

CITRIC ACID MONOHYDRATE

Date of compilation: 01-08-2026 | Revised: 01-08-2026 | Version: 1

SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

CITRIC ACID MONOHYDRATE
2-Hydroxy-1,2,3-propanetricarboxylic acid monohydrate; E330
CAS: 5949-29-1

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Food, beverage and pharmaceutical acidulant/preservative/chelating agent (E330); cleaning and descaling formulations; industrial buffering agent. For industrial and food-processing use.
Uses advised against: All uses not specified in this section or in section 7.3.

1.3 Supplier's details:

SURAJ CHEMICALS
No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India
Tel: +91 - 7092722822, +91 - 9840284032 / +91 - 44 - 25393652, 42130281
Email: sales@surajchemicals.com | Website: www.surajchemicals.com
GST No: 33ACEPV8190L1ZZ

1.4 Emergency phone number:

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), based on well-established public data for citric acid monohydrate (CAS 5949-29-1), which shares the hazard profile of anhydrous citric acid.

Eye Irrit. 2	Eye irritation, Category 2, H319
--------------	----------------------------------

2.2 GHS label elements, including precautionary statements:

GHS: Warning

Hazard statements:

H319: Causes serious eye irritation.

Precautionary statements:

P264: Wash exposed skin thoroughly after handling.
P280: Wear eye protection/face 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.
P337+P313: If eye irritation persists, get medical advice/attention.
P501: Dispose of contents/container in accordance with local/regional/national regulations.

2.3 Other hazards which do not result in classification:

Fine dust may form combustible dust clouds under specific conditions. Loses its water of crystallisation above ~75°C. Not a PBT/vPvB substance.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Citric Acid Monohydrate (C₆H₈O₄·H₂O)
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 5949-29-1	Citric Acid Monohydrate – Eye Irrit. 2: H319 – Warning	≥99.5%

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

3.2 Mixtures:

Non-applicable (single substance)

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first-aid measures:

Request medical assistance if symptoms are severe or persist, showing the SDS of this product.

By inhalation:

Dust may irritate the respiratory tract. Remove to fresh air.

By skin contact:

Wash with plenty of water. Remove contaminated clothing.

By eye contact:

Rinse eyes thoroughly with water for at least 15 minutes, holding eyelids open. Seek medical attention if irritation persists.

By ingestion/aspiration:

Rinse mouth. Give water to drink if the person is conscious. Do not induce vomiting.

4.2 Most important symptoms/effects, acute and delayed:

Eye irritation is the principal acute effect. Dust may cause transient irritation of the respiratory tract.

4.3 Indication of immediate medical attention and special treatment needed, if necessary:

Treat symptomatically. No specific antidote required.

SECTION 5: FIRE-FIGHTING MEASURES

- 5.1 Suitable extinguishing media:**
Suitable: Water spray, foam, dry chemical, CO₂.
Unsuitable: None known.
- 5.2 Specific hazards arising from the chemical:**
Combustible solid. Fine dust suspended in air may form an explosive dust cloud. Loses water of crystallisation on heating (>75°C); thermal decomposition may release irritant fumes.
- 5.3 Special protective actions for fire-fighters:**
Wear self-contained breathing apparatus in enclosed or poorly ventilated areas.

Additional provisions:
Avoid dispersing spilled dust; use water spray to knock down dust rather than dry sweeping near ignition sources.

SECTION 6: ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures:**
For non-emergency personnel:
Avoid dust generation and inhalation. Use PPE described in section 8.
- For emergency responders:**
Wear appropriate protective equipment; control ignition sources near spilled dust.
- 6.2 Environmental precautions:**
Avoid large releases to drains or watercourses; may locally lower pH.
- 6.3 Methods and materials for containment and cleaning up:**
Sweep up or vacuum (using dust-explosion-rated equipment) and place in a suitable, labelled container for reuse or disposal. Avoid generating dust clouds.
- 6.4 Reference to other sections:**
See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

- 7.1 Precautions for safe handling:**
A. General precautions for safe use:
Avoid contact with eyes. Avoid generating and inhaling dust. Use with adequate ventilation.
- B. Technical recommendations for the prevention of fires and explosions:**
Control dust accumulation; eliminate ignition sources; use appropriately rated (dust-explosion) electrical equipment where fine dust may be present.
- C. Technical recommendations on general occupational hygiene:**
Do not eat, drink or smoke while handling. Wash hands thoroughly after handling.
- D. Technical recommendations to prevent environmental risks:**
Prevent uncontrolled discharge to drains or watercourses.
- 7.2 Conditions for safe storage, including any incompatibilities:**
A. Specific storage requirements:

Storage condition	Store in tightly closed containers/bags in a cool (below ~30°C to limit efflorescence/caking), dry, well-ventilated place
Incompatible materials	Strong oxidising agents, strong bases, sulfur trioxide, metal nitrates

- B. General conditions for storage:**
Keep away from excessive heat (loses water of crystallisation above ~75°C) and from oxidisers.
- 7.3 Specific end use(s):**
Food/beverage acidulant (E330) for use within Good Manufacturing Practice / statutory dosage limits. Except for the instructions already specified, no other special recommendation applies.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

Identification	Occupational Exposure Limit Type	Value
Citric Acid Monohydrate CAS: 5949-29-1	No specific OEL established (treat as particulate not otherwise classified)	General inert-dust limit: 10 mg/m³ (total dust) / 3 mg/m³ (respirable)

- 8.2 Appropriate engineering controls:**
Provide local exhaust ventilation where dust is generated.
- B. Respiratory protection:**
Not normally required with adequate ventilation; use a particulate filter respirator (FFP2 type) if dust levels are elevated.
- C. Specific protection for the hands:**
Chemical-resistant gloves recommended for prolonged or repeated contact.
- D. Eye and face protection:**
Safety glasses with side shields or chemical goggles.
- E. Bodily protection:**
Standard food-industry/work clothing.
- F. Additional emergency measures:**
Eyewash station and washing facilities should be available.
- Environmental exposure controls:**
Prevent uncontrolled discharge to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance	
Physical state at 20°C	Solid (crystalline powder/granules)
Appearance	White crystalline solid
Odor	Odorless
Odour threshold	Not applicable
Volatility	
Boiling point	Decomposes before boiling
Melting point	Loses water of crystallisation at ~75°C; anhydrous form melts at 153°C

Vapour pressure	Negligible at room temperature
Evaporation rate	Not applicable (solid)
Product Description	
Molecular weight	210.14 g/mol
Density	1.542 g/cm³
pH (1% aqueous solution)	~2.2 (acidic)
Solubility in water at 20°C	~118–133 g/100 mL (freely soluble)
Decomposition temperature	~175°C (anhydrous residue)
Flammability	
Flash Point	Non-applicable (combustible solid, no conventional flash point)
Flammability (solid, gas)	Combustible solid (not readily ignited)
Autoignition temperature	~1010°C
Lower / Upper flammability limit	Not established for dust cloud (treat per combustible-dust precautions)

9.2 Other information:

Explosive properties	Not explosive as bulk solid; fine dust may form explosible dust cloud
Oxidising properties	Not classified as an oxidiser
Corrosive to metals	Mildly corrosive to some metals in aqueous solution (chelating action)

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:
Reacts with strong bases (neutralisation, exothermic) and with strong oxidising agents. Chelates metal ions.

10.2 Chemical stability:
Chemically stable under the indicated conditions of storage, handling and use. Effloresces (loses water of crystallisation) above ~75°C or under very dry conditions.

10.3 Possibility of hazardous reactions:
Hazardous polymerisation does not occur. Under specified conditions, hazardous reactions leading to excessive temperature or pressure are not expected.

10.4 Conditions to avoid:

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Avoid open flame/heat and >75°C (dehydration) – combustible dust	Not applicable	Avoid very low humidity (efflorescence) and very high humidity (caking)

10.5 Incompatible materials:
Strong oxidising agents, strong bases, sulfur trioxide, metal nitrates.

10.6 Hazardous decomposition products:
Carbon monoxide and carbon dioxide on thermal decomposition/combustion; water vapour on dehydration.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:
In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect):
Low acute oral toxicity; a common food acid. Large doses may cause gastrointestinal irritation.

B. Inhalation (acute effect):
Dust may cause irritation of the nose, throat and respiratory tract.

C. Contact with skin and eyes (acute effect):
Skin: not classified as irritant under normal handling. Eyes: causes serious eye irritation.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity):
Not listed as a carcinogen by IARC, NTP or OSHA. Classification criteria for mutagenicity/reproductive toxicity are not met based on available data.

E. Sensitizing effects:
Classification criteria for respiratory or skin sensitisation are not met based on available data.

F. Specific target organ toxicity (STOT) – single exposure:
Classification criteria are not met based on available data.

G. Specific target organ toxicity (STOT) – repeated exposure:
Classification criteria are not met based on available data.

H. Aspiration hazard:
Not applicable (solid).

Product-specific toxicological information:

Identification	Acute Toxicity	Genus
Citric Acid Monohydrate CAS: 5949-29-1	LD50 oral: ~3000 mg/kg (as citric acid)	Rat
	LD50 dermal: >2000 mg/kg	Rabbit

SECTION 12: ECOLOGICAL INFORMATION

Readily biodegradable and of low aquatic toxicity; a naturally occurring metabolite.

12.1 Toxicity:

Acute Toxicity	Species	Genus
LC50: >100 mg/L (96h)	Non-applicable	Fish
EC50: >100 mg/L (48h)	Non-applicable	Daphnia

12.2 Persistence and degradability:
Readily biodegradable (naturally occurring in the citric acid/Krebs cycle).

12.3 Bioaccumulative potential:
Not expected to bioaccumulate (log Pow ~1.7, low).

12.4 Mobility in soil:

--	--	--	--

Koc	Henry	Dry Soil	Moist Soil
Low (highly water soluble)	Negligible	Highly soluble/mobile	

12.5 Results of PBT and vPvB assessment:

Does not meet PBT/vPvB criteria.

12.6 Other adverse effects:

None expected under normal use; may transiently lower pH of receiving water at high discharge concentrations.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

Not classified as hazardous waste. Dissolve/neutralise and dispose of in accordance with local discharge consent, or via a licensed waste contractor.

Refer to national and local regulations on waste management.

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR/RID):

14.1 UN number	Not regulated
14.2 UN proper shipping name	Citric Acid Monohydrate – non-hazardous for transport
14.3 Transport hazard class(es)	N/A
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	None
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not applicable

Transport of dangerous goods by sea (IMDG):

14.1 UN number	Not regulated
14.2 UN proper shipping name	Citric Acid Monohydrate – non-hazardous for transport
14.3 Transport hazard class(es)	N/A
14.4 Packing group	N/A
14.5 Marine pollutant	No
14.6 Special precautions for user	None
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not applicable

Transport of dangerous goods by air (IATA/ICAO):

14.1 UN number	Not regulated
14.2 UN proper shipping name	Citric Acid Monohydrate – non-hazardous for transport
14.3 Transport hazard class(es)	N/A
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	None
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not applicable

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question:

Permitted as a food acidulant/preservative/sequestrant (E330) subject to Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011 and Codex Alimentarius GSFA limits (generally GMP-level use).

Other legislation:

Food Safety and Standards Act, 2006 and associated Regulations (India)
Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3:

H319: Causes serious eye irritation.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training:

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:

Publicly available GHS classification and physicochemical reference data for citric acid monohydrate (CAS 5949-29-1).

Abbreviations and acronyms:

LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Koc: Partition coefficient of organic carbon | Log-POW: Octanol-water partition coefficient | IARC: International Agency for Research on Cancer | GMP: Good Manufacturing Practice

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

END OF SAFETY DATA SHEET