

SAFETY DATA SHEET
Product Name: Citric Acid

SECTION I CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Citric Acid (CAS 77-92-9) Product EZP002
Formula: C₆H₈O₇ **Molecular Weight:** 192.12
Chemical Name: 2-hydroxypropane-1,2,3-trioic acid **Chemical Family:** Organic Acid
Synonyms: Citric Acid, 3-carboxy-3-hydroxypentanedioic acid, 2-hydroxy-1,2,3-propanetricarboxylic acid
Product Use: Supplement for animal drinking water. Water treatment.

MANUFACTURER INFORMATION:

EZ Pak, LLC
PO Box 185
Jefferson, GA 30549
Inquiry (706)-367-7394

DISTRIBUTOR INFORMATION:

Clear View Enterprises, LLC
451 Agnes
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Emergency Telephone ChemTel 800-255-3924 (Contract MIS0004963)

Formula ID Number: EZP002

Original Preparation Date: 5-24-2010
Date Updated: 8-18-2015
Version SDS-002-CVE-FV 1.0

SECTION II HAZARDS IDENTIFICATION

Emergency Overview

GHS Hazard		
Hazard Class		Hazard Categories
Acute Toxicity, Oral		
Acute Toxicity, Dermal		
Skin Irritation	H315	Category 3 - Causes mild skin irritation
Eye Irritation	H319	Category 2A Irritant – Causes serious eye irritation
Inhalation Irritation	H335	May cause respiratory irritation
Acute Aquatic Toxicity		
Chronic Aquatic Toxicity		



Pictograms:

Signal Word		Warning
Physical Hazards		May form combustible dust concentrations in air.
Health Hazards	H315 H319 H335	Causes skin irritation. Causes serious eye irritation May cause respiratory irritation
Environmental Hazards		None
Precautionary Statements	P102 P202 P261 P264 P280 P301 P310 P331 P303 P361 P353 P304 P340 P305 P351 P338 P337 P313 P306 P361 P330 P370	Keep out of the reach of children Do not handle until all safety precautions have been read and understood Avoid breathing dust Wash hands thoroughly after use Wear eye protection IF SWALLOWED: Immediately call the National POISON CENTER at 800-222-1222 or doctor/physician. Do NOT induce vomiting IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention IF ON CLOTHING: Remove/Take off immediately all contaminated clothing. Rinse mouth IN CASE OF FIRE: Use water, foam, carbon dioxide, dry chemical to extinguish fire
Storage Statements	P403	Store in a well-ventilated place.
Disposal Statements	P501	Dispose of contents/container in accordance with local, regional, national or international regulations

SECTION III COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS#	Wt %	OSHA PEL	ACGIH TLV	Other-Oral LD ₅₀
Citric Acid	77-92-9	>99	TWA 15 mg/m ³ total dust	TWA 10 mg/m ³ inhalable particles, recommended	

Component Related Regulatory Information: N/A**SECTION IV FIRST AID MEASURES**

EMERGENCY OVERVIEW – HAZARD STATEMENTS – POTENTIAL HEALTH EFFECTS		
Emergency Overview	R25 R36/37/38	Citric Acid is a white or colorless crystalline, odorless solid. Irritating to eyes, respiratory system and skin Citric Acid poses a slight fire hazard when heated, and is combustible in the melted form. Aqueous solutions may react with metals (such as iron, aluminum, zinc) to release flammable hydrogen gas which could result in an explosive air mixture. Large amounts of airborne dust may produce an air/dust explosion hazard. Fire may produce irritating, corrosive and/or toxic fumes. Firefighters should wear full protective equipment and clothing
Hazard Statements	H313 H315 H319 P261 P262 P264 P233 P271	May cause mild gastrointestinal irritation May be harmful in contact with skin Causes skin irritation. Causes serious eye irritation Avoid breathing dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Keep container tightly closed. Use only outdoors or in a well-ventilated area
Potential Health Effects: Eyes		Dusts or solution of this product may cause redness and pain. Prolonged contact may cause conjunctivitis, ulceration and corneal abnormalities.
Potential Health Effects: Skin		May cause irritation of skin with pain, itching and redness. Prolonged exposure may cause dermatitis
Potential Health Effects: Ingestion		May cause mild gastrointestinal irritation with symptoms such as nausea, vomiting, and diarrhea. Concentrated solutions may cause necrotic and ulcerative lesions on oral mucous membranes. Chronic ingestion of high concentration Citric Acid can result in erosion of tooth enamel.
Potential Health Effects: Inhalation		Dusts may cause mild irritation of nose, throat, and respiratory tract. Symptoms may include sore throat, coughing, and shortness of breath.

FIRST AID MEASURES		
First Aid: Eyes		In case of contact with eyes, rinse immediately with plenty of water for at least 20 minutes. After the first 5 minutes remove contact lens (if present) and continue to rinse for 15 more minutes. Seek immediate medical attention.
First Aid: Skin		Remove all contaminated clothing. For skin contact, wash thoroughly with soap and water. Wash contaminated clothing before reuse. Seek medical attention if irritation develops or persists.
First Aid: Ingestion		DO NOT INDUCE VOMITING. Have victim rinse mouth thoroughly with water, if conscious. Never give anything by mouth to a victim who is unconscious or having convulsions. Contact a physician or Poison Control Center (1-800-222-1212 in USA) immediately.
First Aid: Inhalation		Remove source of contamination or move victim to fresh air. If breathing has stopped, apply artificial respiration. Get immediate medical attention.
First Aid: Notes to Physician		Special forms of treatment and immediate medical attention are not specified. Treat symptomatically

SECTION V FIRE FIGHTING MEASURES

FIRE FIGHTING MEASURES		
General Fire Hazards:		Citric Acid poses a serious dust explosion hazard. Citric acid can burn. Citric acid is a slight fire hazard when exposed to heat or flames
Hazardous Combustion Products:		Oxides of carbon. Irritating fumes and acrid smoke.
Extinguishing Media:		Water, Water Fog, Foam, Carbon Dioxide, Dry Chemical. Use extinguishing measures that appropriate to local circumstances and environment. Unsuitable Extinguishing Media: None known
Fire Fighting Equipment/Instructions		As with any fire, wear full face coverage self-contained breathing apparatus and full protective gear. Evacuate nonessential personnel from area to prevent human exposure to fire, smoke, fumes or products of combustion. Water runoff from firefighting may contain product residues, dike to prevent runoff from contaminating water supplies. Runoff may be acidic and corrosive and/or cause pollution.
NFPA (USA):		NFPA: Health 1; Flammability 1; Stability and Reactivity 0; Physical Hazard – Wear protective equipment.

SECTION VI ACCIDENTIAL RELEASE MEASURES

ACCIDENTIAL RELEASE MEASURES		
Containment Procedures:		Stop flow of material, if this can be done without risk. Contain discharged material. Sweep up spilled material.
Clean-Up Procedures:		Wear appropriate protective equipment and clothing during clean-up. Shovel material into waste container. Seal the container and handle in a safe manner. Thoroughly wash the area after a spill or leak clean-up. Prevent spill rinsate from contaminating storm drains, sewers soil, or groundwater.
Evacuation Procedures:	P501	Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering. Keep materials which can burn away from spilled material. In case of large spills, follow all facility emergency response procedures. Dispose of contents/container in accordance with local, regional, national or international regulations
Special Procedures:		Remove soiled clothing and wash before reuse. Avoid all skin contact with the spilled material. Have emergency equipment readily available.

SECTION VII HANDLING and STORAGE

HANDLING AND STORAGE		
Handling Procedures:		Do not breathe dust. Avoid all contact with skin and eyes. Use this product only with adequate ventilation. Wash thoroughly after handling.
Storage Procedures:		<p>Keep in original container in locked storage area.</p> <p>Keep container tightly closed when not in use.</p> <p>Store container in cool, dry location, away from direct sunlight, sources of intense heat.</p> <p>Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity).</p> <p>Storage areas should be made of fire resistant materials.</p> <p>Post warning and "NO SMOKING" signs in storage and use areas as appropriate.</p> <p>Use corrosion resistant structural materials, lighting, and ventilation systems in the storage area.</p> <p>Have appropriate fire extinguishing equipment in the storage area (i.e., sprinkler system, portable fire extinguishers).</p> <p>Empty containers may contain residual particles, therefore, empty containers should be handled with care.</p> <p>Do not cut drill, or weld near container.</p> <p>Do not consume food, beverages, or tobacco products in the storage area.</p> <p>Never store food, feed, or drinking water in containers that held this product.</p> <p>Keep this material away from food, drink, or animal feed.</p> <p>Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.</p> <p>Do not store this material in unlabeled containers.</p> <p>Limit quantity of material stored.</p> <p>Store in suitable containers that are corrosion resistant.</p>

SECTION VIII EXPOSURE CONTROL AND PERSONAL PROTECTION MEASURES

EXPOSURE GUIDELINES		
A. General product Information:		Follow the applicable exposure limits.
B. Component Exposure Limits:		The exposure limits given are for Citric Acid (CAS 77-92-9)
ACGIH:		
OSHA:		15 mg/m ³ TWA (dusts) 5 mg/m ³ TWA (Respirable fraction)
NIOSH:		
EXPOSURE GUIDELINES (Continued)		
DFG MAKs		4 mg/m ³ TWA Peak, 30 minutes, (Inhalable fraction) 1.5 mg/m ³ TWA Peak, 30 minutes, (Respirable fraction)
Engineering controls		Use mechanical ventilation such as dilution and local exhaust. Use a corrosion resistant ventilation system and exhaust directly to the outside. Supply ample air replacement. Provide dust collectors with explosion vents.
PERSONAL PROTECTIVE EQUIPMENT		
Personal Protective Equipment: Eyes/Face		Wear safety glasses with side shields (or goggles).
Personal Protective Equipment: Skin		Wear chemically impervious gloves, boots, and coveralls or long sleeved shirts to avoid skin contact.
Personal Protective Equipment: Respiratory		If airborne concentrations are above applicable exposure limits, use NIOSH approved respiratory protection.
MUC (Maximum Use Concentration)		
Up to 75 mg/m ³		Air-Purifying Respirator - quarter mask.
Up to 150 mg/m ³		Air-Purifying Respirator - half mask
Up to 750 mg/m ³		Air-Purifying Respirator - full mask
Up to 750 mg/m ³		SAR (Supplied-Air Respirator) operated in a continuous flow mode or PAPR (Powered Air Purifying Respirator) half mask with a dust and mist filter.
Up to 1500 mg/m ³		Full face piece PAPR (Powered Air Purifying Respirator) with a tight fitting face piece and high efficiency particulate filter or full face piece SAR.in Demand Mode
Up to 15000 mg/m ³		Pressure Demand or other positive pressure mode full face piece SCBA
Emergency or Planned Entry into Unknown Concentration		Positive pressure full face piece SCBA, or positive pressure full face piece SAR with an auxiliary positive pressure SCBA.
Escape		Full face piece respirator with high efficiency particulate filters, or escape type SCBA.
Personal Protective Equipment: General		Eyewash fountain and safety shower available in work area.

Protective Clothing Pictograms



Splash Goggles



Gloves



Protective Apron



Dust Respirator

SECTION IX PHYSICAL/CHEMICAL PROPERTIES

Citric Acid			
Appearance	White powder	Molecular Weight	68.02
Physical State	Solid	Chemical Formula	C ₆ H ₈ O ₇
Odor	Odorless	Specific Gravity	1.66 @ 20°C
Odor Threshold	N/A	Particle Size	Powder or crystal
Solubility (water)	59 g/100 cc @ 20°C	Bulk density	900-980 kg/m ³
pH	2.1 (2% soln)	Flash point	155°C (311°F)
Solubility other solvents	ethanol	Evaporation Rate	Not determined
Partition Coefficient	Not determined	Upper Flammable Limit (UEL)	2.29 kg/m ³ (dust)
Vapor Pressure	N/A	Lower Flammable Limit (LEL)	0.28-2.3 kg/m ³ (dust)
Vapor Density	N/A	Auto Ignition	345°C
Freezing/Melting point	153°C	Explosive Properties	Not determined
Softening Point	N/A	Oxidizing Properties	Not determined
Boiling Point	Decomposes	Flammability Classification	N/A
Kinematic Viscosity	Not determined	Rate of Burning	N/A
Dynamic Viscosity	Not determined	Decomposition Temperature	175°C

SECTION X CHEMICAL STABILITY AND REACTIVITY INFORMATION

CHEMICAL STABILITY AND REACTIVITY INFORMATION		
Chemical Stability		Stable under normal conditions.
Chemical Stability: Conditions to Avoid		Potentially explosive reactions with metal nitrates, strong bases, and oxidizers. Citric Acid when wet or in solution is corrosive to brass, copper, zinc, aluminum, lead, cast iron, and steel (not stainless steel).
Incompatibility		Avoid contact with metal nitrates, reducing agents, and oxidizing agents (eg Sodium Hypochlorite bleach)
Hazardous Decomposition		Citric Acid; Oxides of carbon. Incomplete combustion may produce irritating fumes and acrid smoke.
Hazardous polymerization		Will not occur.

SECTION XI TOXICOLOGICAL INFORMATION

ACUTE AND CHRONIC TOXICITY FOR CITRIC ACID		
A. General Product Information		Acute toxicity: Citric Acid has been reported to have allergenic properties, and might cause contact dermatitis. Irritation of the skin, eyes, and gastrointestinal tract may occur. Product is respiratory tract irritant. Dusts may irritate nose, throat, and respiratory tract. Chronic toxicity: Continued, high overexposure to Citric Acid can result in a reduction of plasma calcium concentration, which can lead to cardiac arrhythmias, reduced cardiac output and in severe cases, death.
B. Component Analysis – LD ₅₀ /LC ₅₀ Citric Acid (CAS 77-92-9)		Oral-mouse LD ₅₀ = 5040 mg/kg Oral-rat LD ₅₀ = 5400 mg/kg Intraperitoneal-mouse LD ₅₀ = 290 mg/kg Subcutaneous-mouse LD ₅₀ = 2700 mg/kg
C. Component Analysis – TDLo/LDLo Citric Acid (CAS 77-92-9)		Oral-rabbit LDLo = 7000 mg/kg
ACUTE AND CHRONIC TOXICITY FOR COPPER SULFATE PENTAHYDRATE (Continued)		
Carcinogenicity A. General Product Information		Copper Sulfate Pentahydrate (CAS 7758-99-8) Cytogenetic Analysis – Rat/ast = 300 mg/kg Copper dusts and mists as Cu (CAS 7440-50-8) EPA: EPA-D (Not Classifiable as to Human Carcinogenicity – inadequate human and animal evidence of carcinogenicity or no data available. This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC, or NTP.
Epidemiology		No information available.
Neurotoxicity		Has not been identified
Mutagenicity		Not expected to be genotoxic at physiological concentrations as it is a normal metabolite. Not mutagenic in Salmonella typhimurium, and did not induce chromosome aberrations in cultured Chinese hamster fibroblast cells.
Teratogenicity		Citric Acid did not cause reproductive effects when tested in animals. The sodium salt of Citric Acid did not cause birth defects in rats. When given to rats at 1.2% in the diet over two generations, it did not affect reproduction.
Other Toxicological Information		Individuals with pre-existing eye, skin, respiratory, or allergic conditions may be more susceptible to the effects of overexposure to this product.

SECTION XII ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION		
Ecotoxicity A. General Product Information B. Ecotoxicity Citric Acid (CAS 77-92-9)		Harmful to aquatic life in high concentrations. Lowers pH in water but does not dissociate to any great extent.
Environmental Fate		Citric Acid biodegrades quite rapidly.
Algae/aquatic plants		
Fish		160 mg/l (salt water) 48 hrs = TL _m (immersion-shore crab) 625 mg/L, long time exposure in hard water = LD ₀ (gold fish) 894 mg/L, long time exposure in hard water = LD ₁₀₀ (gold fish)
Toxicity to microorganisms		>10000mg/L = EC ₀ (<i>Pseudomonas putida</i> bacteria) 16 hrs.
Crustacea		120 mg/l, long time exposure in soft water = LD ₁₀₀ <i>Daphnia magna</i> 100 mg/l, long time exposure in soft water = Toxic <i>Daphnia magna</i>
ECOLOGICAL INFORMATION (Continued)		
Summary of Effects		Do not apply directly to water, or areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water by disposing of equipment wash water. Apply this product only as specified on the label.

SECTION XIII DISPOSAL CONSIDERATIONS

DISPOSAL CONSIDERATIONS		
US EPA Waste Number A. General Product Description B. Component Waste Numbers		Concentrated solutions may be considered D002 wastes (corrosive) by RCRA. Waste pH should be tested before disposal to determine classification. No EPA Waste Numbers are applicable for this product's components
California Hazardous Waste Status		
Disposal Instructions		Do not reuse product containers. Do not pour unused product down the drain or on the ground. Dispose of product residues, containers, packaging, and wastes according to all federal, state, and local health and environmental regulations.

SECTION XIV TRANSPORT INFORMATION

TRANSPORT INFORMATION		
US DOT		Not regulated
UN / IMDG / IATA classification		Not regulated
Freight classification		

SECTION XV REGULATORY INFORMATION

USA REGULATORY INFORMATION					
Clean Water Act					
SARA Section 313 (40 CFR 372.65)		Not listed			
CERCLA (40 CFR 302.4)		Not listed.			
SARA 311/312 Tier II Hazard Ratings Citric Acid (CAS 77-92-9)		Acute health hazard:	Yes		
		Chronic health hazard:	No		
		Fire hazard:	No		
		Sudden release of pressure hazard:	No		
		Reactivity hazard:	No		
State Regulations					
California Proposition 65		No			
Citric Acid (CAS 77-92-9)		CA	No	MN	No
		FL	No	NJ	Yes
		MA	No	PA	Yes
Chemical Inventories					
Citric Acid (CAS 77-92-9))		TSCA	Yes		
		DSL	Yes		
		EINECS	Yes		

REGULATORY INFORMATION

WHMIS Canadian Hazardous Products Act Disclosure List\		Citric Acid (CAS 77-92-9) Minimum concentration 1% item 409 (80)
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SECTION XVI OTHER INFORMATION

NFPA / HMIS Ratings USA			
NFPA		HMIS	
1	Health	1	Health
1	Flammability	1	Flammability
0	Instability	0	Reactivity
	Special Hazards	B	Protective Equipment

Version SDS-002-CVE-FV 1.0
Date Prepared: 8-18-2015 SF Driggers
Supersedes: 5-24-2010

Reason: revised OSHA SDS format.

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