

Material Safety Data Sheet (MSDS / SDS)

Citric Acid - Monohydrate and Anhydrous Grades

SECTION 1: Identification

Product Name	Citric Acid (Monohydrate and Anhydrous Forms)
Synonyms	Citric Acid, Citric Acid Monohydrate, Citric Acid Anhydrous, 2-Hydroxypropane-1,2,3-Tricarboxylic Acid, E330
CAS No.	5949-29-1 (Monohydrate); 77-92-9 (Anhydrous)
Recommended Use	Food, beverage and pharmaceutical acidulant; industrial pH adjuster, chelating agent and cleaning formulation ingredient
Manufacturer / Supplier	Ochnology Solution Pvt. Ltd., B-153, Sector-4 Defence Colony, Dehradun, Uttarakhand, India - 248001
Telephone	+91 9286823642/43
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SECTION 2: Hazard(s) Identification

GHS Classification: Eye Irritation Category 2 (H319); Skin Irritation Category 2 (H315, concentrated/prolonged contact)

Signal Word: Warning

Hazard Statements:

- H319 - Causes serious eye irritation
- H315 - Causes skin irritation (primarily relevant to concentrated solutions or prolonged/repeated powder contact)

Precautionary Statements:

- P264 - Wash hands thoroughly after handling
- P280 - Wear protective gloves/eye protection
- P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes; remove contact lenses if present and easy to do; continue rinsing
- P302+P352 - IF ON SKIN: Wash with plenty of water
- P337+P313 - If eye irritation persists, get medical advice/attention

SECTION 3: Composition / Information on Ingredients

Component	CAS No.	Concentration (w/w)
Citric Acid Monohydrate (C ₆ H ₈ O ₇ ·H ₂ O)	5949-29-1	Min. 99.5% (as monohydrate form)
Citric Acid Anhydrous (C ₆ H ₈ O ₇)	77-92-9	Min. 99.5% (as anhydrous form)

SECTION 4: First-Aid Measures

Eye Contact	Rinse immediately with plenty of water for several minutes, holding eyelids open. Remove contact lenses if present and easy to do. Seek medical attention if irritation persists.
Skin Contact	Wash with plenty of water. Remove contaminated clothing if wetted with concentrated solution. Seek medical attention if irritation persists.
Inhalation	Move to fresh air. If coughing or respiratory discomfort from dust persists, seek medical attention.
Ingestion	Rinse mouth with water. Citric acid is a widely consumed food acid and is not expected to be harmful in typical amounts; seek medical attention if a large quantity is ingested or discomfort occurs.

SECTION 5: Fire-Fighting Measures

- Combustible organic solid; finely divided dust can pose a combustible dust hazard in confined processing spaces
- Suitable extinguishing media: water spray/fog, foam, CO₂, dry chemical
- Fire-fighters should wear SCBA in enclosed or heavily smoke-logged conditions

SECTION 6: Accidental Release Measures

- Avoid generating dust during clean-up; use damp cleaning methods or HEPA-filtered vacuum where practical
- Sweep or vacuum into suitable containers for reuse or disposal
- Spilled material dissolved in water can be mildly acidic – rinse area with water after clean-up

SECTION 7: Handling and Storage

- Avoid generating and inhaling dust; use local exhaust ventilation at dust-generating points
- Avoid prolonged or repeated skin/eye contact; wash hands after handling
- Store in a cool, dry, well-ventilated area away from moisture – product is hygroscopic (monohydrate form) and can effloresce/cake if poorly sealed
- Keep away from strong oxidising agents and strong bases (exothermic neutralisation reaction)

SECTION 8: Exposure Controls / Personal Protection

Occupational Exposure Limits	No specific OEL established for citric acid; treat as Particulates Not Otherwise Regulated (nuisance dust), general reference 10 mg/m ³ total dust, 8-hr TWA
Engineering Controls	Local exhaust ventilation at dust-generating process steps
Eye/Face Protection	Safety glasses or chemical goggles recommended – this product is an eye irritant
Hand Protection	General-purpose work gloves sufficient for routine handling
Respiratory Protection	Dust mask (N95 or equivalent) recommended in dusty conditions

SECTION 9: Physical and Chemical Properties

Property	Unit	Value
Appearance	–	White to colourless crystalline

Property	Unit	Value
		powder or granules
Odour	–	Odourless
Melting Point (Anhydrous)	°C	≈ 153
Melting Point (Monohydrate, with dehydration)	°C	≈ 100 – 135 (loses water of crystallisation before melting)
Solubility in Water	–	Very soluble; freely soluble in ethanol
pH (1% Aqueous Solution)	–	≈ 2.2 (mildly acidic)
Flash Point	–	Not applicable (solid); combustible dust hazard applies to fine powder

SECTION 10: Stability and Reactivity

- Stable under normal, dry conditions of storage, handling and use
- Monohydrate form effloresces (loses water of crystallisation) in dry air; hygroscopic in humid conditions
- Incompatible materials: strong oxidising agents, strong bases (exothermic neutralisation), sodium/potassium metals
- Hazardous decomposition products: none under normal conditions; combustion may release carbon oxides

SECTION 11: Toxicological Information

- Very low acute oral and dermal toxicity; citric acid is a widely consumed, naturally occurring food acid (found in citrus fruits) and holds Generally Recognized As Safe (GRAS)/food-additive status (E330) in essentially all major jurisdictions
- Causes eye irritation and may cause skin irritation on direct contact with concentrated solutions or prolonged/repeated powder contact – this is the primary hazard consideration for this otherwise low-toxicity substance

- Not classified as carcinogenic, mutagenic, or toxic to reproduction based on available information

SECTION 12: Ecological Information

- Not classified as hazardous to aquatic organisms under GHS criteria based on available data
- Readily biodegradable, consistent with citric acid's natural occurrence and role in normal metabolic (Krebs cycle) processes
- No significant bioaccumulation potential

SECTION 13: Disposal Considerations

- Dispose of product and packaging in accordance with local, state and national regulations
- Not classified as hazardous waste under standard criteria
- Can typically be neutralised and disposed of via standard wastewater treatment in accordance with local discharge permits

SECTION 14: Transport Information

UN Number	Not applicable – not classified as Dangerous Goods
Proper Shipping Name	Not regulated for transport (IMDG / ADR / IATA / RID)
Transport Hazard Class	Not classified
Packing Group	Not applicable
Environmental Hazards	None identified under standard transport classification criteria

SECTION 15: Regulatory Information

- Citric acid is approved as a food additive (E330) in the EU, and holds GRAS status and USP/FCC/BP compendial recognition in the United States, Europe and other major jurisdictions
- Widely listed on major chemical inventories (TSCA, REACH, ECL, etc.) as an existing/registered substance
- This SDS covers both the Monohydrate (CAS 5949-29-1) and Anhydrous (CAS 77-92-9) forms – the hazard profile does not materially change between these two forms, only water content and corresponding physical properties (e.g. melting behaviour) differ
- Buyers/importers should confirm labelling and inventory requirements applicable to their specific jurisdiction and end-use; food/pharmaceutical-grade certification for the specific batch should be confirmed via the supplier's Certificate of Analysis

SECTION 16: Other Information

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This SDS has been compiled based on general industry data and knowledge for Citric Acid products of this type as commercially supplied, covering both Monohydrate and Anhydrous forms. It is intended as a general handling and safety guide and does not replace a batch-specific SDS or Certificate of Analysis from the manufacturing mill, which should be obtained and reviewed for each shipment.

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