Citric Acid, Organic Food Grade
Safety Data Sheet (SDS)

Health	**1**
Fire	**0**
Reactivity	**0**
Personal Protection	

Section 1: Chemical Product and Company Identification

Product Name: Citric Acid, Organic, Food Grade
Chemical Name: Citric Acid, 50% Solution
CAS#: Mixture

Contact Information:

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Section 2 - Composition / Information on Ingredients

CAS # Component Percent
77-92-9 Citric Acid 50%
7732-18-5 Inert Ingredients 50%
Component Information/Information on Non-Hazardous Components
This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

Section 3 - Hazards Identification

Emergency Overview
Citric Acid 50% Solution is a clear or yellow to brown liquid, with a faint sugary odor. Product is moderately to severely irritating to eyes, and moderately irritating to skin, and respiratory tract. Product is not combustible. Use methods suitable for containing (diking) the solution in case of fire or spill. Firefighters should wear full protective equipment when fighting a fire involving this product.

Hazard Statements

DANGER! THIS SOLUTION CAUSES EYE, SKIN, AND RESPIRATORY TRACT IRRITATION OR BURNS. MAY CAUSE ALLERGIC SKIN SENSITIZATION REACTION. Do not breathe or ingest mists, vapors, or aerosols. Do not allow contact with eyes, skin, or clothing. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.

Potential Health Effects: Eyes
This solution may cause severe irritation to the eyes, with symptoms that include redness, tearing, and pain. Concentrated solutions may be corrosive to the eyes and cause corneal ulcerations.
Potential Health Effects: Skin
This product may cause moderate irritation of the skin. May cause allergic contact dermatitis with prolonged or repeated contact in sensitive individuals.
Potential Health Effects: Ingestion
May cause mild gastrointestinal irritation, with symptoms including nausea, diarrhea, vomiting, and abdominal pain. Concentrated solutions may cause necrotic and ulcerative lesions on oral mucous membranes. Chronic ingestion of high concentration can result in erosion of tooth enamel. Repeated ingestion of this solution can result in sensitization to the sun, causing sunburn.
Potential Health Effects: Inhalation
Aerosols and mists from solutions may cause mild to moderate irritation of the nose and throat. Overexposure could cause coughing, sneezing, and labored breathing.
Other Potential Health Effects
Chronic, high concentration overexposure can result in a reduction of plasma calcium concentration, which can lead to cardiac arrhythmias, reduced cardiac output and, in severe cases, death.

HMIS Ratings: Health Hazard: 2* Fire Hazard: 0 Physical Hazard: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

Section 4 - First Aid Measures

First Aid: Eyes
Immediately flush the contaminated eye with plenty of water for 15 minutes. Get medical attention if symptoms of pain, swelling, or tearing exist after flushing the eyes.
First Aid: Skin
For skin contact, immediately wash extremely thoroughly with soap and water. Get medical attention if irritation develops or persists.
First Aid: Ingestion
DO NOT INDUCE VOMITING. Have victim rinse mouth 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 immediately.
First Aid: Inhalation
Remove source of contamination or move victim to fresh air. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult. Get immediate medical attention.
First Aid: Notes to Physician
There is no specific antidote. Care is symptomatic and supportive.

Section 5 - Fire Fighting Measures

Flash Point: Not applicable. Method Used: Not applicable.
Upper Flammable Limit (UEL Not applicable. Lower Flammable Limit (LEL): Not applicable.
Auto Ignition: Not applicable. Flammability Classification: Not applicable.
Rate of Burning: Not applicable.
General Fire Hazards
Not considered flammable although if allowed to evaporate to dryness, residue may burn in presence of strong ignition source.
Hazardous Combustion Products
Applies to residue: Carbon dioxide and carbon monoxide are normal products of combustion. Incomplete

combustion may produce irritating fumes and acrid smoke.

Extinguishing Media

Water, foam, dry chemical, or carbon dioxide. Dike and collect water used to fight fire; runoff may cause damage.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self contained breathing apparatus.

NFPA Ratings: Health: 2 Fire: 0 Reactivity: 0 Other:

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Section 6 - Accidental Release Measures

Containment Procedures

Stop the flow of material, if this can be done without risk. Contain the discharged solution; dike runoff to prevent spill from contaminating storm drains, sewers, soil or groundwater waterways.

Clean-Up Procedures

Wear appropriate protective equipment and clothing during clean-up. Addition of sodium bicarbonate or lime (soda ash) will neutralize product and precipitate calcium citrate. Test area of spill with pH paper to assure neutralization. Thoroughly wash the area after a spill clean-up with large quantities of water, flush to drain.

Evacuation Procedures

Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering. Keep incompatible materials away from spilled solution. In case of large spills, follow all facility emergency response procedures.

Special Procedures

Remove soiled clothing and launder before reuse. Avoid all skin contact with the spilled material. Have emergency equipment readily available.

Section 7 - Handling and Storage

Handling Procedures

All employees who handle this material should be trained to handle it safely. Do not breathe vapors or mists. Avoid all contact with skin and eyes. Use this product only with adequate ventilation. Wash thoroughly after handling.

Storage Procedures

Keep container tightly closed when not in use. Keep containers upright, do not drop, roll or skid. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Storage areas should be made of fire- and corrosion-resistant materials. Post warning and “NO SMOKING” signs in storage and use areas, as appropriate. Use corrosion-resistant structural materials, lighting, and ventilation systems in the storage area. Floors should be sealed to prevent absorption of this material. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Have appropriate extinguishing equipment in the storage area (i.e., sprinkler system, portable fire extinguishers). Empty containers may contain residual particulates; therefore, empty containers should be handled with care. Never store food, feed, or drinking water in containers which held this product. Keep this material away from food, drink and animal feed. Do not store this material in open or unlabeled containers. Limit quantity of material stored. Wipe down area of use periodically as area can become sticky.

Section 8 - Exposure Controls / Personal Protection

Exposure Guidelines

A: General Product Information

No exposure guidelines have been established.

B: Component Exposure Limits

ACGIH, OSHA, and NIOSH have not developed exposure limits for any of this product's components.

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.

PERSONAL PROTECTIVE EQUIPMENT

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132). Please reference applicable regulations and standards for relevant details.

Personal Protective Equipment: Eyes/Face

Faceshields and goggles should be worn when working with solutions of Citric Acid. If necessary, refer to U.S. OSHA 29 CFR 1910.133.

Personal Protective Equipment: Skin

Use impervious gloves. Butyl rubber, natural rubber, neoprene, nitrile rubber, polyethylene, or PVC are recommended. If necessary, refer to U.S. OSHA 29 CFR 1910.138.

Personal Protective Equipment: Respiratory

None required where adequate ventilation conditions exist. If airborne concentration is high, use an appropriate respirator with acid dust/mist pre-filters. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998).

Personal Protective Equipment: General

Have an eyewash fountain and safety shower available in the work area. Use good hygiene practices when handling this material including changing and laundering work clothing after use. Wash hands thoroughly after handling material. Do not eat, drink, or smoke in work areas.

Section 9 - Physical & Chemical Properties

Physical Properties: Additional Information

The data provided in this section are to be used for product safety handling purposes. Please refer to Product Data Sheets, Certificates of Conformity or Certificates of Analysis for chemical and physical data for determinations of quality and for formulation purposes.

Appearance: Colorless or yellow to brown **Odor:** Slight sugar odor.
Physical State: Liquid **pH:** Approx 2.5 or lower
Vapor Pressure: Not available. **Vapor Density:** Not available.
Boiling Point: 104□C (219□F) **Melting Point:** Not applicable.
Solubility (H2O): 162 g/100 ml water at 25□C **Specific Gravity:** 1.24 @ 25□C (77□ F)
Freezing Point: 0□C (32□F) **Particle Size:** Not applicable.
Softening Point: Not applicable. **Evaporation Rate:** Similar to water.
Viscosity: 7.0 centipoise at 25□C **Bulk Density:** Not applicable.
Percent Volatile: Not available. **Molecular Weight:** 192.13 (Citric Acid, Anhydrous)
Chemical Formula: C6H8O7 (Citric Acid, Anhydrous)

Section 10 - Chemical Stability & Reactivity Information

Chemical Stability

Stable under normal conditions. Dilute aqueous solutions of Citric Acid may ferment if left standing for long period of time.

Chemical Stability: Conditions to Avoid

Heat, moisture and incompatible materials.

Incompatibility

Potentially explosive reaction with metal nitrates, strong bases, and oxidizers. Citric Acid is incompatible with reducing agents. Product is corrosive to brass, copper, zinc, aluminum and their alloys, lead, cast iron and steel (not stainless steel).

Hazardous Decomposition

Residue: Carbon dioxide and carbon monoxide are normal products of combustion. Incomplete combustion may produce irritating fumes and acrid smoke.

Hazardous Polymerization

Hazardous polymerization will not occur.

Section 11 - Toxicological Information

Acute and Chronic Toxicity

A: General Product Information

Product has been reported to have allergenic properties, and might cause allergic contact dermatitis and sensitization to the sun. Irritation of the skin, eyes, and gastrointestinal tract may occur, but should not require extensive therapy beyond dilution/irrigation. Vapors and solution may cause severe irritation to the eyes, with symptoms that include redness, tearing, and pain. Concentrated solutions may be corrosive to the eyes and cause corneal ulcerations. This product may cause moderate irritation of the skin. Product may cause mild gastrointestinal irritation, with symptoms including nausea, diarrhea, vomiting, abdominal pain. Concentrated solutions may cause necrotic and ulcerative lesions on oral mucous membranes. Dusts and mists from solutions may cause mild to moderate irritation to the nose and throat. Higher concentrations could cause coughing, sneezing, and labored breathing. Chronic, high concentration overexposure to product 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 (77-92-9)

LD_{50} (Oral-Rat) 3 gm/kg; LD_{50} (Oral-Mouse) 5040 mg/kg: Lungs, Thorax, or Respiration changes; Musculoskeletal changes; LD_{50} (Subcutaneous-Rat) 5500 mg/kg; LD_{50} (Subcutaneous-Mouse) 2700 mg/kg: Lungs, Thorax, or Respiration changes; Musculoskeletal changes; LD_{50} (Intraperitoneal-Rat) 290 mg/kg; LD_{50} (Intraperitoneal-Mouse) 903 mg/kg; LD_{50} (Intravenous- Mouse) 42 mg/kg: Behavioral: convulsions or effect on seizure threshold; Lungs, Thorax, or Respiration: cyanosis; Gastrointestinal: changes in structure or function of salivary glands; LD_{50} (Intravenous-Rabbit) 330 mg/kg

B: Component Analysis - TDLo/TCLo/LD/LDLo

Citric Acid (77-92-9)

LDLo (Oral-Rabbit) 7 gm/kg: Behavioral: tremor, convulsions or effect on seizure threshold, muscle contraction or spasticity

Carcinogenicity

A: General Product Information

No information identified.

B: Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

Epidemiology

No information available.

Neurotoxicity

Has not been identified.

Mutagenicity

Product would not be expected to be genotoxic at physiological concentrations because it is a normal metabolite. It was not mutagenic in Salmonella typhimurium, and did not induce chromosome aberrations in cultured Chinese hamster fibroblast cells.

Teratogenicity

Product did not cause reproductive effects when tested in experimental animals. The sodium salt did not cause birth defects in rats. When given to rats at 1.2% in the diet over 2 generations, it did not affect reproduction. It did not affect litter size or survival of mice with prenatal exposure to up to 5% in the diet.

Other Toxicological Information

Persons with pre-existing eye, skin, respiratory, or allergic conditions may be more sensitive.

Section 12 - Ecological Information

Ecotoxicity

A: General Product Information

Water Solubility = 59.2% (20°C); 84% (100°C). Biological Oxygen Demand (BOD): 40%, 5 days; 60%, 10-20 days. Product biodegrades quite rapidly. It is dangerous to aquatic life in high concentrations. Lowers pH in water but does not dissociate to any great extent. Food Chain Concentration Potential: Very Low

B: Ecotoxicity

TLm (immersion-shore crab) 48 hours = 160 ppm (salt water); TLm (immersion-goldfish) 4 hr = 894 ppm

(fresh water/ killed); EC_0 (*Pseudomonas putida* bacteria) 16 hours = >10,000 mg/L; EC_0 (*Microcystis aeruginosa* algae) 8 days = 80 mg/L; EC0 (*Scenedesmus quadricauda* green algae) 7 days = 640 mg/L; EC0 (*Entosiphon sulcatum* protozoa) 72 hours = 485 mg/L; EC0 (*Uronema parduczi* Chatton-Lwoff protozoa) = 622 mg/L; LD0 (*Daphnia magna*) = 80 mg/L, long-time exposure in soft water; LD0 (goldfish) = 625 mg/L, long-time exposure in hard water; LD100 (goldfish) = 894 mg/l, long-time exposure in hard water; LD100 (*Daphnia magna*) 120 mg/l long-time exposure in soft water; toxic (*Daphnia*) = 100 mg/L; period of survival at pH 4.0 (goldfish) 48 hours = 894 mg/L; period of survival at pH 4.5 (goldfish) 48 hours = 625 mg/L

Environmental Fate

Product is a naturally occurring chemical and is biodegradable.

Section 13 - Disposal Considerations

US EPA Waste Number & Descriptions

A: General Product Information

Concentrated solutions may be considered D002 wastes (corrosive) by RCRA. Wastes should be tested prior to disposal to determine classification.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

Review federal, provincial, and local government requirements prior to disposal.

Section 14 - Transportation Information

NOTE: The shipping classification information in this section (Section 14) are meant as a guide to the overall classification of the product. However, transportation classifications may be subject to change with changes in package size. Consult shipper requirements under I.M.O., I.C.A.O. (I.A.T.A.) and 49 CFR to assure regulatory compliance.

US DOT Information

UN #: 3265
Shipping Name: Corrosive liquid, acidic, organic, n.o.s. (Citric Acid)
Hazard Class: 8
Packing Group: II
Required Label(s): Class 8 (Corrosive)

International Air Transport Association (IATA)

UN Number: UN 3265
Proper Shipping Name: Corrosive liquid, acidic, organic, n.o.s. (Citric Acid)
Hazard Class: 8 (Corrosive)
Packing Group: II
Passenger & Cargo Aircraft Packing Instruction: 808
Passenger & Cargo Aircraft Maximum Net Quantity: 5 L
Limited Quantity Packing Instruction (Passenger & Cargo Aircraft): Y808
Limited Quantity Maximum Net Quantity (Passenger & Cargo Aircraft): 1 L
Special Provisions: A97
ERG Code: 8L

International Maritime Organization (I.M.O.) Classification

For shipments via marine vessel transport, the following classification information applies.

UN #: UN 3265
Proper Shipping Name: Corrosive liquid, acidic, organic, n.o.s. (Citric Acid)
Hazard Class: 8 (Corrosive)
Packing Group: II
Special Provisions: 223, 24, 944
Limited Quantities: 1L
Packing Instructions: P001, LP01
EmS: F-A, S-B
Stowage and Segregation: Category A. Clear of Living Quarters

Section 15 - Other Information

Paramount Chemicals & Plastics, Inc. ("Supplier") shall not be responsible for the use of any information, product, method, or apparatus herein presented ("Information"), and you must make your own determination as to its suitability and completeness for your own use, for the protection of the environment, and for health and safety purposes. You assume the entire risk of relying on this Information. In no event shall Supplier be responsible for damages of any nature whatsoever resulting from the use of this product or products, or reliance upon this Information. By providing this Information, Supplier neither can nor intends to control the method or manner by which you use, handle, store, or transport Supplier products. If any materials are mentioned that are not Supplier products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed. Supplier makes no representations or warranties, either express or implied of merchantability, fitness for a particular purpose or of any other nature regarding this information, and nothing herein waives any of Supplier's conditions of sale.

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