



# Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment
		See Section 15.

**Section 1. Chemical Product and Company Identification** Page Number: 1

Common Name/ Trade Name	<b>Citric acid</b>	Catalog Number(s)	C1 YY1143, XX499, XX528, C1280, C1281, CH131, CH133
Manufacturer	CONNELL BROS. COMPANY, LTD. 345 CALIFORNIA STREET, 27TH FLOOR SAN FRANCISCO, CA 94104	CAS#	77-92-9
Commercial Name(s)	Not available.	RTECS	GE7350000
Synonym	2-Hydroxy-1,2,3-propanetricarboxylic acid	TSCA	TSCA 8(b) inventory: Citric acid
Chemical Name	Citric Acid	CI#	Not available.
Chemical Family	Not available.	<b>IN CASE OF EMERGENCY</b> <b>CHEMTREC (24hr) 800-424-9300</b>	
Chemical Formula	C6H8O7		
Supplier	Connell Bros. Co. Ltd., a Division of Wilbur-Ellis Company 345 California Street, 27th Floor San Francisco, CA 94104		

**Section 2. Composition and Information on Ingredients**

Name	Exposure Limits			
	CAS #	TWA (mg/m <sup>3</sup> )	STEL (mg/m <sup>3</sup> )	CEIL (mg/m <sup>3</sup> )
1) Citric acid	77-92-9			
				% by Weight
				100

Toxicological Data on Ingredients      Citric acid:      Acute: 5040 mg/kg [Mouse], 3000 mg/kg [Rat].  
 ORAL (LD50):

**Section 3. Hazards Identification**

Potential Acute Health Effects      Hazardous in case of eye contact (irritant), of inhalation (lung irritant). Slightly hazardous in case of skin contact (irritant, sensitizer), of ingestion. The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Severe over-exposure can produce lung damage, choking, unconsciousness or death.

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Potential Chronic Health Effects	Slightly hazardous in case of skin contact (sensitizer). <b>CARCINOGENIC EFFECTS:</b> Not available. <b>MUTAGENIC EFFECTS:</b> Not available. <b>TERATOGENIC EFFECTS:</b> Not available. <b>DEVELOPMENTAL TOXICITY:</b> Not available. The substance may be toxic to teeth. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.
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**Section 4 First Aid Measures**

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. Cold water may be used. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Serious Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Serious Inhalation	Not available.
Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.
Serious Ingestion	Not available.

**Section 5 Fire and Explosion Data**

Flammability of the Product	May be combustible at high temperature.
Auto-Ignition Temperature	1010°C (1850°F)
Flash Points	Not available.
Flammable Limits	LOWER: 0.28 Kg/M3 (Dust) UPPER: 2.29 Kg/M3 (Dust)
Products of Combustion	These products are carbon oxides (CO, CO2).
Fire Hazards in Presence of Various Substances	Slightly flammable to flammable in presence of heat. Non-flammable in presence of shocks.
Explosion Hazards in Presence of Various Substances	Slightly explosive in presence of open flames and sparks. Non-explosive in presence of shocks.
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.
Special Remarks on Fire Hazards	As with most organic solids, fire is possible at elevated temperatures
Special Remarks on Explosion Hazards	Fine dust dispersed in air in sufficient concentrations, and in the presences of an ignition source is a potential dust explosion hazard.

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**Section 6. Accidental Release Measures****Small Spill**

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

**Large Spill**

Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

**Section 7. Handling and Storage****Precautions**

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Avoid contact with eyes. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, reducing agents, metals, alkalis.

**Storage**

Keep container tightly closed. Keep container in a cool, well-ventilated area.

**Section 8. Exposure Controls/Personal Protection****Engineering Controls**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection**

Safety glasses. Lab coat. Gloves (impervious). Dust respirator. Be sure to use an approved/certified respirator or equivalent. The dust respirator should be used for conditions where exposure has exceeded recommended exposure limits, dust is apparent, and engineering controls (adequate ventilation) are not feasible.

Personal Protection in Case of a Large Spill  
 Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits**

No exposure guidelines have been established. ACGIH, NIOSH and OSHA have not developed exposure limits for this product. The exposure limits given below are for particulates not otherwise classified:

ACGIH: 10 mg/m<sup>3</sup> TWA (Total Inhalable fraction); 3 mg/m<sup>3</sup> TWA (Respirable fraction)  
 OSHA: 15 mg/m<sup>3</sup> TWA (Total dust); 5 mg/m<sup>3</sup> TWA (Respirable Fraction)

**Section 9. Physical and Chemical Properties**

Physical state and appearance	Solid (Crystalline powder. Granular solid.)	
Molecular Weight	Odor	Odorless.
	Taste	Acid. (Strong.)
pH (1% solu/water)	Color	Not available.
Boiling Point	Decomposes.	
Melting Point	153°C (307.4°F)	
Critical Temperature	Not available.	
Specific Gravity	1.665 (Water = 1)	
Vapor Pressure	Not applicable.	
Vapor Density	Not available.	
Volatility	Not available.	
Odor Threshold	Not available.	
Water/Oil Dist. Coeff.	The product is more soluble in water; log(oil/water) = -1.7	
Ionicity (In Water)	Not available.	

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Dispersion Properties See solubility in water, diethyl ether.

Solubility Soluble in cold water, hot water, diethyl ether.  
Insoluble in benzene.

**Section 10. Stability and Reactivity Data**

Stability The product is stable.

Instability Temperature Not available.

Conditions of Instability Excess heat, incompatible materials

Incompatibility with various substances Reactive with oxidizing agents, reducing agents, metals, alkalis.

Corrosivity Corrosive in presence of aluminum, of zinc, of copper.  
Non-corrosive in presence of glass.

Special Remarks on Reactivity Incompatible with oxidizing agents, potassium tartrate, alkali, alkaline earth carbonates and bicarbonates, acetates, and sulfides, metal nitrates

Special Remarks on Corrosivity Will corrode copper, zinc, aluminum and their alloys.

Polymerization Will not occur.

**Section 11. Toxicological Information**

Routes of Entry Inhalation, Ingestion.

Toxicity to Animals Acute oral toxicity (LD50): 3000 mg/kg [Rat].

Chronic Effects on Humans May cause damage to the following organs: teeth.

Other Toxic Effects on Humans Hazardous in case of inhalation (lung irritant).  
Slightly hazardous in case of skin contact (irritant, sensitizer), of ingestion.

Special Remarks on Toxicity to Animals LD<sub>50</sub>(Rabbit) - Route: oral; Dose: 7000mg/kg

Special Remarks on Chronic Effects on Humans Not available.

Special Remarks on other Toxic Effects on Humans Acute Potential Health Effects:  
Skin: Causes mild to moderate skin irritation. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.  
Eyes: Causes moderate to severe eye irritation and possible injury.  
Ingestion: May cause gastrointestinal (digestive) tract irritation with nausea, vomiting, diarrhea. Excessive intake may cause erosion of teeth and hypocalcemia (calcium deficiency in blood). May affect behavior/central nervous system (tremor, convulsions, muscle contraction or spasticity).  
Inhalation: Causes moderate respiratory tract and mucous membrane irritation.  
Chronic Potential Health Effects:  
Frequent intake of citrated beverages may cause erosion of dental enamel and irritation of mucous membranes.

**Section 12. Ecological Information**

Ecotoxicity Not available.

BOD5 and COD Not available.

Products of Biodegradation Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation The product itself and its products of degradation are not toxic.

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Special Remarks on the Products of Biodegradation

Not available.

**Section 13. Disposal Considerations**

Waste Disposal

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

**Section 14. Transport Information**

DOT Classification

Not a DOT controlled material (United States).

Identification

Not applicable.

Special Provisions for Transport

Not applicable.

DOT (Pictograms)



**Section 16. Other Regulatory Information and Pictograms**

Federal and State Regulations

TSCA 8(b) Inventory: Citric acid

**CALIFORNIA**  
Proposition 65  
Warnings

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: No products were found.  
California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.

Other Regulations

EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances (EINECS No. 201-069-1).  
Canada: Listed on Canadian Domestic Substance List (DSL).  
China: Listed on National Inventory.  
Japan: Listed on National Inventory (ENCS).  
Korea: Listed on National Inventory (KECI).  
Philippines: Listed on National Inventory (PICCS).  
Australia: Listed on AICS.

Other Classifications

WHMIS (Canada) CLASS E: Corrosive solid.

DSCL (EEC)

R36/37/38- Irritating to eyes, respiratory system and skin.

S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S37/39- Wear suitable gloves and eye/face protection.

HMIS (U.S.A.)

2	1	0
Personal Protection		
e		

National Fire Protection Association (U.S.A.)

Health



Flammability  
Reactivity  
Specific hazard

WHMIS (Canada)  
(Pictograms)



**Citric Acid**

DSCL (Europe)  
(Pictograms)



TDG (Canada)  
(Pictograms)



ADR (Europe)  
(Pictograms)



**Protective Equipment**

Gloves (impermeous).



Lab coat.



Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.



Safety glasses.



**Section 16 Other Information**

MSDS Code      CA370

References      Not available.

Other Special Considerations      Not available.

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CALL (415) 772-4000

**Notice to Reader**

*All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, detergents, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Cornell Bros. Company, Ltd. assumes no responsibility for the completeness or accuracy of the information contained herein.*