1 Identification

- **Product identifier**
  - **Trade name**: Massoia Lactone 95% natural
  - **Product number**: 1164
  - **CAS Number**: 54814-64-1
  - **EC number**: 259-359-1

- **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
    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

  - **Skin Irrit. 2 H315**: Causes skin irritation.
  - **Skin Sens. 1 H317**: May cause an allergic skin reaction.

- **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
Trade name: Massoia Lactone 95% natural

· Signal word Warning

· Hazard-determining components of labeling:
  Massoia Lactone

· Hazard statements
  H315 Causes skin irritation.
  H317 May cause an allergic skin reaction.

· Precautionary statements
  P261 Avoid breathing dust/fume/gas/mist/vapors/spray
  P280 Wear protective gloves.
  P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
  P321 Specific treatment (see on this label).
  P363 Wash contaminated clothing before reuse.
  P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· 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
  54814-64-1 Massoia Lactone
· Identification number(s)
  · EC number: 259-359-1

4 First-aid measures

· Description of first aid measures
· General information: Immediately remove any clothing soiled by the product.
  · After inhalation:
    Supply fresh air and be sure to call for a doctor.
    In case of unconsciousness place patient stably in side position for transportation.
  · After skin contact: Immediately wash with water and soap and rinse thoroughly.
  · After eye contact: Rinse opened eye for several minutes under running water.
  · After swallowing: If symptoms persist consult doctor.
### 5 Fire-fighting measures

- **Extinguishing media**: Suitable extinguishing agents: CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **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**: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to item 13. Ensure adequate ventilation.
- **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**

<table>
<thead>
<tr>
<th>PAC-1</th>
<th>Substance is not listed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAC-2</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>PAC-3</td>
<td>Substance is not listed.</td>
</tr>
</tbody>
</table>

### 7 Handling and storage

- **Handling**: **Precautions for safe handling**: Ensure good ventilation/exhaustion at the workplace. Prevent formation of aerosols.
- **Information about protection against explosions and fires**: No special measures required.
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:
    - Immediately remove all soiled and contaminated clothing.
    - Wash hands before breaks and at the end of work.
  - Breathing equipment:
    - In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- 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 breakthrough time has to be determined by the manufacturer of the protective gloves and has to be observed.
- Eye protection: Goggles recommended during refilling.

9 Physical and chemical properties

- Information on basic physical and chemical properties
- General Information
  - Appearance:
    - Form: Liquid
    - Color: According to product specification
Safety Data Sheet
acc. to OSHA HCS

Printing date 02/11/2019
Reviewed on 02/08/2019

Trade name: Massoia Lactone 95% natural

- Odor: According to product specification
- Odor threshold: Not determined.
- pH-value: Not determined.
- Change in condition
  - Melting point/Melting range: Undetermined.
  - Boiling point/Boiling range: Undetermined.
- Flash point: >93 °C (>199.4 °F)
- Flammability (solid, gaseous): Not applicable.
- 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 determined.
- Density at 20 °C (68 °F): 0.987 g/cm³ (8.23652 lbs/gal)
  - Relative density: Not determined.
  - Vapor density: Not determined.
  - Evaporation rate: Not determined.
- Solubility in / Miscibility with Water: Not miscible or difficult to mix.
- Partition coefficient (n-octanol/water): Not determined.
- Viscosity:
  - Dynamic: Not determined.
  - Kinematic: Not determined.
  - VOC content: 0.00 %
    - 0.0 g/l / 0.00 lb/gal
- 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.
Trade name: Massoia Lactone 95% natural

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: Sensitization possible through skin contact.
- 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.
- Additional ecological information:
  - General notes:
    Water hazard class 2 (Assessment by list): hazardous for water
    Do not allow product to reach ground water, water course or sewage system.
    Danger to drinking water if even small quantities leak into the ground.
  - 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

<table>
<thead>
<tr>
<th>Description</th>
<th>DOT, ADR, ADN, IMDG, IATA</th>
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</tr>
</thead>
<tbody>
<tr>
<td>UN-Number</td>
<td>Not Regulated</td>
<td>Not Regulated</td>
<td>Not Regulated</td>
<td>Not Regulated</td>
</tr>
<tr>
<td>UN proper shipping name</td>
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<td>Not Regulated</td>
<td>Not Regulated</td>
<td>Not Regulated</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>Not Regulated</td>
<td>Not Regulated</td>
<td>Not Regulated</td>
<td>Not Regulated</td>
</tr>
<tr>
<td>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Transport/Additional information:</td>
<td>Not dangerous according to the above specifications.</td>
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</tr>
<tr>
<td>UN &quot;Model Regulation&quot;:</td>
<td>Not Regulated</td>
<td>Not Regulated</td>
<td>Not Regulated</td>
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</tr>
</tbody>
</table>

### 15 Regulatory information

<table>
<thead>
<tr>
<th>Description</th>
<th>CAS: 54814-64-1 Massoia Lactone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety, health and environmental regulations/legislation specific for the substance or mixture</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Sara Section 355 (extremely hazardous substances):</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Section 313 (Specific toxic chemical listings):</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>TSCA (Toxic Substances Control Act):</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>TSCA new (21st Century Act): (Substances not listed)</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Proposition 65 Chemicals known to cause cancer:</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Chemicals known to cause reproductive toxicity for females:</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Chemicals known to cause reproductive toxicity for males:</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Chemicals known to cause developmental toxicity:</td>
<td>Substance is not listed.</td>
</tr>
</tbody>
</table>
· 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
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  The substance is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms

GHS07

· Signal word Warning

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· Hazard statements
  H315 Causes skin irritation.
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· Precautionary statements
  P261 Avoid breathing dust/fume/gas/mist/vapors/spray
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  P321 Specific treatment (see on this label).
  P363 Wash contaminated clothing before reuse.
  P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· 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.

· Department issuing SDS: Product Safety Department
  · Contact:
    Product Safety Department
    productsafety@adv-bio.com
  · Date of preparation / last revision 02/11/2019 / -
  · 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
Trade name: Massoia Lactone 95% natural

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)
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
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Skin Sens. 1: Skin sensitisation – Category 1