

TECHNICAL DATA SHEET

Citric Acid 50% Solution Technical Grade

Reagent · 50%

CAS NUMBER	ALLIANCE CODE	GENERATED
77-92-9	citric-acid-50-solution	2026-08-31
REVISION	REVIEWED	
1.2	2026-07-17 · Andre Taki	

IDENTITY & COMPOSITION

PRODUCT NAME	ALLIANCE CODE
Citric Acid 50% Solution Technical Grade	citric-acid-50-solution
GRADE	CONCENTRATION
Reagent	50%
CAS NUMBER	FORMULA
77-92-9 PubChem	C6H8O7 PubChem
MOLECULAR WEIGHT	PRODUCT TYPE
192.12 PubChem	solution

SPECIFICATIONS

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Assay as Anhydrous Citric Acid	49 – 50.5 % (w/w)	50.0 %	Alkalimetric titration, reported as anhydrous C6H8O7 % w/w	Supplier specification
Drinking-water treatment compliance	Comply with the NSF/ANSI 60 spec	Passes test	—	Supplier specification
Residue on Ignition (sulfated ash)	Max 0.05 %	0.006 %	USP <281> / sulfated ash, 800 C	Interpreted

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Heavy Metals (as Pb)	Max 5 ppm	0.2 ppm	ICP-OES, USP <233>	Interpreted

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 Reagent	50%	—	current
Technical	25%	—	citric-acid-25-solution
ACS Reagent	—	—	citric-acid-anhydrous-acs-reagent-grade
Food	—	—	citric-acid-anhydrous-food-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	Clear/white to pale yellow free from foreign particles	Supplier specification
Form	Liquid	Published reference
Color	Max 100 APHA	Supplier specification
Odor	Odorless	Published reference
pH	1.0 – 1.6	Interpreted
Specific Gravity (20 °C)	1.2	Supplier specification
Density	1.24 (50% w/w aqueous solution, 20 °C)	Published reference
Boiling Point	~100–105 °C (dilute aqueous)	Published reference
Melting Point	Not characterized for the 50% solution	Published reference
Flash Point	Not applicable (non-combustible aqueous solution)	Published reference
Solubility (water)	Miscible	Supplier specification

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

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

[ingredi.com](https://www.ingredi.com)

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

[mubychem.com](https://www.mubychem.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

Cool, dry, well-ventilated area in original sealed containers. Refer to product SDS for material-specific guidance.

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

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

Consult Technical Services for product-specific shelf life

PACKAGING & LOGISTICS

SHIPPING DESCRIPTION (US DOT)

Not regulated for transport.

Confirm against shipping documents and carrier requirements before tender.

NMFC CLASS
55

REVISION HISTORY

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

VERSION	DATE	CHANGE	TRIGGER
1.2	2026-08-05	Canonical data updated: 4 fields changed via the provenance/adjudication pipeline. - unNumber · canonical change (coa.data_provenance / adjudication) - hazardClass · canonical change (coa.data_provenance / adjudication) - packingGroup · canonical change (coa.data_provenance / adjudication) - dotProperShippingName · canonical change (coa.data_provenance / adjudication)	canonical_change

VERSION	DATE	CHANGE	TRIGGER
1.1	2026-07-17	Canonical data re-verified: 8 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). • color · canonical adjudication / reground (coa.data_provenance) • countryOfOrigin · 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) • physicalProperties · canonical adjudication / reground (coa.data_provenance) • specificGravity · 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.