1 Identification

· Product identifier
  · Trade name: Nonenal 1% in Triethyl Citrate natural
  · Product number: 1494
  · CAS Number: 18829-56-6 / 77-93-0
  · EINECS Number: 242-609-6 / 201-070-7
  · 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
  · 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
  · The product is not classified according to the Globally Harmonized System (GHS).

· Label elements
  · 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.
  · Hazard pictograms: Not Applicable
  · Signal word: Not Applicable
  · Hazard statements: Not Applicable

· Classification system:
  · NFPA ratings (scale 0 - 4)
    Health = 0  Fire = 1  Reactivity = 0

· HMIS-ratings (scale 0 - 4)
  HEALTH 0  
  FIRE 1  
  REACTIVITY 0

· Other hazards
  · Results of PBT and vPvB assessment
    · PBT: Not applicable.
3 Composition/information on ingredients

- Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.

<table>
<thead>
<tr>
<th>Dangerous components:</th>
</tr>
</thead>
<tbody>
<tr>
<td>18829-56-6 Nonenal</td>
</tr>
<tr>
<td>Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335</td>
</tr>
<tr>
<td>1.0%</td>
</tr>
</tbody>
</table>

4 First-aid measures

- Description of first aid measures
- General information: No special measures required.
- 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.
- 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.
  - 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:
  - Dilute with plenty of water.
  - Do not allow to enter sewers/ surface or ground water.
- Methods and material for containment and cleaning up:
  - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

(Continued on page 3)
7 Handling and storage

- Handling:
  - Precautions for safe handling: No special measures required.

- 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: None.
  - 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:
  - The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

- 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:
    - The usual precautionary measures for handling chemicals should be followed.
  - Breathing equipment: Not required.

- Protection of hands:
  - 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. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- 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.
9. Physical and chemical properties

- Information on basic physical and chemical properties
  - General Information
    - Appearance:
      - Form: Liquid
      - Color: Colorless to pale yellow
      - Odor: Fatty
      - Odour threshold: Not determined.
      - pH-value: Not determined.
    - Change in condition
      - Melting point/Melting range: Undetermined.
      - Boiling point/Boiling range: Undetermined.
    - Flash point: > 110 °C (> 230 °F)
    - Flammability (solid, gaseous): Not applicable.
    - Ignition temperature:
      - Decomposition temperature: Not determined.
      - Auto igniting: Product is not selfigniting.
      - Danger of explosion: Product does not present an explosion hazard.
    - Explosion limits:
      - Lower: Not determined.
      - Upper: Not determined.
    - Vapor pressure: Not determined.
    - Density at 20 °C (68 °F): 1.14 g/cm³ (9.513 lbs/gal)
    - Relative density: Not determined.
    - Vapour density: Not determined.
    - Evaporation rate: Not determined.
    - Solubility in / Miscibility with Water: Fully miscible.
    - Partition coefficient (n-octanol/water): Not determined.
  - Viscosity:
    - Dynamic: Not determined.
    - Kinematic: Not determined.
  - Solvent content:
    - Organic solvents: 0.0 %
Trade name: Nonenal 1% in Triethyl Citrate natural

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:
    - Primary irritant effect:
      - on the skin: No irritant effect.
      - on the eye: No irritating effect.
    - Sensitization: No sensitizing effects known.
  - Additional toxicological information:
    The product is not subject to classification according to internally approved calculation methods for preparations:
    When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

- Carcinogenic categories
  - IARC (International Agency for Research on Cancer)
    None of the ingredients is listed.
  - NTP (National Toxicology Program)
    None of the ingredients is listed.
  - OSHA-Ca (Occupational Safety & Health Administration)
    None of the ingredients is 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.
Trade name: Nonenal 1% in Triethyl Citrate natural

### 13 Disposal considerations

- **Waste treatment methods**
  - **Recommendation:** Smaller quantities can be disposed of with household waste.

- **Uncleaned packagings**
  - **Recommendation:** Disposal must be made according to official regulations.

  - **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UN-Number</strong></td>
<td>Not Regulated</td>
</tr>
<tr>
<td>DOT, ADR, ADN, IMDG, IATA</td>
<td></td>
</tr>
<tr>
<td><strong>UN proper shipping name</strong></td>
<td>Not Regulated</td>
</tr>
<tr>
<td>DOT, ADR, ADN, IMDG, IATA</td>
<td></td>
</tr>
<tr>
<td><strong>Transport hazard class(es)</strong></td>
<td>Not Regulated</td>
</tr>
<tr>
<td>DOT, ADR, ADN, IMDG, IATA</td>
<td></td>
</tr>
<tr>
<td><strong>Class</strong></td>
<td>Not Regulated</td>
</tr>
<tr>
<td>DOT, ADR, ADN, IMDG, IATA</td>
<td></td>
</tr>
<tr>
<td><strong>Packing group</strong></td>
<td>Not Regulated</td>
</tr>
<tr>
<td>DOT, ADR, IMDG, IATA</td>
<td></td>
</tr>
<tr>
<td><strong>Environmental hazards:</strong></td>
<td>No</td>
</tr>
<tr>
<td>Marine pollutant:</td>
<td></td>
</tr>
<tr>
<td><strong>Special precautions for user</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Transport/Additional information:</strong></td>
<td>Not dangerous according to the above specifications.</td>
</tr>
<tr>
<td><strong>UN &quot;Model Regulation&quot;:</strong></td>
<td>Not Regulated</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):
    None of the ingredients is listed.
  · Section 313 (Specific toxic chemical listings):
    None of the ingredients is listed.
  · TSCA (Toxic Substances Control Act):
    All ingredients are listed.
  · Proposition 65
    · Chemicals known to cause cancer:
      None of the ingredients is listed.
    · Chemicals known to cause reproductive toxicity for females:
      None of the ingredients is listed.
    · Chemicals known to cause reproductive toxicity for males:
      None of the ingredients is listed.
    · Chemicals known to cause developmental toxicity:
      None of the ingredients is listed.
  · Carcinogenic categories
    · EPA (Environmental Protection Agency)
      None of the ingredients is listed.
    · TLV (Threshold Limit Value established by ACGIH)
      None of the ingredients is listed.
    · NIOSH-Ca (National Institute for Occupational Safety and Health)
      None of the ingredients is listed.
  · GHS label elements Not Applicable
    · Hazard pictograms Not Applicable
    · Signal word Not Applicable
    · Hazard statements Not Applicable
  · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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.

· Relevant phrases
  H315 Causes skin irritation.
  H319 Causes serious eye irritation.
  H335 May cause respiratory irritation.

· Department issuing SDS: Product safety department

(Continued on page 8)
### Trade name: Nonenal 1% in Triethyl Citrate natural

- **Contact:** Sidney Arfa
- **Date of preparation / last revision:** 08/31/2015 / -
- **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
  - ELINCS: European List of Notified Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
  - Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A
  - STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3