SAFETY DATA SHEET
L(+) TARTARIC ACID

Section 1: Identification of the Substance and of the Company

1.1 Product Identifier:

<table>
<thead>
<tr>
<th>Product Name:</th>
<th>L(+) Tartaric Acid, Natural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms:</td>
<td>2,3 dihydroxybutanedioic acid</td>
</tr>
<tr>
<td>CAS Number:</td>
<td>87-69-4</td>
</tr>
<tr>
<td>EC Number:</td>
<td>201-766-0</td>
</tr>
<tr>
<td>E Number:</td>
<td>E334</td>
</tr>
<tr>
<td>Molecular Weight:</td>
<td>150.1</td>
</tr>
<tr>
<td>Chemical Formula:</td>
<td>C₄H₆O₆</td>
</tr>
<tr>
<td>Structural Formula:</td>
<td><img src="image" alt="Structural Formula" /></td>
</tr>
</tbody>
</table>

1.2 Relevant Identified uses of the Substance and Uses Advised Against:

Relevant Identified Uses: Acidifier, antioxidant, flavor enhancer, and stabilizing agent.

Food Industry: acidifier in wine-making, production of tinned food, jam, jelly, confectionery and biscuits in general, soft drinks and table waters.

Pharmaceutical & Cosmetic: preparation of medicines, effervescent tablets, and soluble drugs. Excipient and acidifier in syrups and antibiotics; production of natural beauty cream for face and body.

Industrial & Technical: retarding agent in the prep of gypsum, used in formulation of waterproof cements and heat-insulator. Used in textiles, tannings, ceramics, galvanoplastics, cleaning agents, and used as laboratory reagent.

1.3 Details of the Supplier of the Safety Data Sheet:

Supplier: ATPGroup, Inc.
2 Madison Ave.
Larchmont, NY 10538 USA
Telephone: 914-834-1881
Fax: 914-834-4611
www.atpgroup.com
1.4 Emergency Telephone Number
Telephone 800-424-9300 – CHEMTREC (24/7) – within USA & Canada
+1 703-527-3887 – CHEMTREC (24/7) – International & Maritime
914-834-1881 – ATPGroup

Section 2: Hazards Identification

2.1 Classification of the Substance:
The tartaric acid is not classified as hazardous under the provisions of Directives 67/548/EEC and 1999/45/CD and/or Regulation EC 1272/2008 (CLP) and subsequent amendments and adjustments
Classification pursuant to EC REG. No. 1272/2008
GHS05: Corrosion
H318: Causes serious eye damage
Classification pursuant to REG. 67/548/EEC, 1999/45/EC
Xi – IRRITANT
R41 – Risk of serious damage to eyes
S36/37/39 – Wear suitable protective clothing, gloves and eye/face protection
S26 – In case of contact with eyes rinse immediately with plenty of water and seek medical advice

2.2 Label Elements:
According to EC REG. No. 1272/2008
Hazard Pictogram:

![GHS05: Corrosion](image)

Signal Word: Danger
Hazard Statements: H318: Causes serious eye damage
Precautionary Statements:
P280: Wear protective gloves/protective clothing/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.
2.3 Other Hazards:
CAUTION! MAY CAUSE IRRITATION TO SKIN AND EYES

SAF-T-DATA™ Ratings (Provided here for your convenience)

<table>
<thead>
<tr>
<th>Health Rating: 0 - None</th>
<th>Flammability Rating: 1 - Slight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactivity Rating: 0 - None</td>
<td>Contact Rating: 1 - Slight</td>
</tr>
</tbody>
</table>

Lab Protective Equip: GOGGLES; LAB COAT; PROPER GLOVES
Storage Color Code: Orange (General Storage)

GRAS (Generally Recognized as Safe): Product is included in the GRAS list

Section 3: Composition/Information on Ingredients

3.1 Substances

100% L(+) TARTARIC ACID – (see 1.1)

Section 4: First Aid Measures

4.1 Description of First Aid

General Advice: Immediate medical intervention is not necessary but is recommended at a later time if any problems persist. Show this safety data sheet to doctor.

Inhalation: Move person to fresh air. Get medical attention for any breathing difficulty.

Ingestion: Do not induce vomiting. If large amounts were swallowed, give several glasses of water to drink to dilute. In serious cases seek medical advice.

Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

4.2 Most Important Symptoms and Effects, both Acute and Delayed

Inhalation: May cause irritation to the respiratory tract and of mucous membranes. Symptoms may include coughing and sneezing.

Ingestion: Mildly irritating to the gastro-intestinal system if large quantities are ingested. The effect is that of an acid, producing abdominal pain, nausea, vomiting, and diarrhea.
Skin Contact: May cause local and temporary irritation
Eye Contact: Causes strong irritation and serious damage
Chronic Exposure: No information found
Aggravation of Pre-existing Conditions: No information found

4.3 Indication of any Immediate Medical Attention and Special Treatment Needed
In case of doubt seek for medical advice

Section 5: Fire-fighting Measures

5.1 Extinguishing Media
Water spray, dry chemical, alcohol foam, or carbon dioxide.

5.2 Special Hazards Arising from the Substance
Fire: As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source. If involved with fire, fumes can contain carbon monoxide.
Explosion: Not considered to be explosive. Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

5.3 Advice for Firefighters
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

Section 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency Procedures
Non-Emergency Personnel: avoid breathing the dust and contact with eyes, leave the contaminated area. Wear suitable protective equipment (see section 8).
Emergency Personnel: ventilate area, wear appropriate protective equipment (see section 8), avoid breathing the dust and contact with eyes

6.2 Environmental Precautions
Do not let product enter drains, sewers, and surface/ground waters.
6.3 Methods and Material for Containment and Cleaning Up

Cover the drains to avoid product going into the sewage system, collect the spilled material in appropriate containers using a method that does not generate dust (vacuum cleaner or water cleaner) for reclamation or disposal in accordance with local rules. Flush area with water.

6.4 Reference to Other Sections
See Section 13

Section 7: Handling and Storage

7.1 Precautions for Safe Handling
Avoid contact with eyes and skin, using suitable protective equipment. Avoid inhalation and ingestion. Handle in accordance with good industrial hygiene practice and any legal requirements. Ensure adequate ventilation, especially in confined areas. Wash hands after use. Minimize dust generation and accumulation.

7.2 Conditions for Safe Storage, Including Any Incompatibilities
Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat/ignition, moisture, direct sunlight, extreme cold, and incompatibilities. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

7.3 Specific End Uses
See 1.2

Section 8: Exposure Controls/Personal Protection

8.1 Control Parameters
- OSHA Permissible Exposure Limit (PEL): 15 mg/m$^3$ total dust, 5 mg/m$^3$ respirable fraction for nuisance dusts.
- ACGIH Threshold Limit Value (TLV): 10 mg/m$^3$ total dust containing no asbestos and < 1% crystalline silica for Particulates Not Otherwise Classified (PNOC).

It is recommended not to exceed the following values on the basis of 8 hour exposures.
**DN(M)ELs for workers**

<table>
<thead>
<tr>
<th>Exposure Pattern</th>
<th>Route</th>
<th>Descriptor</th>
<th>DNEL / DMEL</th>
<th>(Corrected) Dose Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-Term – Systemic Effects</td>
<td>Dermal</td>
<td>DNEL (Derived No Effect Level)</td>
<td>2.9 mg/kg bw/day</td>
<td>NOAEL: 145 mg/kg bw/day (based on AF of 50)</td>
</tr>
<tr>
<td>Long-Term – Systemic Effects</td>
<td>Inhalation</td>
<td>DNEL (Derived No Effect Level)</td>
<td>5.2 mg/m³</td>
<td>NOAEC: 260.0 mg/m³ (based on AF of 50)</td>
</tr>
</tbody>
</table>

**DN(M)ELs for the general population**

<table>
<thead>
<tr>
<th>Exposure Pattern</th>
<th>Route</th>
<th>Descriptor</th>
<th>DNEL / DMEL</th>
<th>(Corrected) Dose Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-Term – Systemic Effects</td>
<td>Dermal</td>
<td>DNEL (Derived No Effect Level)</td>
<td>1.5 mg/kg bw/day</td>
<td>NOAEL: 150 mg/kg bw/day (based on AF of 100)</td>
</tr>
<tr>
<td>Long-Term – Systemic Effects</td>
<td>Inhalation</td>
<td>DNEL (Derived No Effect Level)</td>
<td>1.3 mg/m³</td>
<td>NOAEC: 130 mg/m³ (based on AF of 100)</td>
</tr>
<tr>
<td>Long-Term – Systemic Effects</td>
<td>Oral</td>
<td>DNEL (Derived No Effect Level)</td>
<td>8.1 mg/kg bw/day</td>
<td>NOAEL: 810 mg/kg bw/day (based on AF of 100)</td>
</tr>
</tbody>
</table>

**8.2 Exposure Controls**

**Appropriate Engineering Controls:** Provide ventilation system; in general dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

**Personal Protective Equipment (PPE):**

**Personal Respirators (NIOSH Approved):** If the exposure limit is exceeded, a half-face dust/mist respirator may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-facepiece dust/mist respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-sullied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

**Skin Protection:** Wear protective gloves (ref. EN 374) and clean body-covering clothing.

**Eye Protection:** Use chemical safety goggles with side shields (ref. EN 166). Maintain eye wash fountain and quick-drench facilities in work area.

**Hygiene Measures:** Handle with accordance with good industrial hygiene and safety practice. Wash your hands before breaks and at the end of the workday. Keep away from food and drink. Wash work clothing and PPE periodically to remove contaminants.
Section 9: Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

- **Appearance:** White or transparent crystals or crystalline powder, solid
- **Odor:** Odorless
- **Odor Threshold:** N/A
- **pH:** 2.2 in water (15g/L)
- **Melting Point:** 169°C at 1013 hPa
- **Freezing Point:** No data available
- **Boiling Point:** 179.1°C at 1013 hPa
- **Flash Point:** >100°C at 102.3 kPa
- **Flammability:** Not flammable
- **Upper Limit:** N/A
- **Lower Limit:** N/A
- **Explosive Properties:** Not explosive
- **Upper Limit:** N/A
- **Lower Limit:** N/A
- **Auto-Ignition Temperature:** 375°C at 1013 hPa
- **Decomposition Temperature:** 425°C
- **Partition Coefficient:** n-Octanol/water: Log Kow (Pow): -1.91 at 20°C
- **Solubility:** ca.133 g/100 g of water.
- **Relative Density:** 1.76
- **Vapor Density (Air=1):** No data available
- **Evaporation Rate (BuAc=1):** No data available
- **Vapor Pressure (mm Hg):** No data available
- **Viscosity:** No data available

Section 10: Stability and Reactivity

10.1 Reactivity
- Product is not reactive under recommended use and storage.

10.2 Chemical Stability
- Stable under ordinary conditions of use and storage

10.3 Possibility of Hazardous Reactions
- There are no hazardous reactions known

10.4 Conditions to Avoid
- Heat, flames, ignition sources and incompatibles.

10.5 Incompatible Materials
- Strong oxidizing agents, fluorine, silver, metals

10.6 Hazardous Decomposition Products
Section 11: Toxicological Information

11.1 Information on Toxicological Effects

Acute Toxicity: Oral: LD50: > 2000 mg/kg bw for rat
Dermal: LD50: > 2000 mg/kg bw for rat

Skin Corrosion/Irritation: May be harmful if absorbed through skin causing mild irritation.

Serious Eye Damage/Irritation: Causes serious eye irritation

Respiratory or Skin Sensitization: No Data Available

Germ Cell Mutagenicity: No Data Available

Reproductive Toxicity: No Data Available

STOT-Single Exposure: No Data Available

STOT-Repeated Exposure: No Data Available

Aspiration Hazard: Negative

Information on Likely Routes of Exposure: Inhalation, Ingestion, and Eye/Skin Contact.

---NTP Carcinogen---

Ingredient | Known | Anticipated | IARC Category
--- | --- | --- | ---
Tartaric Acid (87-69-4) | No | No | None

Section 12: Ecological Information

12.1 Toxicity
No information available

12.2 Persistence and Degradability
Biodegradation in water: readily biodegradable. Substance is expected to degrade readily in sewage treatment plants.

12.3 Bioaccumulative Potential
The aquatic bioaccumulation study does not need to be conducted as the substance is readily biodegradable

12.4 Mobility in Soil
The mobility in soil does not need to be evaluated as the substance is readily biodegradable

12.5 Results of PBT and vPvB Assessment
Not considered to be a PBT or vPvB substance
Section 13: Disposal Considerations

13.1 Waste Treatment Methods
Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements. Empty containers have to be handled with the same caution as the pure substance.

Section 14: Transport Information

14.1 UN Number
Not classified as dangerous goods for transport.

14.2 UN Shipping Name
Not classified as dangerous goods for transport.

14.3 Types of Hazard Related to Transport
Road and Railway Transport:
Not classified as dangerous goods for transport.

Sea Transport:
Not classified as dangerous goods for transport.

Air Transport:
Not classified as dangerous goods for transport.

14.4 Packaging Group
Not classified as dangerous goods for transport.

14.5 Environmental Hazards
Not classified as dangerous goods for transport.

14.6 Special Precautions for Users
Not classified as dangerous goods for transport.

14.7 Transport in Bulk According to Annex II of Marpol and the IBC Code
Not classified as dangerous goods for transport.
Section 15: Regulatory Information

Chemical Inventory Status – Part 1

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>TSCA</th>
<th>EC</th>
<th>Japan</th>
<th>Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tartaric Acid (87-69-4)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Chemical Inventory Status – Part 2

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Korea</th>
<th>DSL</th>
<th>NDSL</th>
<th>Phil.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tartaric Acid (87-69-4)</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Federal, State & International Regulations – Part 1

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>RQ</th>
<th>TPQ</th>
<th>List</th>
<th>Chemical Catg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tartaric Acid (87-69-4)</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Federal, State & International Regulations – Part 2

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>RCRA</th>
<th>TSCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tartaric Acid (87-69-4)</td>
<td>261.33</td>
<td>8(d)</td>
</tr>
</tbody>
</table>

Chemical Weapons Convention: No  TSCA 12(b): No  CDTA: No  SARA 311/312: Acute: No  Chronic: No  Fire: No  Pressure: No  Reactivity: No  (Pure / Solid)

Australian Haz Chem Code: NA  Poison Schedule: NA  WHMIS: This SDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by the CPR.

Section 16: Other Information

NFPA Ratings: Health: 0  Flammability: 1  Reactivity: 0  
Label Hazard Warning: CAUTION! May cause irritation to skin and eyes.
Label Precautions: Avoid contact with eyes. Wash thoroughly after handling. Avoid breathing dust. Keep container closed. Use with adequate ventilation.
Label First Aid: In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.

Revision Information: SDS Revision Date: December 6, 2017
Disclaimer:
ATPGroup provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.

ATPGROUP MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, ATPGROUP WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.

*******************************************************************************

Page 11 of 11