

TECHNICAL DATA SHEET

Citric Acid Monohydrate - ACS Reagent Grade

ACS Reagent

CAS NUMBER	ALLIANCE CODE	GENERATED
5949-29-1	citric-acid-monohydrate-acs-reagent-grade	2026-08-31
REVISION	REVIEWED	
1.2	2026-07-17 · Andre Taki	

IDENTITY & COMPOSITION

PRODUCT NAME	ALLIANCE CODE
Citric Acid Monohydrate - ACS Reagent Grade	citric-acid-monohydrate-acs-reagent-grade
GRADE	CONCENTRATION
ACS Reagent	—
CAS NUMBER	FORMULA
5949-29-1 PubChem	C6H10O8 PubChem
MOLECULAR WEIGHT	PRODUCT TYPE
210.14 PubChem	—

SPECIFICATIONS

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Assay (C6H8O7·H2O)	99.0 - 102.0 %	100.5 %	Acid-base titrimetry (acidimetry)	ACS Reagent Chemicals
Chloride (Cl)	max. 0.001%	0.0002%	—	ACS Reagent Chemicals
Description	colorless or white crystals	Passes test	—	ACS Reagent Chemicals

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Identification	to pass test	Passes test	—	ACS Reagent Chemicals
Insoluble matter	max. 0.005%	0.001%	—	ACS Reagent Chemicals
Iron (Fe)	max. 3ppm	0.2 ppm	—	ACS Reagent Chemicals
Lead (Pb)	max. 2ppm	0.02 ppm	—	ACS Reagent Chemicals
Oxalate (C2O4)	to pass test	Passes test	—	ACS Reagent Chemicals
Phosphate (PO4)	max. 0.001%	0.0001%	—	ACS Reagent Chemicals
Residue after ignition	max. 0.02%	0.003%	—	ACS Reagent Chemicals
Substances carbonizable by hot sulfuric acid	to pass test	Passes test	—	ACS Reagent Chemicals
Sulfate (SO4)	max. 0.002%	0.0005%	—	ACS Reagent Chemicals
Water (Karl Fischer)	7.5 – 9.0 %	8.6 %	Karl Fischer titration, USP <921> Method Ic	Interpreted
residue	0.02 % max	0.003%	—	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 ACS Reagent	—	—	current
USP Food Grade	—	—	citric-acid-monohydrate-usp-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	Dry Powder	Published reference
Density	1.5 g/cm³	Published reference
Melting Point	135 °C	Published reference
Solubility (water)	Solubility in water, g/100ml at 20 °C: 59.2	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)

H315, H319, H335 **Adjudicated**

P-CODES (PRECAUTIONARY STATEMENTS)

P261, P264, P271, P280, P302+P352,
P304+P340, P305+P351+P338, P314, P321,
P332+P313, P337+P313, P362, 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

Categorized as a pharmaceutical aid **annexechem.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

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

Store protected from moisture.

annexechem.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

60 months annexechem.com

Stored protected from moisture; five years from date of manufacturing

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
1.2	2026-07-22	Canonical data updated: 1 field changed via the provenance/adjudication pipeline. ghsClassification · canonical change (coa.data_provenance / adjudication)	canonical_change

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.