1. IDENTIFICATION

1.1 Product identification

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product name</td>
<td>Disodium Succinate</td>
</tr>
<tr>
<td>Chemical name</td>
<td>Sodium succinate anhydrous</td>
</tr>
<tr>
<td>CAS</td>
<td>150-90-3</td>
</tr>
<tr>
<td>EC number</td>
<td>205-778-7</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>BIOAMBER Inc.</td>
</tr>
<tr>
<td>Address</td>
<td>3850 Annapolis Lane North</td>
</tr>
<tr>
<td></td>
<td>Plymouth, MN 55447, USA</td>
</tr>
<tr>
<td>Phone</td>
<td>+1 519 344 0065 #110</td>
</tr>
<tr>
<td>Contact email</td>
<td><a href="mailto:Sarnia.CustomerService@bio-amber.com">Sarnia.CustomerService@bio-amber.com</a></td>
</tr>
</tbody>
</table>

1.4 Emergency phone number

For Hazardous Materials 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)

2. HAZARD IDENTIFICATION

2.1 OSHA Hazards: Irritant

2.2 WHMIS Classification

- D2B Toxic Material Causing Other Toxic Effects
  - Moderate skin irritant
  - Moderate respiratory irritant
  - Moderate eye irritant

2.3 GHS Classification

- Skin irritation (Category 2)
- Eye irritation (Category 2A)
- Specific target organ toxicity - single exposure (Category 3)

2.4 GHS Label elements, including precautionary statements

Pictogram

<table>
<thead>
<tr>
<th>Signal word</th>
<th>Hazard statement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>H315:</td>
</tr>
<tr>
<td></td>
<td>Causes skin irritation.</td>
</tr>
</tbody>
</table>
H319 : Causes serious eye irritation.
H335 : May cause respiratory irritation.

Precautionary statement(s)

P261 : Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P305 + P351 + P338 : IF IN EYES, Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.5. HMIS Classification

Health hazard: 2
Flammability: 0
Physical hazards: 0

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.

2.6. NFPA Rating

Health hazard: 2
Fire: ............................0
Reactivity Hazard:........0

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Common name/Synonyms</th>
<th>CAS number</th>
<th>EC number</th>
<th>[%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium succinate anhydrous</td>
<td>Sodium succinate dibasic Succinic acid disodium salt</td>
<td>150-90-3</td>
<td>205-778-7</td>
<td>98-100</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

4.1 First aid description

General instructions Consult a doctor. Show this safety data sheet to the doctor to help him/her provide the right assistance. Move away from the danger zone.

If inhaled If inhaled, get the person in question into fresh air. If they are no longer breathing, perform artificial respiration. Consult a doctor.

In the event of skin contact Rinse with soap and plenty of water. Consult a doctor.

In the event of contact with the eyes Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a physician.

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

4.2 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. FIREFIGHTING MEASURES

Conditions of flammability Not flammable or combustible.

Suitable extinguishing media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products Hazardous decomposition products formed under fire conditions. - Carbon oxides, Sodium oxides
6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures
Use personal protection equipment. Avoid producing dust. Avoid breathing vapors, mist or gas. Ensure that ventilation is adequate.

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

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

7. HANDLING AND STORAGE

7.1. Precautions to be taken for safe handling
Avoid contact with skin and eyes. Avoid producing dust or aerosols. Provide appropriate ventilation in locations where dust is generated. The usual preventive measures for protecting against fire.

7.2. Safe storage conditions, including any incompatibilities
Use tightly sealed containers and store them in a dry and well-ventilated space.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters
Exposure limits
OSHA: Not established
ACGIH: Not established

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

Personal protection equipment
Eye/face 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).

Skin/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.

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).

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

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information about the essential physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>White</td>
</tr>
<tr>
<td>Odour</td>
<td>Not available</td>
</tr>
<tr>
<td>pH</td>
<td>Not available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Not available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Not available</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Not available</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not available</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>Not available</td>
</tr>
<tr>
<td>Partition coefficient:</td>
<td>Not available</td>
</tr>
<tr>
<td>n-octanol/water</td>
<td>Not available</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

10.1. Chemical stability
Stable under the recommended storage conditions.

10.2. Potential for dangerous reactions
Not available

10.3. Conditions to be avoided
Not available

10.4. Incompatible materials
Strong oxidising agents, strong acids

10.5. Dangerous decomposition products
Hazardous decomposition products formed under fire conditions: carbon oxides, sodium oxides.

11. TOXICOLOGICAL INFORMATION

11.1. Information about toxicological effects

Routes of Entry
Inhalation, ingestion, and dermal and eye contact

Acute toxicity
Oral LD<sub>50</sub>: no data available
Inhalation LC<sub>50</sub> no data available
Dermal LD<sub>50</sub> no data available
Intravenous (mouse) LD<sub>50</sub> : 4 500 mg/kg

Skin corrosion/skin irritation
No data available
Severe eye injuries/eye irritation: no data available
Respiratory or cutaneous sensitisation: no data available
Stem cell mutagenicity: no data available
Carcinogenicity: IARC: No component of the product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC
ACGIH: No component of the product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH
Reproductive toxicity: No data available.
Teratogenicity/Embryotoxicity: No data available.
Specific toxicity for various target organs - single exposure (GHS): Inhalation. May cause respiratory irritation.
Specific toxicity for various target organs - repeated exposure (GHS): No data available
Hazards due to aspiration: No data available
Toxicologically Synergistic Materials: No data available.

11.2. Potential health effects
Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion: May be harmful if swallowed.
Cutaneous: May be harmful if absorbed through skin. Causes skin irritation.
Eye: Causes eye irritation.

12. ECOLOGICAL INFORMATION

12.1. Toxicity: No data available
12.2. Persistence and degradability: No data available
12.3. Bioaccumulation potential: No data available
12.4. Mobility in the soil: No data available
12.5. Results of PBT and vPvB evaluations: No data available
12.6. Other undesirable effects: No data available

13. DISPOSAL CONSIDERATIONS

13.1. Waste handling methods: Respect the regulations in force. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact an accredited
14. INFORMATION FOR TRANSPORT

DOT [US]. Not dangerous goods.

IMDG. Not dangerous goods.

IATA. Not dangerous goods.

15. REGULATORY INFORMATION

OSHA Hazards : Irritant
SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components
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.
SARA 311/312 Hazards: Acute Health Hazard

Massachusetts Right To Know Components : No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components :
Disodium succinate CAS-No.150-90-3 Revision Date

New Jersey Right To Know Components
Disodium succinate CAS-No.150-90-3 Revision Date

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

WHMIS Classification
D2B Toxic Material Causing Other Toxic Effects
Moderate skin irritant
Moderate respiratory irritant
Moderate eye irritant

16. OTHER INFORMATION

16.1. Information about the revision

SDS created on Aug 23 2012.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. BioAmber Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.