1 Identification

- Product identifier
  - Trade name: Succinic acid natural
  - Product number: 1288
  - CAS Number: 110-15-6
  - EC number: 203-740-4
- Application of the substance / the mixture: Food flavorings

- Details of the supplier of the safety data sheet
  - Manufacturer/Supplier: Advanced Biotech
    10 Taft Road
    Totowa, NJ 07512 USA
  - Information department: Product safety department
    sarfa@adv-bio.com
  - Emergency telephone number:
    1(800)535-5053 (Info Trac)
    1(352)323-3500 (International)
    During normal business hours: 1(973)339-6242

2 Hazard(s) identification

- Classification of the substance or mixture
  
  GHS07

  Eye Irrit. 2A H319 Causes serious eye irritation.

- Label elements: Harmful in contact with skin or if inhaled.
- GHS label elements
  Pictograms on label shall be in the shape of a square set at a point and shall include a black hazard symbol on a white background with a red frame sufficiently wide to be clearly visible.
  The substance is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms

  GHS07

- Signal word: Warning
- Hazard statements
  H319 Causes serious eye irritation.
- Precautionary statements
  P280 Wear eye protection / face protection.
  P264 Wash thoroughly after handling.
  P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  P337+P313 If eye irritation persists: Get medical advice/attention.

(Continued on page 2)
Trade name: Succinic acid natural

- Classification system:
  - NFPA ratings (scale 0 - 4)
    - Health = 1
    - Fire = 1
    - Reactivity = 0
  - HMIS-ratings (scale 0 - 4)
    - HEALTH: Health = 1
    - FIRE: Fire = 1
    - REACTIVITY: Reactivity = 0
- Other hazards
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.

3 Composition/information on ingredients

- Chemical characterization: Substances
- CAS No. Description
  110-15-6 succinic acid
- Identification number(s)
  - EC number: 203-740-4

4 First-aid measures

- Description of first aid measures
  - After inhalation: Supply fresh air; consult doctor in case of complaints.
  - After skin contact: Generally the product does not irritate the skin.
  - After eye contact:
    - Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
  - After swallowing:
    - If symptoms persist consult doctor.
- Information for doctor:
  - Most important symptoms and effects, both acute and delayed
    - No further relevant information available.
  - Indication of any immediate medical attention and special treatment needed
    - No further relevant information available.

5 Fire-fighting measures

- Extinguishing media
  - Suitable extinguishing agents:
    - CO2, powder or alcoholresistant foam.
    - Use fire fighting measures that suit the environment.
  - Special hazards arising from the substance or mixture
    - No further relevant information available.
  - Advice for firefighters
  - Protective equipment: No special measures required.
  - Additional information
    - Cool endangered receptacles with water spray.
Trade name: Succinic acid natural

Collect contaminated fire fighting water separately. It must not enter the sewage system.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures: Not required.
- Environmental precautions: Do not allow to enter sewers/surface or ground water.
- Methods and material for containment and cleaning up: Pick up mechanically.
- Reference to other sections
  - See Section 7 for information on safe handling.
  - See Section 8 for information on personal protection equipment.
  - See Section 13 for disposal information.

7 Handling and storage

- Handling:
  - Precautions for safe handling: No special precautions are necessary if used correctly.
  - Information about protection against explosions and fires: No special measures required.
- Conditions for safe storage, including any incompatibilities
  - Storage:
    - Requirements to be met by storerooms and receptacles: No special requirements.
    - Information about storage in one common storage facility: Not required.
    - Further information about storage conditions: Keep receptacle tightly sealed.
- Specific end use(s): No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
- Control parameters
  - Components with limit values that require monitoring at the workplace: Not required.
  - Additional information: The lists that were valid during the creation were used as a basis.
- Exposure controls
  - Personal protective equipment:
    - General protective and hygienic measures:
      - Keep away from foodstuffs, beverages and feed.
      - Immediately remove all soiled and contaminated clothing.
      - Wash hands before breaks and at the end of work.
      - Avoid contact with the eyes.
      - Avoid contact with the eyes and skin.
    - Breathing equipment: Not required.
    - Protection of hands:
      - The glove material has to be impermeable and resistant to the product/substance/prepare.
      - Due to missing tests no recommendation to the glove material can be given for the product/prepare/chemical mixture.
      - Selection of the glove material should be based on consideration of the penetration times, rates of diffusion and the degradation.
    - Material of gloves:
      - The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

(Continued on page 4)
### 9 Physical and chemical properties

- **Penetration time of glove material**
  The exact breakthrough time has to be determined by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**
  Tightly sealed goggles

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Information</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
</tr>
<tr>
<td>Form</td>
<td>Solid</td>
</tr>
<tr>
<td>Color</td>
<td>White</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>pH-value</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Change in condition</strong></td>
<td></td>
</tr>
<tr>
<td>Melting point/Melting range</td>
<td>184 °C (363 °F)</td>
</tr>
<tr>
<td>Boiling point/Boiling range</td>
<td>235 °C (455 °F)</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>&gt; 110 °C (&gt; 230 °F)</td>
</tr>
<tr>
<td><strong>Flammability (solid, gaseous)</strong></td>
<td>Product is not flammable.</td>
</tr>
<tr>
<td><strong>Ignition temperature</strong></td>
<td>630 °C (1166 °F)</td>
</tr>
<tr>
<td><strong>Decomposition temperature</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Auto igniting</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Danger of explosion</strong></td>
<td>Product does not present an explosion hazard.</td>
</tr>
<tr>
<td><strong>Explosion limits</strong></td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Upper</td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Vapor pressure</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Density at 20 °C (68 °F):</strong></td>
<td>0.6 g/cm³ (5.007 lbs/gal)</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Vapour density</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Solubility in / Miscibility with Water</strong></td>
<td>70 g/l</td>
</tr>
<tr>
<td>at 20 °C (68 °F):</td>
<td></td>
</tr>
<tr>
<td><strong>Partition coefficient (n-octanol/water)</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td></td>
</tr>
<tr>
<td>Dynamic</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Kinematic</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>
10 Stability and reactivity

- Reactivity
  - Chemical stability
  - Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
  - Possibility of hazardous reactions: No dangerous reactions known.
  - Conditions to avoid: No further relevant information available.
  - Incompatible materials: No further relevant information available.
  - Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- Information on toxicological effects
- Acute toxicity:
  - LD/LC50 values that are relevant for classification:
    - 110-15-6 succinic acid
    - Oral LD50 2260 mg/kg (rat)
  - Primary irritant effect:
    - on the skin: No irritant effect.
    - on the eye: Irritating effect.
  - Sensitization: No sensitizing effects known.
  - Additional toxicological information:
    - Carcinogenic categories
      - IARC (International Agency for Research on Cancer)
        Substance is not listed.
      - NTP (National Toxicology Program)
        Substance is not listed.
      - OSHA-Ca (Occupational Safety & Health Administration)
        Substance is not listed.

12 Ecological information

- Toxicity
- Aquatic toxicity: No further relevant information available.
- Persistence and degradability: No further relevant information available.
- Behavior in environmental systems:
- Bioaccumulative potential: No further relevant information available.
- Mobility in soil: No further relevant information available.

(Continued on page 6)
Trade name: Succinic acid natural

- Additional ecological information:
- General notes:
  Water hazard class 1 (Assessment by list): slightly hazardous for water
  Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.
- Other adverse effects No further relevant information available.

<table>
<thead>
<tr>
<th>13 Disposal considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Waste treatment methods</td>
</tr>
<tr>
<td>· Recommendation:</td>
</tr>
<tr>
<td>Must not be disposed of together with household garbage. Do not allow product to reach sewage system.</td>
</tr>
<tr>
<td>· Uncleaned packagings:</td>
</tr>
<tr>
<td>· Recommendation:</td>
</tr>
<tr>
<td>Disposal must be made according to official regulations.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14 Transport information</th>
</tr>
</thead>
<tbody>
<tr>
<td>· UN-Number</td>
</tr>
<tr>
<td>Not Regulated</td>
</tr>
<tr>
<td>· DOT, ADR, ADN, IMDG, IATA</td>
</tr>
<tr>
<td>· UN proper shipping name</td>
</tr>
<tr>
<td>Not Regulated</td>
</tr>
<tr>
<td>· DOT, ADR, ADN, IMDG, IATA</td>
</tr>
<tr>
<td>· Transport hazard class(es)</td>
</tr>
<tr>
<td>· DOT, ADR, ADN, IMDG, IATA</td>
</tr>
<tr>
<td>· Class</td>
</tr>
<tr>
<td>Not Regulated</td>
</tr>
<tr>
<td>· Packing group</td>
</tr>
<tr>
<td>Not Regulated</td>
</tr>
<tr>
<td>· DOT, ADR, IMDG, IATA</td>
</tr>
<tr>
<td>· Environmental hazards:</td>
</tr>
<tr>
<td>Marine pollutant:</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>· Special precautions for user</td>
</tr>
<tr>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</td>
</tr>
<tr>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Transport/Additional information:</td>
</tr>
<tr>
<td>Not dangerous according to the above specifications.</td>
</tr>
<tr>
<td>· UN &quot;Model Regulation&quot;:</td>
</tr>
<tr>
<td>-</td>
</tr>
</tbody>
</table>
## 15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - **Sara**
  - **Section 355 (extremely hazardous substances):** Substance is not listed.
  - **Section 313 (Specific toxic chemical listings):** Substance is not listed.
  - **TSCA (Toxic Substances Control Act):** Substance is listed.
  - **Proposition 65**
    - **Chemicals known to cause cancer:** Substance is not listed.
    - **Chemicals known to cause reproductive toxicity for females:** Substance is not listed.
    - **Chemicals known to cause reproductive toxicity for males:** Substance is not listed.
    - **Chemicals known to cause developmental toxicity:** Substance is not listed.
- **Carcinogenic categories**
  - **EPA (Environmental Protection Agency)** Substance is not listed.
  - **TLV (Threshold Limit Value established by ACGIH)** Substance is not listed.
  - **NIOSH-Ca (National Institute for Occupational Safety and Health)** Substance is not listed.
- **GHS label elements**
  - The substance is classified and labeled according to the Globally Harmonized System (GHS).
  - **Hazard pictograms**
    - Pictograms on label shall be in the shape of a square set at a point and shall include a black hazard symbol on a white background with a red frame sufficiently wide to be clearly visible.

- **Signal word** Warning
- **Hazard statements**
  - H319 Causes serious eye irritation.
- **Precautionary statements**
  - P280 Wear eye protection / face protection.
  - P264 Wash thoroughly after handling.
  - P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - P337+P313 If eye irritation persists: Get medical advice/attention.
Trade name: Succinic acid natural

16 Other information

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.

- Department issuing SDS: Product safety department
- Contact: Sidney Arfa
- Date of preparation / last revision 06/25/2015 / -
- Abbreviations and acronyms:
  ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  IMDG: International Maritime Code for Dangerous Goods
  DOT: US Department of Transportation
  IATA: International Air Transport Association
  ACGIH: American Conference of Governmental Industrial Hygienists
  EINECS: European Inventory of Existing Commercial Chemical Substances
  CAS: Chemical Abstracts Service (division of the American Chemical Society)
  NFPA: National Fire Protection Association (USA)
  HMIS: Hazardous Materials Identification System (USA)
  LC50: Lethal concentration, 50 percent
  LD50: Lethal dose, 50 percent
  Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A