

Safety Data Sheet

Date of Revision: 1/8/2015

CITRIC ACID, anhydrous

Section 1 - Chemical Product and Company Identification

WEGO CHEMICAL GROUP

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Product/Chemical Name: Citric Acid, anhydrous

Chemical Formula: C₆H₈O₇

CAS Number: 77-92-9

Other Designations: 2-Hydroxy-1,2,3-tricarboxylic acid, B-hydroxytricarballyic acid

Derivation: A tricarboxylic acid derived by mycological fermentation using crude sugars such as molasses with strains of *Aspergillus niger* or yeast (*Candida lypolytica*). It may also be extracted from citrus fruit (lemon juice contains 5 to 8% citric acid) and pineapple waste.

General Use: Used as a food additive for many different applications including; flavor enhancer, acidifying and buffering agent, and antioxidant; in the manufacture of alkyd resins and citric acid salts, in pharmaceuticals for preparation of effervescent antacid powders; for cleaning and polishing metals, removing sulfur dioxide from smelter waste gases; a sequestering agent to remove trace metals, mordant to brighten colors, in electroplating, special inks, and analytical chemistry. Used in medicine as a blood anticoagulant.

Emergency Telephone: (ChemTel) Contract MIS0000335; 800 255-3924; INTL - 813 248-0585

Section 2 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Warning! Causes respiratory tract irritation. Causes skin irritation. Causes digestive tract irritation. May cause severe eye irritation and possible injury.

HMIS

H	2
F	0
R	0

PPE¹
Sec. 8

Potential Health Effects

Primary Entry Routes: Inhalation, ingestion, skin and eye contact.

Target Organs: Eyes, skin, respiratory tract.

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Eye irritation (Category 2A), H319

GHS Label elements, including precautionary statements

Pictogram



Signal word

Warning

Hazard statement(s)

H319 Causes serious eye irritation.

Precautionary statement(s)

P264 Wash skin thoroughly after handling.

P280 Wear protective gloves/ 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.

Hazards not otherwise classified (HNOC) or not covered by GHS - none

Acute Effects

Inhalation: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Citric acid decreases iron and calcium absorption.

Eye: Contact with eyes may cause severe irritation, and possible eye burns.

Skin: May cause skin irritation.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Citric acid decreases iron and calcium absorption.

Carcinogenicity: IARC, NTP, and OSHA do not list citric acid as a carcinogen.

Medical Conditions Aggravated by Long-Term Exposure:

Chronic Effects: Chronic or heavy acute ingestion may cause tooth enamel erosion.

Section 3 - Composition / Information on Ingredients

Ingredient Name	CAS Number	EINECS/ELINCS	% wt or % vol
Citric Acid, anhydrous	77-92-9	201-069-1	100

Trace Impurities:

	OSHA PEL		ACGIH TLV		NIOSH REL		NIOS H
Ingredient	TWA	STEL	TWA	STEL	TWA	STEL	IDLH
Citric Acid, anhydrous	15 mg/m ³	none estab.	10 mg/m ³	none estab.	none estab.	none estab.	none estab.

Section 4 - First Aid Measures

Inhalation: Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid immediately.

Skin Contact: Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.

Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Treat symptomatically and supportively.

Section 5 - Fire-Fighting Measures

Flash Point: ?? °F (?? °C)

Flash Point Method: CC, OC1, COC

Burning Rate:

Autoignition Temperature: 1850 °F (1010 °C)

LEL: 0.28% v/v

UEL: 2.29% v/v

Flammability Classification:

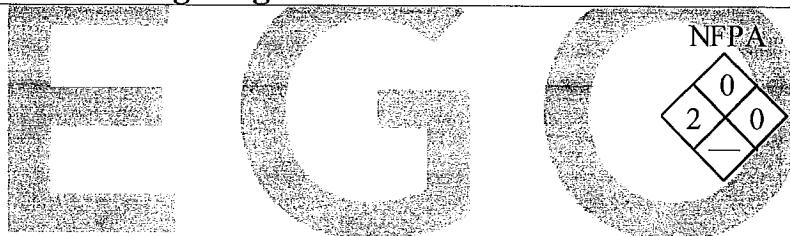
Extinguishing Media:

Unusual Fire or Explosion Hazards:

Hazardous Combustion Products:

Fire-Fighting Instructions: Do not release runoff from fire control methods to sewers or waterways.

Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.



Section 6 - Accidental Release Measures

Spill /Leak Procedures:

Spills: Collect spilled material in appropriate container for disposal.

Spills Containment: For large spills, dike far ahead of spill for later disposal. Do not release into sewers or waterways.

Cleanup:

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Store and handle in accordance with all current regulations and standards.

Storage Requirements: Store in a cool, dry place. Store in a tightly closed container. Keep separated from incompatible substances.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls:

Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls:

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or non-routine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA.

Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: solid

Appearance and Odor: white crystals/odorless

Odor Threshold:

Vapor Pressure: Not applicable.

Vapor Density (Air=1): Not applicable.

Formula Weight: 192.12

Bulk Density: 56.2 lb/ft³

Specific Gravity (H₂O=1, at 4 °C): 1.7

pH (0.1 N solution): 2.2

Water Solubility: Very soluble

Other Solubilities: ether 2.17, chloroform 0.007, amyl alcohol 15.43, amyl acetate 5.98, ethyl acetate 5.28. At 19 °C; soluble in methanol 197 and propanol 62.8. It is insoluble in benzene.

Boiling Point: Decomposes

Freezing/Melting Point: (153 °C)

Viscosity (50% aqueous soln.): 6.5 cP at 77 °F (25 °C)

Refractive Index: 1.493 to 1.509 at 68 °F (20 °C)

Section 10 - Stability and Reactivity

Stability: Citric acid is stable at room temperature in closed containers under normal storage and handling conditions. Anhydrous citric acid readily absorbs moisture from air.

Polymerization: Hazardous polymerization cannot occur.

Chemical Incompatibilities: Include potassium tartrate, alkali and alkaline earth carbonates and bicarbonates, acetates, sulfites, and metal nitrates (potentially explosive reaction). Citric acid corrodes copper, zinc, aluminum and their alloys.

Conditions to Avoid: Dispersing powder in the air, contact with incompatibles, and exposure to heat and ignition sources.

Hazardous Decomposition Products: Thermal oxidative decomposition of citric acid can produce acrid, irritating smoke and carbon monoxide, carbon dioxide.

Section 11- Toxicological Information

Toxicity Data:*

Acute Oral Effects:

Rat, oral, LD₅₀: 6730 mg/kg

Rabbit, eye: 750 mg/24 hr caused severe irritation.

Rabbit, skin: 500 mg/24 hr caused moderate irritation.

Chronic Effects:

Carcinogenicity:

Mutagenicity: No data available.

Teratogenicity: No data available.

* See NIOSH, RTECS (GE7350000), for additional toxicity data.

Section 12 - Ecological Information

Ecotoxicity: Acute aquatic effects: 96-hour LC₅₀; Fathead minnow: GT 1000 mg/L. 96-hour LC₅₀; Water flea: GT 1000 mg/L. 48-hour LC₅₀; Golden orfe (minnow): 760 mg/L.

Environmental Fate: This chemical is expected to be readily biodegradable and is not likely to bioconcentrate.

Environmental Degradation:

Soil Absorption/Mobility:

Section 13 - Disposal Considerations

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

Section 14 - Transport Information

Not regulated for transportation

US DOT(49 CFR 172.101): PSN: Hazard Class: UN Number: Packing Group:	IATA PSN: Hazard Class: UN Number: Packing Group:
TDG PSN: Hazard Class: UN Number: Packing Group:	IMDG/IMO PSN: Hazard Class: UN Number: Packing Group:

Section 15 - Regulatory Information

TSCA

CAS# 77-92-9 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

SARA

Section 302 (RQ)

None of the chemicals in this material have an RQ.

Section 302 (TPQ)

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 77-92-9: acute

Section 313

No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA: None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 77-92-9 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

Not available.

Risk Phrases: Phrases:

Section 16 - Other Information

Disclaimer: All information, recommendations and suggestions appearing herein are based upon sources believed to be reliable. However, it is the users responsibility to determine the safety, toxicity and suitability for its own use of this product. WEGO CHEMICAL GROUP DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE USE BY OTHERS OF THIS PRODUCT.