody>
<tr>
<td>This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Canadian Regulations:</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHMIS Classification:</td>
</tr>
<tr>
<td>D2B Toxic Material Causing Other Toxic Effects</td>
</tr>
<tr>
<td>Moderate skin irritant</td>
</tr>
<tr>
<td>Moderate respiratory irritant</td>
</tr>
<tr>
<td>Moderate eye irritant</td>
</tr>
</tbody>
</table>

15.2. Chemical safety  
A chemical safety report was not assessed for this substance by the supplier
16. OTHER INFORMATION

16.1. Indication on the revision
Creation of the SDS on Feb 21 2013.

16.2. Abbreviations and acronyms
ADN/ADNR: Regulations concerning the transport of dangerous substances in barges on inland waterways.

ADR/RID: European Agreement concerns the International Carriage of Dangerous Goods by Road/
Regulations concerning the international carriage of dangerous goods by rail.

ANSI: American National Standards Institute

CAS No.: Chemical Abstract Service Number

CFR: Code of Federal Regulations

CLP: Classification, Labeling and Packaging

DSD: Dangerous Substance Directive

DPD: Dangerous Preparation Directive

EC No.: European Commission Number

IATA: International Air Transport Associations

IMDG: International Maritime Dangerous Goods code

NFPA: National Fire Protection Association

PBT: Persistent, Bioaccumulative, Toxic

RCRA: The Resource Conservation and Recovery Act

UN No.: United Nations Number

UVCB: Substances of Unknown or Variable composition, Complex reaction products or Biological materials

vPvB: very Persistent and very Bioaccumulative

WHMIS: Workplace Hazardous Materials Information System

16.3. Key literature references and sources for data
Not available

16.4. Classification of mixtures und applied evaluation method
16.5. Wording of the R- and H-phrases (which are not written in full under section 2 to 15)

- Risk phrases: -

- H statements: -

16.6. Training advice

Unavailable

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship. By using suitable industrial safety precautions, it is paramount to make sure that the relevant exposition measures at the workplace are adhered to, and negative health effects are avoided.