

## PRODUCT IDENTIFICATION



**Product Name:** Citric Acid Monohydrate - USP Food Grade

**CAS Number:** 5949-29-1

**Molecular Formula:**  $C_6H_{10}O_8$

**Molecular Weight:** 210.14 g/mol

**Grade:** Food Grade

**Purity / Concentration:** 99.5%

**Synonyms:** Citric Acid, 2-Hydroxypropane-1,2,3-tricarboxylic acid

## PRODUCT OVERVIEW

Citric Acid Monohydrate USP Food Grade is a high-purity crystalline acid widely used as a versatile flavoring and stabilizing agent. Featuring a 99.9% assay on our current COA, this reliable ingredient is essential for precise pH control and product preservation.

**Grade Significance:** Choosing USP Food Grade ensures the product meets stringent purity and safety standards suitable for human consumption and sensitive pharmaceutical applications. It guarantees that impurities are kept below critical thresholds, providing consistency for your end-use formulations.

**CERTIFICATE OF ANALYSIS — TYPICAL VALUES**

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (wt%)	%	99.9	99.5	100.5	Titration with standardized NaOH
Color Alpha	—	5	—	10	APHA/Hazen visual comparison
Specific Gravity (20°C)	g/mL	1.55	1.54	1.56	Density measurement by pycnometer at 20°C
Residue After Ignition	%	0.3	—	0.5	Gravimetric residual after complete ignition
Aluminum (Al)	ppm	0.2	—	1	ICP-OES
Arsenic (As)	ppm	1	—	3	ICP-OES
Calcium (Ca)	ppm	100.0	—	500.0	ICP-OES
Chromium (Cr)	ppm	0.5	—	2	ICP-OES
Cobalt (Co)	ppm	0.2	—	1	ICP-OES
Copper (Cu)	ppm	0.5	—	2	ICP-OES
Heavy Metals (as Pb)	ppm	0.5	—	2	ICP-OES
Iron (Fe)	ppm	1	—	5	ICP-OES
Lead (Pb)	ppm	0.5	—	2	ICP-OES
Magnesium (Mg)	ppm	60	—	300.0	ICP-OES
Manganese (Mn)	ppm	0.5	—	2	ICP-OES
Nickel (Ni)	ppm	0.5	—	2	ICP-OES
Potassium (K)	ppm	200.0	—	1000.0	ICP-OES
Sodium (Na)	ppm	200.0	—	1000.0	ICP-OES
Zinc (Zn)	ppm	1	—	5	ICP-OES
Ammonium (NH <sub>4</sub> <sup>+</sup> )	ppm	5	—	15	Ion Chromatography (IC)
Chloride (Cl <sup>-</sup> )	ppm	20	—	100.0	Ion Chromatography (IC) or standard chloride titration
Nitrate (NO <sub>3</sub> <sup>-</sup> )	ppm	50	—	200.0	Ion Chromatography (IC)
Phosphate (PO <sub>4</sub> <sup>3-</sup> )	ppm	200.0	—	1000.0	Ion Chromatography (IC)
Sulfate (SO <sub>4</sub> <sup>2-</sup> )	ppm	300.0	—	1500.0	Ion Chromatography (IC)
Substances Reducing KMnO <sub>4</sub>	—	Passes test	—	—	Potassium permanganate time test
Acidity (meq)	meq	0.1	—	0.2	Titration with standardized base

ND = Not Detected. Values are typical and may vary by lot.

**PHYSICAL & CHEMICAL PROPERTIES**

<b>Appearance</b>	Translucent	<b>Odor</b>	Slightly sour odor
<b>Form</b>	Crystal	<b>Boiling Point</b>	175°C (347°F)
<b>Melting / Freezing Point</b>	100°C (212°F)	<b>Flash Point</b>	385°C (725°F)
<b>Solubility</b>	Highly soluble in water, moderate in alcohol	<b>Molecular Formula</b>	C <sub>6</sub> H <sub>10</sub> O <sub>8</sub>
<b>Molecular Weight</b>	210.14 g/mol	<b>Vapor Pressure (20°C)</b>	0.0001 mmHg
<b>Refractive Index (20°C)</b>	1.542	<b>Density (25°C)</b>	1.665 g/mL
<b>Partition Coefficient (log P)-0.7</b>		<b>Decomposition Temp.</b>	175

## APPLICATIONS

1. **Food and Beverage** — Functions as a key acidulant to enhance flavor profiles and extend the shelf life of various food products.
2. **Pharmaceuticals** — Acts as a critical chelating agent to stabilize metal ions and maintain the efficacy of medicinal formulations.
3. **Cosmetics** — Used as a reliable buffering agent to maintain optimal pH levels, ensuring stability and safety in personal care products.
4. **Nutraceuticals** — Incorporated into dietary supplements to adjust acidity and improve the palatability of powders and liquid formulas.

## STORAGE & HANDLING

Proper storage in a cool, dry environment is essential to prevent moisture absorption and clumping of the crystalline structure. Given its potential to cause respiratory and eye irritation, containers must be kept tightly sealed to minimize dust exposure and maintain worker safety.

- Store in a cool, dry place away from direct sunlight.
- Use appropriate personal protective equipment (PPE) when handling.
- Ensure containers are tightly sealed to prevent moisture ingress.
- Compatible with HDPE and glass containers; avoid metal containers.
- Keep away from strong oxidizing agents.

## AVAILABLE PACKAGING

- 2 lbs.
- 5 Lbs.
- 55 Lbs.

## SAFETY SUMMARY (CROSS-REFERENCE TO SDS)

Signal Word: **Warning**



### Hazard Statements:

- H315 (14.2%): Causes skin irritation [Warning Skin corrosion/irritation]
- H319 (93.2%): Causes serious eye irritation [Warning Serious eye damage/eye irritation]
- H335 (45.3%): May cause respiratory irritation [Warning Specific target organ toxicity, single exposure; Respiratory tract irritation]

**Emergency Contact:** CHEMTEL - 800-255-3924 (24 Hours/Day, 7 Days/Week)

*For complete safety information, refer to the Safety Data Sheet (SDS) for this product.*

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