Section 1: Identification

Common Name/Trade Name	Citric Acid	
Supplier Information	Letco Medical, LLC 1316 Commerce Drive NW Decatur, AL 35601 1 (800) 239-5288 +1 (734) 843-4693	**IN CASE OF EMERGENCY:** Chemtrec 1 (800) 424-9300 **(24 hours)**
Product Synonym(s)	2-hydroxy-1,2,3-propanetricarboxylic acid OR 2-hydroxypropane-1,2,3-tricarboxylic acid	
Relevant Use(s) of Product	Manufacture or Compounding of Substances	

Section 2: Hazards Identification

Classification of Substance or Mixture	Eye Irrit. Cat 2	
Signal Word	Warning	
Hazard Statement(s)	H319	Causes serious eye irritation
Pictogram(s)		
Precautionary Statement(s)	P264 P280 P305+P351+P338 P337+P313	Wash hands thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. 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.
Hazards Not Otherwise Classified	Not applicable	
Ingredient(s) with Unknown Toxicity	No data available	

Section 3: Composition/Information on Ingredients

Chemical Name	3-hydroxy-3-carboxy-1,5-pentanedioic acid
Common Name	Citric Acid
CAS Number	77-92-9
Impurities and/or Stabilizing Additives	No data available

Section 4: First Aid Measures

General Advice	No data available
If Inhaled	If respiratory irritation or distress occurs, remove victim to fresh air. Get medical attention if respiratory irritation or distress continues.
In Case of Skin Contact	In case of contact, immediately wash with soap and plenty of water. Get medical attention if irritation develops or persists. Remove contaminated clothing and shoes. Clean contaminated clothing and shoes before re-use.
In Case of Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately if irritation develops or persists or if visual changes occur.
If Swallowed	If victim conscious and alert, give water to drink. DO NOT INDUCE VOMITING. Do not give anything by mouth to an unconscious person. Get medical attention.
Most Important Symptoms and Effects	Potential acute health effects: Eyes contact: Causes serous eye irritation. Inhalation: There was no available information on respiratory irriation. Ingestion: May be harmful if swallowed. Skin contact: Not irritating. Over-exposure sign/symptoms: Prolonged or repeated exposure may cause affection/discoloration of the teeth, irritation of the eye tissue, inflammation/damage of the eye tissue and tingling/irritation of the skin. Notes to physician: No specific antidote, medical staff contacts Poisons Information Center. All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Section 5: Fire Fighting Measures

Suitable Extinguishing Media	Water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special Hazards Arising From the Substance/Mixture	Dust is explosive with air. Dust cloud can be ignited by a spark. Under fire emits irritating and toxic fumes.
Special PPE and/or Precautions for Firefighters	Fire fighters should wear full protective clothing and self-contained breathing apparatus in positive pressure mode. Remark: Cool containers exposed to flame with water spray. Move containers from fire area if possible to do so without risk.

Section 6: Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures	Wear protective clothing. Avoid contact with skin eyes and inhalation of dust. Remove all sources of ignition. Ventilate area of spill. Avoid dust formation.
Methods and Materials Used for Containment	Prevent entry into waterways, sewers, basements or confined areas.
Cleanup Procedures	Small spill: Mark danger area. Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust. In case of dust production: Keep upwind. Clean contaminated surfaces with an excess of water. Large spill: As for small spill. Personal Protection in Case of Large Spill: Safety glasses. Full suit. Suitable respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product.

Section 7: Handling and Storage

Precautions for Safe Handling	Avoid contact with eyes, skin, and clothing. Do not permit eating/drinking/smoking near the material. Keep away from heat, sparks and open flame. Avoid raising dust. Remove and clean contaminated clothing immediately.
Conditions for Safe Storage	Keep containers tightly closed, in dry, cool and well-ventilated place. Do not store together with strong oxidizing agents, bases, strong reducing agents and metals and their compounds. Protect from moisture.

Section 8: Exposure Controls/Personal Protection

Components with Workplace Control Parameters	N/A
Appropriate Engineering Controls	Use process enclosures, local exhaust ventilation, or others engineering controls to keep airborne levels below recommend exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Hygiene Measures: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Handle in accordance with good industrial hygiene and safety practice.
PPE - Eye/Face Protection	Wear protective safety goggles.
PPE - Skin Protection	Use: Chemically rubber, butyl rubber, neoprene, nitrile rubber, PVC, Viton or polyethylene gloves for hands. Other: Wear appropriate long-sleeved clothing to minimize skin contact.
PPE - Body Protection	Use: Chemically rubber, butyl rubber, neoprene, nitrile rubber, PVC, Viton or polyethylene gloves for hands. Other: Wear appropriate long-sleeved clothing to minimize skin contact.
PPE - Respiratory Protection	Dust mask with filter type P2. Be sure to use an approved/certified or equivalent. Wear appropriate respirator when ventilation is inadequate.

Section 9: Physical and Chemical Properties

Appearance	Appearance: Solid (crystalline solid), white
Upper/Lower Flammability or Explosive Limits	N/A
Odor	Odorless
Vapor Pressure	2.21*10-6 Pa at 25ÂºC
Odor Threshold	N/A
Vapor Density	N/A
pH	2
Relative Density	1.665 at 20ÂºC
Melting Point/Freezing Point	153ÂºC at 1,013 hPa
Solubility	Water solubility-590 g/L at 20ÂºC; In water 59%; In ethanol 62%
Initial Boiling Point and Boiling Range	Decomposes before boiling
Flash Point	Not relevant.
Evaporation Rate	N/A (butyl acetate=1)
Flammability (Solid, Gas)	Not Flammable
Partition Coefficient	Octanol/Water: Log Kow: -0.2 to -1.8
Auto-Ignition Temperature	1011ÂºC
Decomposition Temperature	175ÂºC
Viscosity	Not relevant

Section 10: Stability and Reactivity

Reactivity	No specific test data related to reactivity available for this product or its ingredients.
Chemical Stability	The product is unstable on exposure to moisture.
Possibility of Hazardous Reactions	Hazardous polymerization: Will not occur
Conditions to Avoid	Protect from moisture. Keep away from heat, sparks and open flame.
Incompatible Materials	Strong oxidizing agents, bases, strong reducing agents and metals and their compounds.
Hazardous Decomposition Products	Under fire-carbon oxides.

Section 11: Toxicological Information

Acute Toxicity - LD50 Oral	LD50, Oral Rat 11,700 mg/kg. LD50, Oral Mouse 5400/5790 mg/kg.
Acute Toxicity - Inhalation	No data available
Acute Toxicity - Dermal	LD50 Dermal - Rat - > 2,000 mg/kg
Acute Toxicity - Eye	No data available
Skin Corrosion/Irritation	Not irritating.
Serious Eye Damage/Irritation	Causes serious eye irritation
Respiratory or Skin Sensitazation	No data are available which suggest that citric acid should be classified as a skin or respiratory sensitizer.
Germ Cell Mutagenicity	Citric acid has been tested in a number of bacterial assays, all of which gave negative results. There is information from a lower reliability study that citric acid and sodium dihydrogen citrate do not cause chromosome aberrations in vitro: this result does not agree with a recently published study. Evidence for genetic toxicity has been described in a recent publication of results from an in vitro. An in vivo chromosome aberration study does not support the conclusion of the recently reported in vitro studies in mammalian cells, and an in vivo rodent dominant lethal assay also showed no evidence of chromosome damage, so it is considered that the in vitro results do not reflect a potential for genetic toxicity. Citric acid is negative in in vivo genotoxicity testing, although effects have been observed in some in vitro studies. Moreover, it has been used as a food additive over a long period. In addition, citrate plays a central role in cellular metabolism, so it is considered that classification for mutagenicity is not required. Information available in the public domain on tests carried out on other salts of sodium, calcium, potassium and magnesium indicates that the metal ions are not expected to contribute to the genetic toxicity of their corresponding salts. Therefore, information from citric acid may be read-across to the other citrate salts in this category, and information may be read-across between the citrate salts, and classification of the citrate salts in the category for mutagenicity is not required.
Carcinogenicity IARC	No data available. Chronic toxicity: Carcinogenicity: In a rat feeding study, animals dosed with 5% citric acid in the diet did show an excess of tumors in comparison with control animals when tested over a period of 2 years. However, there was some evidence that high doses of citrate salts potentiated the incidence of tumors produced by co-administration of known bladder carcinogens. Where citric acid or citrate salts were administered alone during these studies, no dose-related tumors were noted.
Carcinogenicity ACGIH	No data available
Carcinogenicity NTP	No data available
Carcinogenicity OSHA	No data available
Reproductive Toxicity	Various studies on rats, mice and guinea pigs using a number of different conditions and protocols: prior to mating, during pregnancy and also a two-generation study were summarized in the OECD report. In some the doses were defined and in others the regimen was ad libitum feeding of a defined concentration of citric acid in the diet, with or without measurement of food uptake. No adverse effects on females or fetuses were reported except slight dental attrition of the females in some of the studies. The NOEL values reported were often meaningless as it was the only dose used, and that gave no adverse effects. In the same report described above, Wright and Hughes (1976c) showed the same does (5%) of citric acid in the diet of female mice and rats had no effect on the reproductive performance as measured by pregnancy rate, number of live births, still births and pup survival rate.
Specific Target Organ Toxicity - Single Exposure	N/A
Specific Targer Organ Toxicity - Repeated Exposure	N/A
Aspiration Hazard	N/A

Section 12: Ecological Information

Toxicity	Toxicity to fish: LC50/96h (Fish) >100/1516 mg/l, LC50 (48h): 440 mg/l. Toxicity to crustaceans: LC50 (24h): 1535 mg/l. Toxicity to algae: NOEC (8d): 425 mg/l.
Persistence and Degradability	Readily biodegradable in water.
Bio-accumulative Potential	N/A
Mobility in Soil	Soil/water partition coefficient (Koc): N/A
Other Adverse Effects	Substances which have an unfavorable influence on the oxygen balance and can be measured using parameters such as BOD, COD, etc.: N/A. Substances which contribute to eutrophication: N/A.

Section 13: Disposal Considerations

Waste Treatment Methods Product	Waste must be disposed of in accordance with federal, state and local environmental control regulations.
Waste Treatment Methods Packaging	Waste must be disposed of in accordance with federal, state and local environmental control regulations.
Special Precautions Landfill or Incinerations	No data available
Other Information	No data available

Section 14: Transport Information

UN Number	Not dangerous goods.
UN Proper Shipping Name	N/A
Transport Hazard Class(es)	N/A
Packaging Group	N/A
Environmental Hazards	Marine Pollutant: This product contains a chemical which is listed as a severe marine pollutant according to IMDG/IMO (P) (4-nonylphenol)

Section 15: Regulatory Information

EU Directives 67/548/EEC and 1999/45/EC (including amendments) and take into account the intended product use. EU Regulation (EC) No. 1907/2006 (REACH), No 1272/2008 (CLP). In accordance with REACH article 14, a Chemical Safety Assessment has been carried out for this substance.

Section 16: Other Information

Additional Information	N/A
Prepared By	Scarlotte Smith
Revision Date	04/11/2016 10:05

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