

**Safety Data Sheet**  
**Citric Acid, Anhydrous**

**SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION**

**1.1 Product identifier**

**Product name:** Citric Acid, Anhydrous  
**Synonym(s):** 2-Hydroxy-1,2,3-Propanetricarboxylic Acid

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

**General use:** Industrial applications and laboratory use  
**Uses advised against:** None specified

**1.3 Details of the supplier and of the safety data sheet**

**Manufacturer/Distributor**  
Silver Fern Chemical, Inc.  
2226 Queen Anne Avenue North, Suite C  
Seattle, WA 98109 USA  
1-866-282-3384  
Website - www.silverfernchemical.com; email address - info@silverfernchemical.com

**1.4 Emergency telephone number**

+1-800-535-5053; Outside USA & Canada +1-352-323-3500

**SECTION 2 - HAZARDS IDENTIFICATION**

**2.1 Classification of substance or mixture**

**Product definition:** Substance

**Classification in accordance with 29 CFR 1910 (OSHA HCS) and Regulation EC No. 1272/2008**  
Eye irritation - Category 2A [H319]

**2.2 Label elements**

**Hazard symbol(s):**



GHS07

**Signal word:** Warning

**Hazard statement(s):** H319 - Causes serious eye irritation

**Precautionary statements**

- [Prevention]** P264 - Wash hands and other exposed skin areas thoroughly after handling.  
P280 - Wear protective gloves, protective clothing and eye protection.
- [Response]** P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.  
P337 + P313 - If skin eye irritation persists: Get medical attention

**2.3 Hazards not otherwise classified (HNOC) or not covered by GHS**

None as defined under 29 CFR 1900.1200.

**SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS**

**3.1 Substances**

% by Weight	Ingredient	CAS Number	EC Number	Index Number	GHS Classification
≥ 99.5	Citric acid, anhydrous	77-92-9	201-069-1	-----	H319

There are no additional ingredients present in this product which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

**3.2 Mixtures**

Not applicable

**SECTION 4 – FIRST AID MEASURES**

**4.1 Description of first aid measures**

**Inhalation:** If product dust or vapor causes respiratory irritation or distress, move the exposed person to fresh air immediately. If breathing is difficult or irregular, administer oxygen; if respiratory arrest occurs, start artificial respiration by trained personnel. If unconscious, maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Seek medical attention if symptoms persist or if the victim feels unwell.

**Eyes:** DO NOT RUB EYES. Immediately flush eyes with large amounts of water or saline solution for at least 15 minutes, occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do after first 2 minutes and continue rinsing. If irritation persists seek medical attention, preferably from an ophthalmologist.

**Skin:** Flush skin with large amounts of water while removing contaminated clothing. Wash the affected area with soap and water followed by thorough rinsing. Wash contaminated clothing and shoes before reuse. If irritation persists or the victim feels unwell, seek medical attention.

**Ingestion:** Rinse mouth with water if the victim is conscious. Remove dentures if present. Give 1 - 2 cupfuls of milk or water to drink if victim is conscious, alert, able to swallow and not experiencing breathing difficulty. DO NOT induce vomiting unless directed to do so by medical personnel. Vomiting may occur spontaneously. To prevent aspiration of material into the lungs, lay the victim on one side with the head lower than the waist. Never give anything by mouth to an unconscious or convulsing person. Do not leave the victim unattended. Seek immediate medical attention.

#### 4.2 Most important symptoms and effects, both acute and delayed

##### Potential health symptoms and effects

**Eyes:** Causes serious eye irritation. Symptoms may include redness, swelling, pain, tearing and possible burns. Particulates can cause mechanical abrasion of the cornea.

**Skin:** May cause skin irritation with localized redness, itching and discomfort. May cause an allergic skin reaction and sensitization, which becomes evident upon re-exposure to this material.

**Inhalation:** May cause irritation of the nose, throat and upper respiratory tract with headache, sore throat, cough and shortness of breath.

**Ingestion:** Causes severe of the gastrointestinal tract with nausea, vomiting, abdominal pain, diarrhea and possible burns. Excessive intake of citric acid may cause erosion of teeth.

**Chronic:** Individuals with pre-existing skin conditions may be more susceptible to the effects of this product. Prolonged or repeated skin contact may cause sensitization dermatitis.

#### 4.3 Indication of any immediate medical attention and special treatment needed

##### Advice to doctor and hospital personnel

Treat symptomatically and supportively.

### SECTION 5 – FIRE FIGHTING MEASURES

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#### 5.1 Extinguishing media

**Suitable methods of extinction:** Use extinguishing media suitable for the surrounding fire.

**Unsuitable methods of extinction:** None known.

#### 5.2 Special hazards arising from the substance or mixture

Closed containers may rupture due to the buildup of pressure when exposed to extreme heat. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent or may be delayed. Obtain medical attention.

**Explosion hazards:** This material is not considered to be an explosion hazard.

#### 5.3 Advice to firefighters

Full protective equipment including self-contained breathing apparatus should be used. Water may be used to cool closed containers to prevent pressure buildup and possible autoignition or explosion when exposed to extreme heat. If possible, water contaminated by this material should be contained from being discharged to any waterway, sewer or drain to prevent environmental contamination.

### SECTION 6 – ACCIDENTAL RELEASE MEASURES

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#### 6.1 Personal precautions, protective equipment and emergency procedures

Evacuate non-essential personnel. Wear appropriate protective clothing and equipment designated in Section 8.2. Ventilate the area. No smoking. Avoid dust generation and accumulation. Clean up spills immediately.

#### 6.2 Environmental precautions

Avoid dispersal of spilled material or runoff and prevent contact with soil and entry into drains, sewers or waterways.

#### 6.3 Methods and materials for containment and cleaning up

Approach spill from upwind direction. Do not flush large spills down the drain. Cover drains and contain spill. Minimize dust generation during cleanup. Carefully collect material and place into an approved container for proper disposal. Observe possible material restrictions (Sections 7.2 and 10.5). Clean contaminated area with soap and water. Do not allow material or runoff from rinsing contaminated areas to enter floor drains or storm drains and ditches that lead to waterways. Dispose of material via a licensed waste disposal contractor.

#### 6.4 Reference to other sections

See Section 13 for additional waste treatment information.

### SECTION 7 – STORAGE AND HANDLING

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#### 7.1 Precautions for safe handling

Wear all appropriate personal protective equipment specified in Section 8.2. Avoid dust generation and accumulation during storage and handling. Do not get in eyes or on skin or clothing. Do not breathe dust. Do not rub eyes. No smoking. If normal use of material presents a respiratory hazard, use only adequate ventilation or wear an appropriate respirator. Wash contaminated clothing and shoes thoroughly before reuse.

### Advice on protection against fire and explosion

Product does not present a fire or explosion hazard.

### 7.2 Conditions for safe storage, including any incompatibilities

Store in dry, well-ventilated areas away from incompatible materials (see Section 10.5), food and drink. Transfer only to approved containers having correct labeling. Hygroscopic material! Keep container tightly closed when not in use to prevent moisture absorption. Protect containers from physical damage. Containers that have been opened must be carefully resealed and kept upright to prevent spillage. Containers are hazardous when empty as they contain product residues. Use appropriate containment to avoid environmental contamination. Ventilate closed areas. Keep out of reach of children.

### 7.3 Specific end uses

Apart from the uses mentioned in Section 1.2, no other specific uses are stipulated.

## SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1 Control parameters

Contains no substances with occupational exposure limit values.

*NOTE: This material may contain materials classified as nuisance particulates, which may be present at hazardous levels. If no specific dusts are listed in Section 8, the applicable limits for unknown nuisance dusts are ACGIH TLV 10 mg/m<sup>3</sup> (total dust), 3 mg/m<sup>3</sup> (respirable fraction), OSHA PEL 15 mg/m<sup>3</sup> (total dust), and 5 mg/m<sup>3</sup> (respirable fraction).*

### 8.2 Exposure controls

**Engineering measures:** Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. Use adequate ventilation. Local exhaust is preferable. Refer to Section 7.1.

**Individual protection measures:** Wear protective clothing to prevent repeated or prolonged contact with product. Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the representative supplier.

**Hygiene measures:** Facilities storing or using this material should be equipped with an eyewash station and safety shower. Change contaminated clothing. Preventive skin protection is recommended. Wash hands thoroughly after use, before eating, drinking, smoking or using the lavatory.

**Eye/face protection:** Wear safety glasses with unperforated side shields or protective splash goggles during use.

**Hand protection:** Wear gloves made of butyl, Nitrile or natural rubber or those recommended by glove supplier for protection against materials in Section 3. Gloves should be impermeable to chemicals and oil. Breakthrough time of selected gloves must be greater than the intended use period.

**Skin protection:** Wear protective clothing. Wear protective boots if the situation requires.

**Respiratory protection:** None required with normal use. Wear a dust mask if needed. Where exposure to dusts may exceed the applicable exposure limits, a NIOSH respirator (N95 or better), or air purifying respirator equipped with a particulate filter or supplied air respirator should be used. The level of respiratory protection needed should be based on the evaluation of chemical exposures by a health or safety professional.

**Environmental exposure controls:** Do not empty into drains.

*PPE must not be considered a long-term solution to exposure control. PPE usage must be accompanied by employer programs to properly select, maintain, clean fit and use. Consult a competent industrial hygiene resource to determine hazard potential and/or the PPE manufacturers to ensure adequate protection.*



## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Appearance	White, crystalline powder
Odor	Odorless
Odor Threshold	No data available
Molecular Weight	192.12 g/mol
Chemical Formula	C <sub>6</sub> H <sub>8</sub> O <sub>7</sub>
pH	1.75 (100 g/l)
Melting Point	153 °C (307.4 °F) @ 1,013 hPa [approx.]
Boiling Point	Decomposes before boiling
Evaporation Rate	< 1 [n-BuOAc = 1]
Flammability (solid, gas)	Nonflammable
Flash Point	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Lower Explosive Limit (LEL)	No data available

<b>Upper Explosive Limit (UEL)</b>	No data available
<b>Vapor Pressure</b>	No data available
<b>Vapor Density</b>	No data available
<b>Density</b>	1.542 g/cc @ 20 °C
<b>Viscosity</b>	No data available
<b>Solubility in Water</b>	750 g/l @ 20 °C
<b>Partition Coefficient (n-octanol/water)</b>	log Pow = -1.72
<b>Oxidizing Properties</b>	Not applicable
<b>Explosive Properties</b>	Not applicable
<b>Volatiles by Weight @ 21 °C</b>	No data available

## 9.2 Other Data

No data available

## SECTION 10 – STABILITY AND REACTIVITY

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### 10.1 Reactivity

No special reactivity has been reported during normal conditions of handling and use.

### 10.2 Chemical Stability

This material is stable under recommended conditions of storage and handling. Hygroscopic material (absorbs moisture from the air).

### 10.3 Possibility of hazardous reactions

Hazardous polymerization will not occur.

### 10.4 Conditions to avoid

Avoid dust generation and accumulation, exposure to moist air or water and contact with incompatible materials. Corrosive to copper, zinc, aluminum and their alloys.

### 10.5 Incompatible materials

Oxidizing agents, sulfides, metal nitrates, alkalis, alkali carbonates and bicarbonates, acetates, potassium tartrate

### 10.6 Hazardous decomposition products

Thermal decomposition products include oxides of carbon.

## SECTION 11 – TOXICOLOGICAL INFORMATION

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### 11.1 Information on toxicological effects

#### Acute oral toxicity

LD<sub>50</sub>, rat: > 3,000 mg/kg

#### Acute inhalation toxicity

No data available

#### Acute dermal toxicity

LD<sub>50</sub>, rabbit: > 2,360 mg/kg [literature]

#### Skin irritation

May cause skin irritation.

#### Eye irritation

Causes severe eye irritation.

#### Sensitization

May cause allergic skin reaction in a small percentage of the population.

#### Carcinogenicity

No data available

#### Germ cell mutagenicity

No data available

#### Reproductive toxicity

No data available

#### Specific organ toxicity - single exposure

May cause respiratory irritation.

#### Specific organ toxicity - repeated exposure

No data available

#### Aspiration hazard

No data available

### 11.2 Further information

No component of this product present at levels greater than or equal to the 0.1% threshold (de minimis) is identified as a probable, possible,

potential or confirmed carcinogen by IARC, ACGIH, NTP or OSHA. No data is available regarding the mutagenicity or teratogenicity of this product, nor is there any available data that indicated that it caused adverse developmental or fertility effects.

Handle in accordance with good industrial hygiene and safety practice.

## SECTION 12 - ECOLOGICAL INFORMATION

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### 12.1 Toxicity

Large spills or discharges of this material may be harmful to aquatic life.

**Acute toxicity to fish:** LC<sub>50</sub> - Leuciscus idus (Golden orfe), static, 96 h: > 440 - 760 mg/l  
LC<sub>50</sub> - Lepomis macrochirus (Bluegill Sunfish), static, 96 h: 1,516 mg/l

**Acute toxicity to aquatic invertebrates:** EC<sub>50</sub> - Daphnia magna (water flea), 72 h: 120 mg/l

### 12.2 Persistence and degradability

This substance is expected to biodegrade over time.

### 12.3 Bioaccumulation potential

This product will not bioaccumulate.

### 12.4 Mobility in soil

This product has high mobility in soil.

### 12.5 Results of PBT and vPvB assessment

This substance is not persistent, bioaccumulative and toxic (PBT) and not very persistent and very bioaccumulative (vPvB).

### 12.6 Other effects

#### Additional ecological information

Do not allow material to enter surface waters, wastewater or soil.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

## SECTION 13 – DISPOSAL CONSIDERATIONS

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### 13.1 Waste treatment methods

Methods of disposal: The generation of waste should be avoided or minimized whenever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should always comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

**RCRA F-Series:** No listings above the reportable threshold (de minimis)

**RCRA U-Series:** No listings above the reportable threshold (de minimis)

## SECTION 14 – TRANSPORTATION INFORMATION

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**Note:** Transportation information provided is for reference only. Customer is urged to consult 49 CFR 100 - 177, IMDG, IATA, EC, United Nations TDG and WHMIS (Canada) information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

<b>USA DOT (Ground Transportation)</b>	NOT REGULATED FOR TRANSPORT (not dangerous goods)
<b>IMO/IMDG (Water Transportation)</b>	NOT REGULATED FOR TRANSPORT (not dangerous goods)
<b>ICAO/IATA (Air Transportation)</b>	NOT REGULATED FOR TRANSPORT (not dangerous goods)
<b>RID/ADR (Rail Transportation)</b>	NOT REGULATED FOR TRANSPORT (not dangerous goods)

## SECTION 15 - REGULATORY INFORMATION

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### 15.1 Safety, health and environmental regulations/legislation specific for substance or mixture

#### U. S. Federal Regulations

**OSHA Hazard Communication Standard:** This material is classified as hazardous in accordance with OSHA 29 CFR 1910-1200.

**OSHA Process Safety Management Standard:** This product is not regulated under OSHA PSM Standard 29 CFR 1910.119.

**EPA Risk Management Planning Standard:** This product is not regulated under EPA RMP Standard (RMP) 40 CFR Part 68.

**EPA Federal Insecticide, Fungicide and Rodenticide Act:** This product is not a registered Pesticide under the FIFRA, 40 CFR Part 150.

**Toxic Substance Control Act (TSCA) Inventory:** All substances in this product are listed on the TSCA Inventory. This product is not subject to TSCA 12(b) Export Notification.

**Drug Enforcement Administration (DEA) List 2, Essential Chemicals (21 CFR 1310.02(b)) and 1310.4(f)(2)) and Chemical Code Number:** Not listed

**Drug Enforcement Administration (DEA) Lists 1 & 2, Exempt Chemical Mixtures (21 CFR 1310.12(c)) and Code Number:** Not listed

**Department of Homeland Security (DHS) Chemical Facility Anti-Terrorism Standards (CFATS) Chemicals:** Not listed

### Superfund Amendments and Reauthorization Act (SARA)

**SARA Section 311/312 Hazard Categories:** Causes serious eye irritation

**SARA 313 Information:** None of the components of this material exceed the threshold (de minimis) reporting requirements of Section 313 of the Emergency Planning and Community Right-to Know Act of 1986.

**SARA 302/304 Extremely Hazardous Substance:** None of the components of this material exceed the threshold (de minimis) reporting levels established by these sections of Title III of SARA.

**SARA 302/304 Emergency Planning & Notification:** None of the components of this material exceed the threshold (de minimis) reporting levels established by these sections of Title III of SARA.

**Comprehensive Response Compensation and Liability Act (CERCLA):** None of the components of this product exceed the threshold (de minimis) reporting levels for hazardous wastes established by CERCLA.

### Clean Air Act (CAA)

This product does not contain Hazardous Air Pollutants (HAPs) designated in CAA Section 112 (b):

This product does not contain Class 1 ozone depleters.

This product does not contain Class 2 ozone depleters.

### Clean Water Act (CWA)

This product does not contain Hazardous Substances.

This product does not contain Priority Pollutants

This product does not contain Toxic Pollutants.

### U.S. State Regulations

#### California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986

This product contains no chemical(s) known to the state of California to cause cancer birth defects or reproductive harm in concentrations that exceed the threshold (de minimis) reporting levels established under Proposition 65.

#### Other U.S. State Inventories

None of the components of this product exceed the threshold (de minimis) reporting levels established by any State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollutants lists.

### Canada

**WHMIS Hazard Classification:** Causes serious eye irritation

**Canadian National Pollutant Release Inventory (NPRI):** None of the components of this product are listed on the NPRI.

### European Economic Community

**WGK, Germany (Water danger/protection):** 1 (slightly hazardous to water)

### Global Chemical Inventory Lists

Country	Inventory Name	Listed
Canada	Domestic Substance List (DSL)	Yes
Canada	Non-Domestic Substance List (NDSL)	No
Europe	Inventory of New and Existing Chemicals (EINECS)	Yes
United States	Toxic Substance Control Act (TSCA)	Yes
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
New Zealand	New Zealand Inventory of Chemicals (NZIoC)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (KECI)	Yes
Philippines	Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Yes

\*Yes - All components of this product comply with the inventory requirements administered by the governing country.

No - One or more components of this product are not on the inventory or are exempt from listing.

## 15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

## SECTION 16 - OTHER INFORMATION

### Hazardous Material Information System (HMIS)

HEALTH	2
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	C

C = safety glasses, gloves, & apron

### HMIS Hazard Rating Legend

0 = Minimal 1 = Slight 2 = Moderate

3 = Serious 4 = Severe

\* = Chronic Health Hazard

### NFPA Hazard Rating Legend

0 = Insignificant 1 = Slight 2 = Moderate

3 = High 4 = Extreme

### National Fire Protection Association (NFPA)

#### Flammability



### Abbreviation Key

<b>ACGIH</b>	American Conference of Governmental Industrial Hygienists	<b>LD<sub>Lo</sub></b>	Lowest Lethal Dose
<b>ADR</b>	Accord Dangereux Routier (European regulations concerning the international transport of dangerous goods by road)	<b>mppcf</b>	Millions of Particles Per Cubic Foot
<b>CAS</b>	Chemical Abstract Services	<b>NA</b>	North America
<b>CFR</b>	Code of Federal Regulations	<b>NAERG</b>	North American Emergency Response Guide Book
<b>COC</b>	Cleveland Open Cup	<b>NIOSH</b>	National Institute for Occupational Safety & Health
<b>DOT</b>	Department of Transportation	<b>NTP</b>	National Toxicology Program
<b>EC<sub>50</sub></b>	Half maximal effective concentration	<b>OSHA</b>	Occupational Safety and Health Administration
<b>EMS</b>	Emergency Response Procedures for Ships Carrying	<b>PBT</b>	Persistent, Bioaccumulating and Toxic
<b>EPA</b>	Environmental Protection Agency	<b>PEL</b>	Permissible exposure limit
<b>ErC<sub>50</sub></b>	Reduction of Growth Rate	<b>PMCC</b>	Pensky-Martens Closed Cup
<b>ERG</b>	Emergency Response Guide Book	<b>ppm</b>	Parts Per Million
<b>FDA</b>	Food and Drug Administration	<b>RCRA</b>	Resource Conservation and Recovery Act
<b>GHS</b>	Globally Harmonized System of Classification and Labelling of Chemicals (GHS)	<b>RID</b>	Dangerous Goods by Rail
<b>HCS</b>	Hazard Communication Standard	<b>RQ</b>	Reportable Quantity
<b>IARC</b>	International Agency for Research on Cancer	<b>TCC/Tag</b>	Tagliabue Closed Cup
<b>IATA</b>	International Air Transport Association	<b>TLV</b>	Threshold Limit Value
<b>IC<sub>50</sub></b>	Half Maximal Inhibitory Concentration	<b>TSCA</b>	Toxic Substance Control Act
<b>ICAO</b>	International Civil Aviation Organization	<b>TWA</b>	Time-weighted Average
<b>IDLH</b>	Immediately Dangerous to Life and Health	<b>UN</b>	United Nations
<b>IMDG</b>	International Maritime Dangerous Goods	<b>VOC</b>	Volatile Organic Compounds
<b>IMO</b>	International Maritime Organization	<b>vPvB</b>	Very Persistent and Very Bioaccumulating
<b>LC<sub>50</sub></b>	50% Lethal Concentration	<b>WHMIS</b>	Workplace Hazardous Materials Information System
<b>LD<sub>50</sub></b>	50% Lethal Dose		

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