Material Safety Data Sheet
Citric Acid Monohydrate

ACC# 84211

Section 1 - Chemical Product and Company Identification

MSDS Name: Citric Acid Monohydrate
Synonyms: 2-Hydroxy-1,2,3-propanetricarboxylic acid monohydrate
Company Identification:
Fisher Scientific
1 Reagent Lane
Fairlawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
<th>EINECS/ELINCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5949-29-1</td>
<td>Citric Acid, Monohydrate</td>
<td>&gt;99</td>
<td>unlisted</td>
</tr>
</tbody>
</table>

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Appearance: colourless. **Warning!** May cause respiratory tract irritation. May cause severe eye and skin irritation with possible burns. May cause digestive tract irritation with nausea, vomiting, and diarrhea.

**Target Organs:** None.

**Potential Health Effects**

**Eye:** Contact with eyes may cause severe irritation, and possible eye burns.

**Skin:** May cause skin irritation.

**Ingestion:** May cause gastrointestinal irritation with nausea, vomiting and diarrhea.

**Inhalation:** Dust is irritating to the respiratory tract.

**Chronic:** Not available.

### Section 4 - First Aid Measures

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

**Skin:** Get medical aid if irritation develops or persists. Flush skin with plenty of soap and water.

**Ingestion:** If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately.

**Inhalation:** Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

**Notes to Physician:** Treat symptomatically and supportively.

**Antidote:** None reported.

### Section 5 - Firefighting Measures

**General Information:** Dusts at sufficient concentrations can form explosive mixtures with air. Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products.

**Extinguishing Media:** For small fires, use water spray, dry chemical, carbon dioxide or chemical foam.

**Autoignition Temperature:** Not applicable.

**Flash Point:** Not applicable.

**NFPA Rating:** Not published. Explosion Limits, Lower: Not available. Upper: Not available.

### Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Vacuum or sweep up material and place into a suitable disposal container. Avoid generating dusty conditions.
Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with skin and eyes. Avoid ingestion and inhalation.

Storage: Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citric Acid, Monohydrate</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

OSHA Vacated PELs: Citric Acid, Monohydrate: No OSHA Vacated PELs are listed for this chemical.

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 impervious gloves.

Clothing: Wear appropriate protective clothing to minimize contact with skin.

Respirators: A NIOSH/MSHA approved air purifying dust or mist respirator or European Standard EN 149. Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Section 9 - Physical and Chemical Properties

Physical State: Solid

Appearance: colourless

Odor: odorless

pH: 2.2 at 0.1 N

Vapor Pressure: Not available.

Vapor Density: Not available.

Evaporation Rate:

Viscosity: Not available.

Boiling Point: Not available.

Freezing/Melting Point: 212 deg F

Decomposition Temperature: Not available.

Solubility: Completely soluble in water.

Specific Gravity/Density: 1.54

Molecular Formula: C6H8O7.H2O

Molecular Weight:
Section 10 - Stability and Reactivity

Chemical Stability: Stable.
Conditions to Avoid: Strong oxidants.
Incompatibilities with Other Materials: Incompatible with strong oxidizers.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 5949-29-1: GE7810000
LD50/LC50:
Not available.

Carcinogenicity:
CAS# 5949-29-1: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology: No data available.
Teratogenicity: No data available.
Reproductive Effects: No data available.
Neurotoxicity: No data available.
Mutagenicity: No data available.
Other Studies: No data available.

Section 12 - Ecological Information

Ecotoxicity: Acute aquatic effects: 96-hour LC50; Fathead minnow: GT 1000 mg/L, 96-hour LC50; Water flea: GT 1000 mg/L, 48-hour LC50; Golden orfe (minnow): 760 mg/L.
Environmental Fate: This chemical is expected to be readily biodegradable and is not likely to bioconcentrate.
Physical/Chemical: Not available.
Other: Not available.

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.
RCRA D-Series Maximum Concentration of Contaminants: None listed.
RCRA D-Series Chronic Toxicity Reference Levels: None listed.
RCRA F-Series: None listed.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information
**US FEDERAL**

**TSCA**
CAS# 5949-29-1 is not on the TSCA Inventory. It is a hydrate and exempt from TSCA Inventory requirements (40CFR720.3(u)(2)).

**Health & Safety Reporting List**
None of the chemicals are on the Health & Safety Reporting List.

**Chemical Test Rules**
None of the chemicals in this product are under a Chemical Test Rule.

**Section 12b**
None of the chemicals are listed under TSCA Section 12b.

**TSCA Significant New Use Rule**
None of the chemicals in this material have a SNUR under TSCA.

**SARA**

**Section 302 (RQ)**
None of the chemicals in this material have an RQ.

**Section 302 (TPQ)**
None of the chemicals in this product have a TPQ.

**SARA Codes**
CAS # 5949-29-1: acute.

**Section 313**
No chemicals are reportable under Section 313.

**Clean Air Act:**
This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depleters. This material does not contain any Class 2 Ozone depleters.

**Clean Water Act:**
None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**OSHA:**
None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**
CAS# 5949-29-1 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California No Significant Risk Level: None of the chemicals in this product are...
listed. European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols:
Not available.
Risk Phrases:

Safety Phrases:

WGK (Water Danger/Protection)
CAS# 5949-29-1: 0
Canada

None of the chemicals in this product are listed on the DSL/NDSL list. This product has a WHMIS classification of D2B.
CAS# 5949-29-1 is not listed on Canada's Ingredient Disclosure List.
Exposure Limits

Section 16 - Additional Information

MSDS Creation Date: 1/16/1995
Revision #12 Date: 12/12/1997
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 way shall Fisher 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 Fisher has been advised of the possibility of such damages.

Need help with a product? Send email to Fisher's customer service or call us at 1-800-766-7000.