# MATERIAL SAFETY DATA SHEET

**Product:** Citric Acid Anhydrous  
**Revision Date:** 8/14/96  
**Print Date:** 8/14/96

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**COMMERCIAL PRODUCT NAME:** Citric Acid Anhydrous  
**COMPANY/SUPPLIER:** Humco Holding Group, Inc.  
7400 Alumax Drive  
Texarkana, TX 75501

**24 Hour Emergency Phone Number:** 903-831-7808  
**PRODUCT USE:** Widely used acidulant for flavoring, beverages, food, and as a basic chemical.

## 2. COMPOSITION, INFORMATION ON INGREDIENTS

**CHEMICAL NAME OF THE MATERIAL:** 2-hydroxy-1,2,3-propane tricarboxylic acid  
**CHEMICAL CHARACTERIZATION:** \( \text{C}_6\text{H}_8\text{O}_7 \)  
**SYNONYMS:** Citric Acid, Beta-hydroxytricarboxylic acid.

<table>
<thead>
<tr>
<th>COMPOSITION</th>
<th>CAS Reg. No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citric Acid Anhydrous</td>
<td>77-92-9</td>
<td>100</td>
</tr>
</tbody>
</table>

**HAZARDOUS IMPURITIES:** None

## 3. HAZARDS IDENTIFICATION

**Emergency Overview:** Odorless, colorless translucent crystals with strong acidic taste. Citric acid is a skin and mucous membrane irritant and a severe eye irritant. It may cause allergic reactions in some individuals.

**Most important Hazard Potential Health Effects:** Irritating to eyes.

**Inhalation:** May cause mucous membrane irritation with sore throat, coughing and shortness of breath.

**Eye contact:** May cause irritation with redness, pain, possible eye burns, conjunctivitis, ulceration and permanent cloudiness.

**Skin contact:** May cause irritation with swelling, redness and pain.

**Ingestion:** May cause acute gastrointestinal irritation with abdominal pain.

**Chronic:** Repeated or prolonged skin contact may result in dermatitis. Prolonged or repeated eye contact may result in conjunctivitis. Long term oral overexposure may cause damage to tooth enamel.

**Carcinogen status:** None

## 4. FIRST AID MEASURES

**General advice:** Consult a physician.

**Major effects of exposure:** Irritating to eyes and skin.

**Inhalation:** Move to fresh air.

**Skin contact:** Wash off immediately with soap and plenty of water. If skin irritation persists, call a physician.

**Eye contact:** Rinse immediately with plenty of water and seek medical advice.

**Ingestion:** Drink plenty of water. Do not induce vomiting. Consult a physician if necessary.

**Protection of first-aiders:** Use personal protective equipment.
### 5. FIRE FIGHTING MEASURES

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash Point</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Flammable Limits</td>
<td>Lower 8 gm/FT³ Upper 85 gm/FT³</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>345 ºC</td>
</tr>
<tr>
<td>Suitable extinguishing media</td>
<td>Water, water spray, dry powder, foam, carbon dioxide (CO2), remove containers if possible. Cool container exposed to fire with water spray.</td>
</tr>
<tr>
<td>Extinguishing media which must not be used for safety reasons</td>
<td>None</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>Carbon oxides</td>
</tr>
<tr>
<td>Special protective equipment for firefighters</td>
<td>Use personal protective equipment including self-contained breathing apparatus when fighting fire in enclosed area.</td>
</tr>
<tr>
<td>Specific methods</td>
<td>Standard procedure for chemical fires.</td>
</tr>
</tbody>
</table>

### 6. ACCIDENTAL RELEASE MEASURES

**General:** Wear dust respirator and protective clothing. Keep unnecessary personnel away. Sweep or vacuum into closed containers for disposal. Dispose in compliance with local, state, and federal regulations.

### 7. HANDLING AND STORAGE

**Handling:** Avoid contact with eyes and prolonged contact with skin. Avoid breathing large amounts of dust. Wash away splashes and spillages with water.

**Storage Temperature:** Ambient storage pressure: atmospheric

**General:** Store in cool dry area away from incompatible materials. Protect containers from damage.

**Incompatible products**

**Empty Containers:** Incompatible with strong bases and oxidizing agents. Empty containers retain product residue and vapors. Observe all label precautions even after container is emptied. Do not reuse unless thoroughly cleaned.

### 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

**Engineering measures**

Provide general dilute ventilation.

**Exposure limit(s)**

None established.

**Personal protection equipment**

**Respiratory protection**

NIOSH approved dust respirator.

**Hand protection**

Gloves.

**Eye Protection**

Safety glasses.

**Skin and body protection**

Lightweight protective clothing.

**Hygiene measures**

Handle in accordance with good industrial hygiene and safety practice.
### 9. PHYSICAL AND CHEMICAL PROPERTIES

- **Form**: powder
- **Color**: colorless / white
- **Odor**: none
- **pH** (5 % solution): 1.8
- **Vapor pressure**: not volatile
- **Vapor density**: not applicable
- **Boiling point**: not established
- **Evaporation rate**: essentially 0
- **Coefficient of water/oil distribution**: not established
- **Melting point/range**: 153°C
- **Decomposition temperature**: > 170°C
- **Relative density**: 1.665 g/cm³
- **Bulk density**: 650 - 950 kg/m³
- **Solubility, Water solubility (25°C)**: 576 g/kg
- **Solubility in other solvents, Alcohol (25°C)**: 383 g/l

### 10. STABILITY AND REACTIVITY

- **Stability**: Stable at normal conditions
- **Conditions to avoid**: Avoid dust formation. Take precautionary measures against static discharges.
- **Materials to avoid**: Incompatible with strong bases and oxidizing agents.
- **Hazardous polymerization**: Does not occur.

### 11. TOXICOLOGICAL INFORMATION

- **Acute toxicity**:
  - LD50/p.o./rat: 11,700 mg/kg
  - LD50/i.p./rat: 885 mg/kg
  - LD50/p.o./mouse: 5,040 mg/kg
  - LD50/i.p./mouse: 981 mg/kg
- **Local effects**: Irritating to eyes and skin
- **Chronic toxicity**: None
- **Human experience**: Health injuries are not known or expected under normal use.

### 12. ECOLOGICAL INFORMATION

- **Mobility**: Completely soluble
- **Persistence and degradability**:
  - **Chemical oxygen demand** (COD): 729 mg O₂/g
  - **Biological oxygen demand (5 days)** (BOD): 528 mg O₂/g
  - **Readily biodegradable**: 98% after 2 days
  - **Bioaccumulation**: None
  - **Ecotoxicity effects**:
    - Toxicity to fish (LC50/96h/goldfish) = 440-706 mg/l
    - Toxicity to bacteria (EC0) = >10,000 mg/l
13. DISPOSAL CONSIDERATIONS
Waste from residues/unused products
Any disposal practice must be in compliance with local, state and federal laws and regulations (contact local or state environmental agency for specific rules).

14. TRANSPORT INFORMATION
Not Regulated

15. REGULATORY INFORMATION
Citric acid is generally regarded as safe (GRAS) by USA FDA. 29 CFR 182.1033
Listed European Food Additive E330
The material is listed on the TSCA Inventory List.
CERCLA (Comprehensive Response Compensation, and Liability Act): Not hazardous
SARA Title III (Superfund Amendments and Reauthorization Bill): Not Considered Hazardous
Foreign Inventory Status
Canadian DSL (Domestic Substance List)
Does not contain any California Prop 65 substances.

16. OTHER INFORMATION
HMIS* Rating Health = 0, Fire = 0, Reactivity =0

MSDS Status: Revised 8/14/1996 by Technical Service Department.

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