

# Material Safety Data Sheet



## Martrex, Inc.

### Section 1: Chemical Product and Company Information

**Product name:** Citric Acid Anhydrous

**Reference Number:**

**Web:** [www.martrexinc.com](http://www.martrexinc.com)

**Supplier/ Further Information:** Martrex, Inc.

P. O. Box 1709

**Phone:** 952/933-5000

14525 Highway 7

**Toll Free:** 800/328-3627

Minnetonka, Minnesota 55345-3793

**FAX:** 952/933-1889

**EPA Registration Number:** n/a

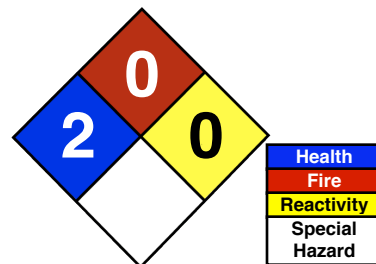
**CAS#:** 77-92-9

**Chemical Name:** 2-Hydroxy -1,2,3propanetricarboxylic acid

**Synonyms:** Citric Acid, Citric Acid Anhydrous

**Chemical Family:** Amides

**MSDS Number:** n/a



For Rating Explanation see Section 16

**24 Hour Emergency Phone - Chemtrec Transport: 1-800-424-9300; Medical: 1-800-441-3637**

### Section 2: Composition/Information on Ingredients

Component	SARA Listed Hazardous?	CAS#	%	RTECS#	Other Limits
1. 2-Hydroxy -1,2,3 propanetricarboxylic acid	Yes	77-92-9	>99.5%	no data	See Sections 11,12,15
2. Water	No	7732-18-5	<0.21%	no data	no data

### Section 3: Hazards Identification

**Emergency Overview:** Caution! Causes respiratory tract irritation. May cause digestive tract irritation. Moisture sensitive. Causes severe eye irritation. May cause skin sensitization by skin contact. Causes skin irritation.

**NFPA:** Health: 2 Flammability: 0 Reactivity: 0

**Potential Health Effects:**

**Primary Routes of Exposure / Entry:** Skin contact, Ingestion, Inhalation of mist.

**Target Organs:** no data

**Acute and Chronic Exposure Symptoms:** Prolonged contact with the product may cause irritation.

**Inhalation (breathing):** Causes respiratory tract irritation.

**Eye Contact:** Causes severe eye irritation and possible injury.

**Skin Contact:** Causes skin irritation. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.

**Ingestion (swallowing):** May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Excessive intake of citric acid may cause erosion of the teeth.

**Chronic Exposure Symptoms:** Repeated exposure may cause sensitization dermatitis.

**Medical Conditions Aggravated By Long-Term Exposure:** No information available.

**Carcinogenicity Data:**

**ACGIH:** no **NIOSH:** no **NTP:** No **OSHA:** No **IARC Monograph:** No

**Also See:** Section 11 for more Toxicological information

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#### Section 4: First Aid Measures

**Eye Exposure:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. **Get medical aid. Do NOT allow victim to rub or keep eyes closed.**

**Skin Exposure:** 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. Wash clothing before reuse.

**Ingestion:** Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. **Never give anything by mouth to an unconscious person. Get medical aid.**

**Inhalation:** Remove from exposure to fresh air immediately. If breathing is difficult, give oxygen. **Get medical aid. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.**

**NOTE TO THE PHYSICIAN:** Treat symptomatically and supportively.

#### Section 5: Fire Fighting Measures

**Flammability Classification:**

**A Flash Point:** no data

**Auto-ignition Temperature:** 1000-1020°C

**Lower explosion limit (LEL):** .28

**Upper explosion limit (UEL):** 2.29

**Extinguishing Media:** Use water spray, dry chemical, carbon dioxide, or chemical foam. Use agent most appropriate to extinguish fire. **Do NOT get water inside containers.**

**Unusual Fire and Explosive Hazards:** Aqueous solutions of Citric Acid can, if in contact with reactive metal (iron, zinc, aluminum) form hydrogen which may form explosive mixtures.

**Hazardous Decomposition Materials:** no data

**Special Procedures:** no data

**Fire-Fighting Instructions:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. This material in sufficient quantity and reduced particle size is capable of creating a dust explosion.

**Personal Protective Equipment:** Fire fighters should use MSHA/NIOSH approved self-contained breathing apparatus and full protective equipment when fighting chemical fires.

#### Section 6: Accidental Release Measures

**Procedure to be Followed in Case of Leak or Spill:** Vacuum or sweep up material and place into a suitable disposal container. Very fine particles can cause a fire or explosion. **Eliminate all ignition sources.**

**Spill and Leak Personal Procedures:** Use proper personal protective equipment as indicated in Section 8.

**Containment of Spill:** no data

**Cleanup and Disposal of Spill:** Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Remove all sources of ignition. Provide ventilation. Spill may be neutralized with lime. **Do not get water inside containers.**

**Environmental and Regulatory Reporting:** Conform to applicable federal, state and local regulations

#### Section 7: Handling and Storage

**Minimum/maximum Storage Temperature:** Do not store above 23°C (73.4°F).

**Handling:** Wear suitable protective clothing, eye protection and suitable respiratory equipment. Use with adequate ventilation. Minimizedust generation and accumulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation. **Do not allow contact with water. Keep from contact with moist air and steam.**

**Storage:** Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Store protected from moisture.

**REGULATORY REQUIREMENTS:** See Section 2 and 8 for employee exposure controls and Section 15 for other regulatory requirements.

### Section 8: Exposure Controls / Personal Protection

**Ventilation/Engineering Protection:** Local exhaust sufficient to control dust. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

**Respiratory Protection (specify type):** Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

**Eye Protection:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin Protection:** Wear appropriate protective gloves to prevent skin exposure.

**Other Protective Clothing and Equipment:** Wear appropriate protective clothing to prevent skin exposure.

**Hygienic Work Practices:** Clean protective equipment before reuse. Wash after handling. Wash clothing and clean shoes before reuse.

### Section 9: Physical and Chemical Properties

**Chemical Name:** 2-Hydroxy -1,2,3propanetricarboxylic acid

**Percent Equivalent:** >99.5%

**Physical State:** Solid

**Color and Appearance:** White powder and or granules

**Odor:** Odorless

**Odor Threshold:** no data

**pH:** 2.2 @ 1% solution

**Specific Gravity (water=1):** 1.665

**Vapor Pressure:** no data

**Vapor Density (Air = 1):** no data

**Density:** no data

**Bulk Density:** no data

**Volatiles by Volume:** 0

**Boiling Point:** no data

**Freezing / Melting Point:** 153°C (307°F)

**Evaporation Rate (Butyl Acetate=1):** <1

**Solubility in water @ 20°C(68°F):** 59.2%

**Viscosity:** no data

**Other Solubilities:** no data

**Chemical Formula:** C<sub>6</sub>H<sub>8</sub>O<sub>7</sub>

**Formula Wt:** 192.12

### Section 10: Stability and Reactivity

**Chemical Stability** (under normal conditions of storage, handling, use): Stable  X  Unstable

**Hazardous Polymerization:** May Occur

Will Not Occur  X

**Conditions to Avoid:** Incompatible materials, dust generation, moisture, exposure to moist air or water.

**Chemical Incompatibility and Materials to Avoid:** Oxidizing agents, sulfides (inorganic, e.g. ferric sulfide, lead sulfide, sodium sulfide), metal nitrates, alkali carbonates, alkalis, potassium tartrate, acetates, bicarbonates.

**Hazardous Decomposition Products:** None known

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**Section 11: Toxicological Information****RTECS#:**

**Acute Data:** Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of the respiratory tract, nose, and throat, coughing and sneezing.

**Eye Effects:** Draize test, rabbit, eye: 750 ug/24 hours Severe

**Skin Effects:** Draize test, rabbit, skin: 500 mg/24 hours Mild

**Acute Oral LD<sub>50</sub>:** (mouse)= 5040 mg/kg

**Acute Oral LD<sub>50</sub>:** (rat)= 3 gm/kg

**Additional Information:** no data

**Chronic Data****Carcinogenicity Data:**

**ACGIH:** no **NIOSH:** no **NTP:** No **OSHA:** No **IARC Monograph:** No

**Other Effects on Humans:** no data

**Section 12: Ecological Information****Eco-acute Toxicity:**

**Fish toxicity:** LC100 goldfish 894 mg/l lifetime exposure in hard water, LD0 goldfish 625 mg/l lifetime exposure in hard water (Ellis, M.M. Detection and measurement of Stream Pollution 1937, 22, XLVII, 365, US Brit. Fisheries Bull.)

**Invertebrate toxicity:** LD100 Daphnia magna 120 mg/l lifetime exposure in soft water, LD0 Daphnia magna 80 mg/l lifetime exposure in soft water. Toxicity threshold: Pseudomonas putida > 10 g/l; Scenedesmus quadricauda 640 mg/l; Entosiphon sulcatum 485 mg/l (Bringmann, G. et al Water Res. 1980, 14, 231-241).

**Environmental Fate:**

**Nitrification inhibition.** Nitrosomonas sp 100 mg/l no inhibition of ammonia oxidation (Hockenbury, M.R. et al J. Water Pollut. Control Fed. 1979, 49(5), 768-777).

**Degradation studies.** 70-100% removal by activated sludge at 20°C for 120 hr (Muto, N. et al Kenkyu Hokoku-Kanto Gakuin Daigaku Kogakubu 1987, 31(2), 257-266 (Japan)).

**Degradation Products:**

**Biodegradation:** Biodegradable (Ministry of International Trade and Industry (MITI) Report 1984, Japan).

**Other:** BOD<sub>5</sub> 0.420; BOD<sub>20</sub> 0.610; ThOD 0.686 mg/l O<sub>2</sub> respectively (Meinck, F. et al Les Eaux Residuairees Industrielles 1970).

**Section 13: Disposal Considerations**

**Disposal Procedures:** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

**Disposal Regulatory Requirements:** Consult local or state environmental regulatory agencies for acceptable disposal procedures and locations. Follow standard disposal procedures.

**Section 14: Transport Information**

No information available

## Section 15: Regulatory Information

**TSCA:** Listed

**DSL (Canadian):** Listed

**WHMIS Classification:** This product has a WHMIS classification of D2B.

**EPA Regulations:**

**TSCA 8(b) inventory:** None of the chemicals in this material have a SNUR under TSCA.

**RCRA Hazardous Waste Number:** not listed

**SARA Codes:** CAS# 77-92-9: acute

**SARA 313 Toxic Chemical:** No chemicals are reportable under Section 313.

**SARA 302 (RQ):** None of the chemicals in this product have a RQ.

**SARA 302 (TPQ):** None of the chemicals in this product have a TPQ.

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

**State Regulations:** Since state and local laws vary, consult your attorney or appropriate regulatory officials for information relating to spill reporting.

## Section 16: Other Information

**ACGIH** - American Conference of Governmental Industrial Hygienists

**ANSI** - American National Standards Institute

**CAS** - Chemical Abstracts Service

**CERCLA** - Comprehensive Environmental Response, Compensation & Liability Act of 1980

**CFR** - Code of Federal Regulations

**CHEMTREC** - Chemical Transportation Emergency Center

**DOT** - U.S. Department of Transportation

**DSL** - Canadian Domestic Substance List

**EHS** - Extremely Hazardous Substance

**EPA** - U.S. Environmental Protection Agency

**HMIS** - Hazardous Material Identification System

**IARC** - International Agency for Research on Cancer

**LEL/UEL** - Lower and Upper Explosive Limit

**mg/m<sup>3</sup>** - Milligrams per cubic meter




**MSDS** - Material Safety Data Sheet

**NAERG** - North American Emergency Response Guidebook

**NIOSH** - National Institute of Occupational Safety and Health

**NFPA** - National Fire Protection Association

**NTP** - National Toxicology

 <b>NFPA Rating Explanation Guide</b> 					
Rating Number	Health Hazard	Flamability Hazard	Instability Hazard	Rating Symbol	Special Hazard
4	Can be lethal	Will vaporize and readily burn at normal temperatures	May explode at normal temperatures and pressures	ALK	Alkaline
3	Can cause serious or permanent injury	Can be ignited under almost all ambient temperatures	May explode at high temperatures or shock	ACID	Acidic
2	Can cause temporary incapacitation or residual injury	Must be heated or high ambient temperature to burn	Violent chemical change at high temperatures or pressures	BIO	BioHazard
1	Can cause significant irritation	Must be preheated before ignition can occur	Normally stable. High temperatures make unstable	COR	Strong Corrosive
0	No Hazard	Will not burn	Stable	CRYO	Cryogenic
				OXY	Oxidizer
					Radioactive
				W	Reacts violently or explosively with water
				W OX	Reacts violently or explosively with water or oxidizer

*This chart for reference only - For complete specifications consult the NFPA Standard*

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Program

**OSHA** - Occupational Safety and Health Administration

**PEL** - Permissible Exposure Limit (set by OSHA)

**PPE** - Personal Protective Equipment

**RCRA** - Resource Conservation and Recovery Act of 1976

**SARA** - Superfund Amendments and Reauthorization Act

**TDG** (Canadian): Transport of Dangerous Goods Regulations

**TLV** - Threshold Limit Value (set by ACGIH)

**TWA** - 8-hour Time Weighted Average

**TSCA** - US Toxic Substance Control Act

**WHMIS** - Workplace Hazardous Material Information System

**MSDS Issue Date:** n/a

**Revised Date:** 3-18-2010

**Supersedes:** n/a

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