



## MATERIAL SAFETY DATA SHEET

### Tartaric acid

#### 1. Product Identification

**Synonyms:** 2,3-Dihydroxybutanedioic Acid

**CAS No.:** 87-69-4

**Molecular Weight:** 150.09

**Chemical Formula:**  $(\text{CHOH})_2(\text{COOH})_2$

**Product Codes:** T102

#### 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Tartaric acid	87-69-4	100%	Yes

#### 3. Hazards Identification

##### EMERGENCY OVERVIEW

**CAUTION! MAY CAUSE IRRITATION TO SKIN AND EYES.**

Health Rating: 1 - Slight

Flammability Rating: 1 - Slight

Reactivity Rating: 1 - Slight

Contact Rating: 1 - Slight

Lab Protective Equip: GOGGLES; LAB COAT; PROPER GLOVES

Storage Color Code: Green (General Storage)

##### Potential Acute Health Effects:

Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation (lung irritant). Corrosive to eyes and skin. The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Severe over-exposure can produce lung damage, choking, unconsciousness or death.

##### **Inhalation:**

Nuisance dust. May cause 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:**

No adverse effects expected.

**Eye Contact:**

Mild irritant and possibly temporarily abrasive. Reddening and tearing may be experienced.

**Potential Chronic Health Effects:**

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.

**4. First Aid Measures****Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention for any breathing difficulty.

**Serious Inhalation:**

Not available.

**Ingestion:**

If swallowed, give several glasses of water to drink to dilute. If large amounts were swallowed or symptoms occur, get medical advice. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband.

**Skin Contact:**

Wash exposed area with soap and water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical advice if irritation develops.

**Serious Skin Contact:**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

**Eye Contact:**

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Call a physician if irritation persists.

**5. Fire Fighting Measures****Fire:**

As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source. May be combustible at high temperature.

Auto-Ignition Temperature: 425°C (797°F)

Flash Points: OPEN CUP: 210°C (410°F).

**Special Remarks on Explosion Hazards:**

Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

**Explosion Hazards in Presence of Various Substances:**

Slightly explosive in presence of open flames and sparks. Non-explosive in presence of shocks.

**Fire Extinguishing Media:**

Water spray, dry chemical, alcohol foam, or carbon dioxide.

**Products of Combustion:**

These products are carbon oxides (CO, CO<sub>2</sub>).

**Fire Hazards in Presence of Various Substances:**

Slightly flammable to flammable in presence of heat. Non-flammable in presence of shocks.

**Special Information on Fire Hazards:**

As with most organic solids, fire is possible at elevated temperatures.

**Fire Fighting Media and Instructions:**

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Information:**

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

**6. Accidental Release Measures****Small Spill:**

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

**Large Spill:**

Corrosive solid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

**7. Handling and Storage****Precautions:**

Keep container dry. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not breathe dust. Never add water to this product. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, alkalis.

**Storage:**

Keep container tightly closed. Keep container in a cool, well-ventilated area.

**8. Exposure Controls/Personal Protection****Airborne Exposure Limits:**

None established.

**Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general

work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

**Engineering Controls:**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection:**

Splash goggles. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Personal Respirators:**

For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

**Skin Protection:**

Wear protective gloves and clean body-covering clothing.

**Eye Protection:**

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

## 9. **Physical and Chemical Properties**

**Appearance:**

White crystals.

**Odor:**

Odorless.

**Solubility:**

ca. 133 g/100 g of water.

**Density:**

1.76.

**pH:**

No information found.

**% Volatiles by volume @ 21C (70F):**

No information found.

**Boiling Point:**

Not applicable.

**Melting Point:**

206°C (403F)

**Vapor Density (Air=1):**

5.18 (Air = 1)

**Vapor Pressure (mm Hg):**

No information found.

**Molecular Weight:**

150.09

**Evaporation Rate (BuAc=1):**

No information found.

**10. Stability and Reactivity****Stability:**

Stable under ordinary conditions of use and storage.

**Conditions to Avoid:**

Incompatibles.

**Conditions of Instability:**

Excess heat, dust generation, incompatible materials.

**Incompatibilities:**

Silver and silver compounds.

**Hazardous Decomposition**

Carbon dioxide and carbon monoxide may form when heated to decomposition.

**Special Remarks on Reactivity:**

Violent reaction possible with silver. Aqueous solution of tartaric acid can liberate explosive H<sub>2</sub> gas if contact with reactive metals (Iron, Zinc, and Aluminum).

**Corrosivity:**

Non-corrosive in presence of glass.

**Hazardous Polymerization:**

Will not occur.

**11. Toxicological Information****Routes of Entry:**

Inhalation. Ingestion.

**Toxicity to Animals:**

LD50: Not available. LC50: Not available.

**Chronic Effects on Humans:**

Not available.

**Other Toxic Effects on Humans:**

Hazardous in case of skin contact (irritant), of ingestion, of inhalation (lung irritant).

**Special Remarks on Toxicity to Animals:**

Lowest Published Lethal Dose: LDL [Rat - Route: oral; Dose: 7500 mg/kg] LDL [Rabbit] - Route: Oral; Dose: 5000 mg/kg LDL [Dog] - Rout: Oral; Dose: 5000 mg/kg Lethal Dose/Conc 50% kill: LD50 [Mouse] - Route: Intravenous; Dose: 485 mg/kg

**Special Remarks on Chronic Effects on Humans:**

Not available.

**Special Remarks on other Toxic Effects on Humans:****Acute Potential Health Effects:****Skin:**

Causes skin irritation.

**Eyes:**

Causes eye irritation.

***Inhalation:***

Causes respiratory tract irritation.

***Ingestion:***

Causes gastrointestinal tract irritation with nausea, vomiting and diarrhea. May affect kidneys (kidney damage), blood, and behavior (convulsions, somnolence), and respiration.

**Chronic Potential Health Effects:**

***Ingestion:***

Repeated or prolonged ingestion may cause lesions of the mouth, gastric ulcers, gastrointestinal hyperacidity, and symptoms similar to those of metal fume fever - flu-like condition with fever, chills, sweats, nausea, vomiting, muscle aches, pains, and weakness.

***Skin:***

Repeated or prolonged skin contact may cause skin ulcerations or lesions.

**12. Ecological Information**

**Ecotoxicity:**

Not available

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:**

The product itself and its products of degradation are not toxic.

**13. Disposal Considerations**

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste 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.

**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

**14. Transport Information**

**DOT Classification:**

Not a DOT controlled material

**Identification:**

Not applicable

**Special Provisions for Transport:**

Not available.

**Protective Equipment:**

Gloves (impervious). Synthetic apron. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

## 15. **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.

### **Product Use:**

Laboratory Reagent.

### **Revision Information:**

*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.*



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