Material Safety Data Sheet
L-(+)-Tartaric acid

MSDS# 22460

Section 1 - Chemical Product and Company Identification

MSDS Name: L-(+)-Tartaric acid
Catalog Numbers: AC137850000, AC13785025, AC137855000, AC388280000, AC420000000, AC42001000
Synonyms: 2,3-Dihydrosuccinic acid; 2,3-Dihydroxybutanedioic acid; Threared acid; L-(+)-Tartaric Acid; d-Tartaric acid; L-Tartaric acid; 1,2-Dihydroxyethane-1,2-dicarboxylic acid.

Company Identification:
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
For information in the US, call: 201-796-7100
Emergency Number US: 201-796-7100
CHEMTREC Phone Number, US: 800-424-9300

Section 2 - Composition, Information on Ingredients

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CAS#: 87-69-4
Chemical Name: Tartaric acid
%
EINECS#: 201-766-0
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Hazard Symbols: XI

Risk Phrases: 36/37/38

Section 3 - Hazards Identification
EMERGENCY OVERVIEW

Warning! Causes eye, skin, and respiratory tract irritation. Target Organs: Respiratory system, eyes, skin.

Potential Health Effects
Eye: Causes eye irritation.
Skin: Causes skin irritation. May be harmful if absorbed through the skin.
Ingestion: May be harmful if swallowed. Causes gastrointestinal tract irritation.
Inhalation: Causes respiratory tract irritation. May be harmful if inhaled.
Chronic: No information found.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: Get medical aid immediately. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. This material in sufficient quantity and reduced particle size is capable of creating a dust explosion.

Use water spray, dry chemical, carbon dioxide, or appropriate foam.

| Autoignition Temperature: 425 deg C (797.00 deg F) |
| Flash Point: 210 deg C (410.00 deg F) |

Explosion Limits:
Lower: Not available
Upper: Not available

NFPA Rating: health: 2; flammability: 1; instability: 0;

Section 6 - Accidental Release Measures

Use proper personal protective equipment as indicated in Section 8.

Vacuum or sweep up material and place into a suitable disposal container. Avoid generating dusty conditions.

Section 7 - Handling and Storage

Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.

Store in a cool, dry place. Store in a tightly closed container.

Section 8 - Exposure Controls, Personal Protection

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tartaric acid</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

OSHA Vacated PELs: Tartaric acid: None listed

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Solid
Color: white
Odor: odorless
pH: 1.6 (100 g/l H2O)
Vapor Pressure: Negligible.
Vapor Density: Not available
Evaporation Rate: Not available
Viscosity: Not available
Boiling Point: Not applicable.
Freezing/Melting Point: 168 - 170 deg C
Decomposition Temperature:
   Solubility in water: Soluble
   Specific Gravity/Density: 1.76 g/cm³ @ 20°C
Molecular Formula: C₄H₆O₆
Molecular Weight: 150.09

Section 10 - Stability and Reactivity
Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Incompatible materials, dust generation.
Incompatibilities with Other Materials: Metals, oxidizing agents, reducing agents, bases, fluorine, silver.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information
RTECS#: CAS# 87-69-4: WW7875000
LD50/LC50: RTECS: Not available. Other: Rat LDLo Oral; dose: 7500 mg/kg; Rabbit LDLo Oral; dose: 5000mg/kg.
   Dog LDLo Oral; dose: 5000 mg/kg.
Carcinogenicity: Tartaric acid - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Other: See actual entry in RTECS for complete information.

Section 12 - Ecological Information
Ecotoxicity: Not available
Other: Do not empty into drains.

Section 13 - Disposal Considerations
Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT
Shipping Name: Not regulated
Hazard Class:
UN Number:
Packing Group:
Canada TDG
Shipping Name: Not regulated as a hazardous material
Hazard Class:
UN Number:
Packing Group:

Section 15 - Regulatory Information

European/International Regulations
European Labeling in Accordance with EC Directives
   Hazard Symbols: XI
   Risk Phrases:
      R 36/37/38 Irritating to eyes, respiratory system and skin.
   Safety Phrases:
      S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
      S 37/39 Wear suitable gloves and eye/face protection.

WGK (Water Danger/Protection)
CAS# 87-69-4: 0
Canada
CAS# 87-69-4 is listed on Canada's DSL List
Canadian WHMIS Classifications: D2B
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.
CAS# 87-69-4 is not listed on Canada's Ingredient Disclosure List.

US Federal
TSCA
CAS# 87-69-4 is listed on the TSCA Inventory.

Section 16 - Other Information
MSDS Creation Date: 2/26/1999
Revision #9 Date 7/20/2009

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.

REVIEWED

DATE: May 23, 2012

Rutland