

TECHNICAL DATA SHEET

Citric Acid Anhydrous - Food Grade

Food

CAS NUMBER	ALLIANCE CODE	GENERATED
77-92-9	citric-acid-anhydrous-food-grade	2026-08-31
REVISION	REVIEWED	
1.1	2026-07-17 · Andre Taki	

IDENTITY & COMPOSITION

PRODUCT NAME	ALLIANCE CODE
Citric Acid Anhydrous - Food Grade	citric-acid-anhydrous-food-grade
GRADE	CONCENTRATION
Food	—
CAS NUMBER	FORMULA
77-92-9 PubChem	C6H8O7 PubChem
MOLECULAR WEIGHT	PRODUCT TYPE
192.12 PubChem	—

SPECIFICATIONS

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Assay (anhydrous basis)	Not less than 99.5% and not more than 100.5%	100.0 %	Titration (FCC/USP citric acid assay)	FCC
Arsenic	<= 1.00 ppm	0.05 ppm	Arsenic - TN20560	Supplier specification

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Heavy Metals (as lead)	Maximum 5.0 ppm	0.3 ppm	Heavy Metals as Lead – TN20630	Supplier specification
Identification	Meets USP/FCC	Passes test	—	Supplier specification
Lead	Not more than 0.5 mg/kg	0.05 mg/kg	Lead by AA – TN20680	FCC
Limit of Oxalic Acid	<= 100.00 ppm	15 ppm	Oxalate – TN20740	Supplier specification
Oxalate	100 mg/kg	15 mg/kg	—	FCC
Residue on Ignition (sulfated ash)	Not more than 0.05%	0.008 %	Sulfated Ash – TN20910	FCC
Readily Carbonizable Substances	Not darker than matching fluid K.	Passes test	Readily Carbonizable Substances – TN20875	Supplier specification
Sulfate	Maximum 0.015%	0.003 %	Sulfate – TN20905	Supplier specification
Tridodecylamine	0.1 mg/kg	0.01 mg/kg	—	FCC
Tridodecylamine (solvent-extracted material only)	<= 100.0 ppb	10 ppb	Tridodecylamine – TN20880	Supplier specification
Water	Not more than 0.5%	0.2 %	Karl Fischer (Moisture – TN20700 per Tate & Lyle sheet)	FCC

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
aluminium	0.2 mg/kg max	0.02 mg/kg	—	Supplier specification
bacterial endotoxins	0.5 I.U./MG max	0.05	—	Supplier specification
calcium	100 mg/kg max	10 mg/kg	—	Supplier specification
chloride	50 mg/kg max	3 mg/kg	—	Supplier specification
chromium	1 mg/kg max	0.05 mg/kg	—	Supplier specification
cobalt	1 mg/kg max	0.01 mg/kg	—	Supplier specification
iron	5 mg/kg max	0.3 mg/kg	—	Supplier specification
mercury	0.5 mg/kg max	0.005 mg/kg	—	Supplier specification
nickel	1 mg/kg max	0.1 mg/kg	—	Supplier specification

Specification values are guaranteed limits. Typical values are representative of production lots and are not guaranteed. Lot-specific certificates of analysis ship with every order.

AVAILABLE GRADES SAME CAS, ALTERNATE GRADES AND CONCENTRATIONS

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

Typical assay shown is the rolling-window mean from the sibling product's most recent lots. Grade selection drives downstream end-use — verify the sibling grade matches your specification before substitution.

PHYSICAL & CHEMICAL PROPERTIES

PROPERTY	VALUE	SOURCE
Appearance	Free-flowing, colorless, translucent crystals or as a white granular to fine crystalline powder.	Supplier specification
Odor	Odorless	Published reference
Density	1.54 at 68 °F (USCG, 1999) – Denser than water; will sink	Published reference
Boiling Point	Decomposes (NTP, 1992)	Published reference
Melting Point	307 °F (anhydrous) (NTP, 1992)	Published reference
Flash Point	100 °C	Published reference
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**

PACKING GROUP

Not regulated **Adjudicated**

HAZARD CLASS

Not regulated **Adjudicated**

PROPER SHIPPING NAME

Not regulated **Adjudicated**

GHS / OSHA HAZCOM 2012

SIGNAL WORD

Warning **Adjudicated**

H-CODES (HAZARD STATEMENTS)

H319, H335 **Adjudicated**

P-CODES (PRECAUTIONARY STATEMENTS)

P261, P264, P271, P280, P304+P340,
P305+P351+P338, P314, 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: ECHA CLP Annex VI for harmonised classifications, 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

Storage below 75°F and 55% relative humidity in tightly sealed container is recommended.

[ingredi.com](#)

INCOMPATIBILITIES

Consult the SDS for material-specific incompatibilities.

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

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.

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.

SHELF LIFE

36 months [ingredi.com](#)

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

PACKAGING & LOGISTICS

SHIPPING DESCRIPTION (US DOT)

Not regulated for transport.

Confirm against shipping documents and carrier requirements before tender.

NMFC CLASS

70

REVISION HISTORY

Last reviewed 2026-07-17 by Andre Taki, DOT Hazmat Specialist.

VERSION	DATE	CHANGE	TRIGGER
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.