Technical Data Sheet

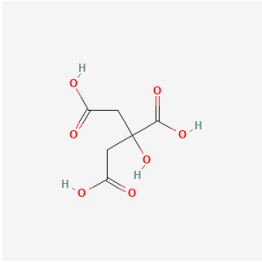
Citric Acid Anhydrous - Food Grade

Food

Alliance Code	Revised	Revision
citric-acid-anhydrous-food-grade	2026-10-13	1.4

CAS number

77-92-9



Structure · PubChem

Grade	Signal word
Food	**Warning**

Hazards

Irritant / harmful H319 H335

IDENTITY & COMPOSITION

PRODUCT NAME
Citric Acid Anhydrous - Food Grade

ALLIANCE CODE
citric-acid-anhydrous-food-grade

GRADE
Food

CONCENTRATION
—

CAS NUMBER
77-92-9 PubChem

FORMULA
C6H8O7 PubChem

MOLECULAR WEIGHT
192.12 PubChem

PRODUCT TYPE
—

SPECIFICATIONS

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Assay (anhydrous basis)	Not less than 99.5% and not more than 100.5%	—	Titration (FCC/USP citric acid assay)	Interpreted
Arsenic	<= 1.00 ppm	—	Arsenic - TN20560	Interpreted

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Heavy Metals (as lead)	Maximum 5.0 ppm	—	Heavy Metals as Lead - TN20630	Interpreted
Identification	Meets USP/FCC	—	—	Interpreted
Lead	Not more than 0.5 mg/kg	—	Lead by AA - TN20680	Interpreted
Limit of Oxalic Acid	<= 100.00 ppm	—	Oxalate - TN20740	Interpreted
Oxalate	100 mg/kg	—	—	Interpreted
Residue on Ignition (sulfated ash)	Not more than 0.05%	—	Sulfated Ash - TN20910	Interpreted
Readily Carbonizable Substances	Not darker than matching fluid K.	—	Readily Carbonizable Substances - TN20875	Interpreted
Sulfate	Maximum 0.015%	—	Sulfate - TN20905	Interpreted
Tridodecylamine	0.1 mg/kg	—	—	Interpreted
Tridodecylamine (solvent-extracted material only)	<= 100.0 ppb	—	Tridodecylamine - TN20880	Interpreted
Water	Not more than 0.5%	—	Karl Fischer (Moisture - TN20700 per Tate & Lyle sheet)	Interpreted
Aluminium	0.2 mg/kg max	—	—	Interpreted
Bacterial endotoxins	0.5 I.U./MG max	—	—	Interpreted

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Calcium	100 mg/kg max	—	—	Interpreted
Chloride	50 mg/kg max	—	—	Interpreted
Chromium	1 mg/kg max	—	—	Interpreted
Cobalt	1 mg/kg max	—	—	Interpreted
Iron	5 mg/kg max	—	—	Interpreted
Mercury	0.5 mg/kg max	—	—	Interpreted
Nickel	1 mg/kg max	—	—	Interpreted

Values are reproduced from the current product reference. Source labels do not by themselves establish a supplier guarantee or a test result for your lot. Confirm applicable acceptance limits and request lot-specific documentation.

AVAILABLE GRADES SAME CAS, ALTERNATE GRADES AND CONCENTRATIONS

GRADE	CONCENTRATION	TYPICAL ASSAY	SKU
THIS GRADE Food	—	—	current
Technical	50% w/w	—	citric-acid-50-solution
Technical	25% w/w	—	citric-acid-25-solution
ACS Reagent	—	—	citric-acid-anhydrous-acs-reagent-grade

Typical assay for each grade is the average of its recent lots. Confirm a grade meets your specification before substituting it.

PHYSICAL & CHEMICAL PROPERTIES

PROPERTY	VALUE	SOURCE
Appearance	White crystalline powder	Adjudicated
Odor	Odorless	Published reference
Density	1.54 g/cm^3 at 68 °F (USCG, 1999)	Published reference
Boiling Point	Decomposes (NTP, 1992)	Published reference
Melting Point	307 °F (anhydrous) (NTP, 1992)	Adjudicated
Flash Point	100 °C	Adjudicated
Solubility (water)	greater than or equal to 100 mg/mL at 72 °F (NTP, 1992)	Published reference

REGULATORY & TRANSPORT

DOT / 49 CFR

UN NUMBER

Not regulated Adjudicated

HAZARD CLASS

Not regulated Adjudicated

PACKING GROUP

Not regulated Adjudicated

PROPER SHIPPING NAME

Not regulated Adjudicated

GHS / OSHA HCS 2024

SIGNAL WORD

Warning Adjudicated

H-CODES (HAZARD STATEMENTS)

H319, H335 Adjudicated

P-CODES (PRECAUTIONARY STATEMENTS)

P261, P264, P271, P280, P304+P340, P305+P351+P338, P312, P337+P313, P403+P233, P405, P501

Adjudicated

OCCUPATIONAL EXPOSURE LIMITS

OSHA PEL (29 CFR 1910.1000)

— no canonical

ACGIH TLV

— no canonical

NIOSH REL

— no canonical

NIOSH IDLH

— no canonical

Transport descriptions reflect 49 CFR 172.101 lookup at time of publication. Sourced data: NIOSH Pocket Guide for REL/IDLH, OSHA Z-Tables for PEL. Always verify against the latest regulatory text before shipment-critical decisions.

APPLICATIONS

Acidulant and sequestrant of metal ions in food, beverage and pharmaceutical products, imparting a clean tartness and protecting against off-flavors

ingredi.com

FCC food-grade functions: sequestrant, dispersing agent, acidifier and flavoring agent mubychem.com

Industrial use in the manufacture of ecologically compatible detergents, chemical cleaning, concrete admixtures and plasticizers

ingredi.com

Used as a hydraulic fracturing / well stimulation chemical in oil and shale gas production mubychem.com

Used as an acidulant. ingredi.com

Used to sequester metal ions and protect certain foods from off-flavors and off-odors. ingredi.com

Used in chemical cleaning, concrete admixtures, and plasticizers. ingredi.com

Applications are drawn from published manufacturer and supplier documentation; each is sourced. Suitability for a specific use is the buyer's to confirm.

STORAGE & HANDLING

RECOMMENDED STORAGE

Keep containers tightly closed in a cool, dry, well-ventilated place away from sunlight and incompatible materials. Polypropylene packaging is suitable. Avoid dust formation when handling.

Adjudicated

HANDLING PRECAUTIONS

Use standard chemical PPE — splash goggles, gloves, lab coat. Refer to SDS for hazard-specific PPE requirements.

Class-level guidance — not product-specific; the SDS controls.

INCOMPATIBILITIES

Strong oxidizing agents; strong bases; reducing agents; nitrates.

Adjudicated

SHELF LIFE

36 months ingredi.com

Stored below 75°F and 55% relative humidity in a tightly sealed container; retest after 3 years

For full hazard, PPE, and emergency response guidance, refer to the Safety Data Sheet (SDS) for this product. The SDS controls in all cases where guidance differs.

PACKAGING & LOGISTICS

SHIPPING DESCRIPTION (US DOT)

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Not regulated for transport.
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Confirm against shipping documents and carrier requirements before tender.

NMFC CLASS

70

REVISION HISTORY

Last reviewed 2026-10-13 by Andre Taki, Chief Commercial Officer, DOT Hazmat–certified (49 CFR 172.704).

VERSION	DATE	CHANGE	TRIGGER
1.4	2026-10-13	Canonical data updated: 4 fields changed via the provenance/adjudication pipeline. • storage_precautions · canonical change (coa.data_provenance / adjudication) • incompatible_materials · canonical change (coa.data_provenance / adjudication) • conditions_to_avoid · canonical change (coa.data_provenance / adjudication) • hazardous_decomposition_products · canonical change (coa.data_provenance / adjudication)	canonical_change

VERSION	DATE	CHANGE	TRIGGER
1.3	2026-10-07	Canonical data updated: 3 fields changed via the provenance/adjudication pipeline. • ghsClassification · canonical change (coa.data_provenance / adjudication) • hazard_h_codes · canonical change (coa.data_provenance / adjudication) • hazard_p_codes · canonical change (coa.data_provenance / adjudication)	canonical_change
1.2	2026-09-30	Canonical data updated: 3 fields changed via the provenance/adjudication pipeline. • meltingPoint · canonical change (coa.data_provenance / adjudication) • flashPoint · canonical change (coa.data_provenance / adjudication) • appearance · canonical change (coa.data_provenance / adjudication)	canonical_change
1.1	2026-07-17	Canonical data re-verified: 10 fields updated against independent vendor SDSs, CLP Annex VI, 49 CFR, and OSHA HazCom 2024 (GHS classification, hazard/precautionary codes, signal word, physical properties as applicable). • countryOfOrigin · canonical adjudication / reground (coa.data_provenance) • dotProperShippingName · canonical adjudication / reground (coa.data_provenance) • dotSubsidiaryHazardClass · canonical adjudication / reground (coa.data_provenance) • ghsClassification · canonical adjudication / reground (coa.data_provenance) • hazard_h_codes · canonical adjudication / reground (coa.data_provenance) • hazard_p_codes · canonical adjudication / reground (coa.data_provenance) • hsCode · canonical adjudication / reground (coa.data_provenance) • packingGroup · canonical adjudication / reground (coa.data_provenance) • physicalProperties · canonical adjudication / reground (coa.data_provenance) • unNumber · canonical adjudication / reground (coa.data_provenance)	canonical_change
1.0	2026-05-20	Initial URL-first TDS published from canonical chemistry registry.	initial

This Technical Data Sheet is provided for technical reference. The Safety Data Sheet (SDS) controls in all cases where guidance differs. Values reflect Alliance Chemical canonical data at time of generation; subsequent revisions are recorded in the Revision History above.