1. IDENTIFICATION

1.1 Product identification

Product name: Disodium Succinate
Chemical name: Sodium succinate anhydrous
CAS: 150-90-3
EC number: 205-778-7

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

Name: BIOAMBER SARNIA Inc.
Address: 1201 Vidal St. South
Sarnia ON N7T 7M2 CANADA
Phone: +1 519 344 0065 #110
Contact email: Sarnia.CustomerService@bio-amber.com

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

Signal word: Warning

Hazard statement(s):
H315: Causes skin irritation.
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
Explosion data - sensitivity to mechanical impact: no data available
Explosion data - sensitivity to static discharge: no data available
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>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<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

<table>
<thead>
<tr>
<th>Route of Entry</th>
<th>Toxicity details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation, ingestion, and dermal and eye contact</td>
<td>Oral LD$_{50}$: no data available</td>
</tr>
<tr>
<td></td>
<td>Inhalation LC$_{50}$: no data available</td>
</tr>
<tr>
<td></td>
<td>Dermal LD$_{50}$: no data available</td>
</tr>
<tr>
<td></td>
<td>Intravenous (mouse) LD$_{50}$: 4500 mg/kg</td>
</tr>
<tr>
<td>Skin corrosion/skin irritation</td>
<td>no data available</td>
</tr>
<tr>
<td>Severe eye injuries/eye irritation</td>
<td>no data available</td>
</tr>
<tr>
<td>Respiratory or cutaneous sensitisation</td>
<td>no data available</td>
</tr>
<tr>
<td>Stem cell mutagenicity</td>
<td>no data available</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>IARC: No component of the product present at levels greater than or equal to</td>
</tr>
</tbody>
</table>

BIOA-SDS-TEC-057  Creation date: August 18 2015  ™ Trademark owned by BioAmber Inc., used under licence  © 2015 BioAmber Inc. All Rights Reserved.
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
Teratogenicity/Embryotoxicity
Specific toxicity for various target organs - single exposure (GHS)
Specific toxicity for various target organs - repeated exposure (GHS)
Hazards due to aspiration
Toxicologically Synergistic Materials

11.2. Potential health effects
Inhalation
Ingestion
Cutaneous
Eye

12. ECOLOGICAL INFORMATION

12.1. Toxicity
12.2. Persistence and degradability
12.3. Bioaccumulation potential
12.4. Mobility in the soil
12.5. Results of PBT and vPvB evaluations
12.6. Other undesirable effects

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 service professional for disposal of this product.
Contaminated packaging: dispose of with unused product

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 SDS

SDS created on August 18 2015 by BioAmber Sarnia Inc.

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.