1 Identification

- Product identifier
- Trade name: Succinic Acid synthetic
- Product number: 2267
- 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

DISCLAIMER: The information in this Safety Data Sheet (SDS) is believed to be correct as of the date issued. Advanced Biotech makes NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the Advanced Biotech product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of an Advanced Biotech product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the Advanced Biotech product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.

- Manufacturer/Supplier:
  Advanced Biotech
  10 Taft Road
  Totowa, NJ 07512 USA

- Information department:
  Product Safety Department
  productsafety@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).

(Continued on page 2)
### 2. Hazard pictograms

GHS07

- **Signal word**: Warning
- **Hazard statements**: H319 Causes serious eye irritation.

**Precautionary statements**
- P264 Wash thoroughly after handling.
- P280 Wear eye protection / face protection.
- 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.

### 3. Classification system

- **NFPA ratings (scale 0 - 4)**
  - Health = 2
  - Fire = 1
  - Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**
  - Health = 2
  - Fire = 1
  - Reactivity = 0

**Other hazards**

- **Results of PBT and vPvB assessment**
  - PBT: Not applicable.
  - vPvB: Not applicable.

### 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.
5 Fire-fighting measures

- Extinguishing media
- Suitable extinguishing agents:
  - CO2, powder or alcohol-resistant foam.
  - CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant 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.
  - 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.
- Protective Action Criteria for Chemicals
  - PAC-1:
    - 6.8 mg/m³
  - PAC-2:
    - 75 mg/m³
  - PAC-3:
    - 450 mg/m³

7 Handling and storage

- Handling:
  - Precautions for safe handling: No special precautions are necessary if used correctly.
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:

  Protective gloves

  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the 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.
  - Penetration time of glove material
    The exact break through time has to be determined by the manufacturer of the protective gloves and has to be observed.

(Continued on page 5)
**9 Physical and chemical properties**

- **Information on basic physical and chemical properties**
  - **General Information**
  - **Appearance:**
    - Form: Solid
    - Color: According to product specification
  - **Odor:**
    - Odor: According to product specification
    - Odor threshold: Not determined.
  - **pH-value:** Not applicable.

- **Change in condition**
  - **Melting point/Melting range:** 184 °C (363.2 °F)
  - **Boiling point/Boiling range:** 235 °C (455 °F)

- **Flash point:** >110 °C (>230 °F)

- **Flammability (solid, gaseous):** Product is not flammable.

- **Ignition temperature:** 630 °C (1,166 °F)

- **Decomposition temperature:** Not determined.

- **Auto igniting:** Not determined.

- **Danger of explosion:** Product does not present an explosion hazard.

- **Explosion limits:**
  - Lower: Not determined.
  - Upper: Not determined.

- **Vapor pressure:** Not applicable.

- **Density at 20 °C (68 °F):** 0.6 g/cm³ (5.007 lbs/gal)

- **Relative density:** Not determined.

- **Vapor density:** Not applicable.

- **Evaporation rate:** Not applicable.

- **Solubility in / Miscibility with Water at 20 °C (68 °F):** 70 g/l

- **Partition coefficient (n-octanol/water):** Not determined.

- **Viscosity:**
  - Dynamic: Not applicable.
Safety Data Sheet
acc. to OSHA HCS

Trade name: Succinic Acid synthetic

Kinematic: Not applicable.
VOC content: 0.00 %
0.0 g/l / 0.00 lb/gal
Solids content: 100.0 %
Other information: No further relevant information available.

10 Stability and reactivity
- Reactivity: No further relevant information available.
- 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:
    - ATE (Acute Toxicity Estimate)
      Oral LD50 2,260 mg/kg (rat)
    - CAS: 110-15-6 succinic acid
      Oral LD50 2,260 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.
Safety Data Sheet
acc. to OSHA HCS

Printing date 08/24/2018 Reviewed on 03/31/2018

Trade name: Succinic Acid synthetic

(Continuation of page 6)

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.
- 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.

13 Disposal considerations

- Waste treatment methods
  Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- Uncleaned packagings:
  Recommendation: Disposal must be made according to official regulations.

14 Transport information

- UN-Number
  DOT, ADR, ADN, IMDG, IATA: Not Regulated

- UN proper shipping name
  DOT, ADR, ADN, IMDG, IATA: Not Regulated

- Transport hazard class(es)
  DOT, ADR, ADN, IMDG, IATA: Not Regulated

- Packing group
  DOT, ADR, IMDG, IATA: Not Regulated

- Environmental hazards:
  Marine pollutant: No

- Special precautions for user: Not applicable.

(Continued on page 8)
Trade name: Succinic Acid synthetic

<table>
<thead>
<tr>
<th>Safety, health and environmental regulations/legislation specific for the substance or mixture</th>
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<td>· Section 355 (extremely hazardous substances):</td>
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<td>· Section 313 (Specific toxic chemical listings):</td>
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<td>· Proposition 65</td>
</tr>
<tr>
<td>· Chemicals known to cause cancer:</td>
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<td>· Chemicals known to cause reproductive toxicity for females:</td>
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<td>· TLV (Threshold Limit Value established by ACGIH)</td>
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<td>· NIOSH-Ca (National Institute for Occupational Safety and Health)</td>
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15 Regulatory information

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(Continued on page 9)
Trade name: Succinic Acid synthetic

- **Hazard pictograms**

  ![GHS07]

  - **Signal word** Warning
  - **Hazard statements**
    - H319 Causes serious eye irritation.
  - **Precautionary statements**
    - P264 Wash thoroughly after handling.
    - P280 Wear eye protection / face protection.
    - 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.
  - **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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### 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:**
  - Product Safety Department
  - productsafety@adv-bio.com
- **Date of preparation / last revision** 08/24/2018 / -
- **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)
  - VOC: Volatile Organic Compounds (USA, EU)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - NIOSH: National Institute for Occupational Safety
  - OSHA: Occupational Safety & Health
  - TLV: Threshold Limit Value
  - PEL: Permissible Exposure Limit
  - REL: Recommended Exposure Limit
  - Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A