



**Safety Data Sheet**  
**Citric acid, monohydrate**  
**Revision 3, Date 09 Nov 2018**

## 1. IDENTIFICATION

<b>Product Name</b>	<b>Citric acid, monohydrate</b>
<b>Other Names</b>	No Data Available
<b>Uses</b>	Cleaning/washing agents and additives; Manufacture of other chemicals.
<b>Chemical Family</b>	No Data Available
<b>Chemical Formula</b>	C <sub>6</sub> H <sub>8</sub> O <sub>7</sub> .H <sub>2</sub> O
<b>Chemical Name</b>	1,2,3-Propanetricarboxylic acid, 2-hydroxy-, monohydrate
<b>Product Description</b>	No Data Available

### Contact Details of the Supplier of this Safety Data Sheet

<b>Organisation</b>	<b>Location</b>	<b>Telephone</b>
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

### Emergency Contact Details

*For emergencies only; DO NOT contact these companies for general product advice.*


<b>Organisation</b>	<b>Location</b>	<b>Telephone</b>
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

## 2. HAZARD IDENTIFICATION

**Poisons Schedule (Aust)** Not Scheduled

### Globally Harmonised System



<b>Hazard Classification</b>		Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)	
<b>Hazard Categories</b>		Skin Corrosion/Irritation - Category 2 Serious Eye Damage/Irritation - Category 2A Specific Target Organ Toxicity (Single Exposure) - Category 3	
<b>Pictograms</b>			
<b>Signal Word</b>		Warning	
<b>Hazard Statements</b>		<b>H315</b> <b>H319</b> <b>H335</b> <b>USH232</b>	Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May form combustible dust concentrations in air.
<b>Precautionary Statements</b>	Prevention	<b>P280</b>	Wear protective gloves/eye protection/face protection.
		<b>P261</b>	Avoid breathing dusts or mists.
		<b>P271</b>	Use only outdoors or in a well-ventilated area.
	Response	<b>P302 + P352</b>	IF ON SKIN: Wash with plenty of soap and water.
		<b>P337 + P313</b>	If eye irritation persists: Get medical advice/attention.
		<b>P312</b>	Call a POISON CENTER or doctor/physician if you feel unwell.
		<b>P332 + P313</b>	If skin irritation occurs: Get medical advice/attention.
		<b>P362</b>	Take off contaminated clothing and wash before reuse.
		<b>P305 + P351 + P338</b>	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		<b>P304 + P340</b>	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
	Storage	<b>P403 + P233</b>	Store in a well-ventilated place. Keep container tightly closed.
		<b>P405</b>	Store locked up.
	Disposal	<b>P501</b>	Dispose of contents/container in accordance with local / regional / national / international regulations.

### National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

<b>Dangerous Goods Classification</b>	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
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### Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

<b>HSNO Classifications</b>	Health Hazards	<b>6.3B</b>	Substances that are mildly irritating to the skin
		<b>8.3A</b>	Substances that are corrosive to ocular tissue

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Citric acid, monohydrate	C6H8O7.H2O	5949-29-1	<=100 %

## 4. FIRST AID MEASURES

### *Description of necessary measures according to routes of exposure*

<b>Swallowed</b>	IF SWALLOWED: Rinse mouth, then drink plenty of water. Do not induce vomiting. Get medical advice/attention if a large amount is swallowed or if you feel unwell.
<b>Eye</b>	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. If eye irritation persists, get medical advice/attention.
<b>Skin</b>	IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. If skin irritation occurs, get medical advice/attention.
<b>Inhaled</b>	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if respiratory symptoms persist or if you feel unwell. Apply resuscitation if victim is not breathing; Administer oxygen if breathing is difficult.
<b>Advice to Doctor</b>	Treat symptomatically.
<b>Medical Conditions Aggravated by Exposure</b>	No information available.

## 5. FIRE FIGHTING MEASURES

<b>General Measures</b>	If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out.
<b>Flammability Conditions</b>	May burn but does not ignite readily.
<b>Extinguishing Media</b>	Use dry chemical, Carbon dioxide (CO2), foam or water spray for extinction.
<b>Fire and Explosion Hazard</b>	Combustible dust: May form flammable dust clouds in air.
<b>Hazardous Products of Combustion</b>	Fire may produce irritating, toxic and/or corrosive fumes, including oxides of Carbon.
<b>Special Fire Fighting Instructions</b>	Contain runoff from fire control or dilution water - Runoff may pollute waterways.
<b>Personal Protective Equipment</b>	Wear self-contained breathing apparatus (SCBA) in combination with normal firefighting clothing (full fire kit).
<b>Flash Point</b>	No Data Available
<b>Lower Explosion Limit</b>	No Data Available
<b>Upper Explosion Limit</b>	No Data Available
<b>Auto Ignition Temperature</b>	No Data Available
<b>Hazchem Code</b>	No Data Available

## 6. ACCIDENTAL RELEASE MEASURES

<b>General Response Procedure</b>	Ensure adequate ventilation. ELIMINATE all ignition sources. Do not touch or walk through spilled material. Avoid dust formation. Avoid breathing dust and contact with eyes, skin and clothing.
<b>Clean Up Procedures</b>	Collect material (sweep or vacuum up) and place it in suitable, properly labelled containers for disposal (see SECTION 13); if appropriate, moisten first or cover with damp absorbent to prevent generating dust.
<b>Containment</b>	Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas. Prevent dust cloud.
<b>Decontamination</b>	Neutralise residues with lime or soda ash. Wash area down with excess water.
<b>Environmental Precautionary Measures</b>	Prevent entry into drains and waterways.
<b>Evacuation Criteria</b>	Spill or leak area should be isolated immediately. Keep unauthorised personnel away.

**Personal Precautionary Measures**

Use personal protective equipment as required (see SECTION 8).

**7. HANDLING AND STORAGE****Handling**

Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation - Use only outdoors or in a well-ventilated area. Handle in accordance with good industrial hygiene and safety practice. Avoid dust formation. Avoid breathing dust and contact with eyes, skin and clothing. Do not ingest. Use personal protective equipment as required (see SECTION 8). Combustible dust: Keep away from (excessive) heat and all sources of ignition - No smoking. Take precautionary measures against static discharge.

**Storage**

Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed. Protect from moisture/humidity. Keep away from (excessive) heat and all sources of ignition - No smoking. Keep away from incompatible materials (see SECTION 10). Store locked up.

**Container**

Keep in the original container.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION****General**

No specific exposure standards are available for Citric acid, monohydrate. For dusts from solid substances without specific occupational exposure standards:

- Safe Work Australia Exposure Standard (Nuisance dusts): 8 hr TWA = 10 mg/m<sup>3</sup> (measured as inhalable dust).
- New Zealand WES (Particulates not otherwise classified): TWA = 10 mg/m<sup>3</sup>; TWA = 3 mg/m<sup>3</sup> (respirable dust).

**Exposure Limits**

No Data Available

**Biological Limits**

No information available.

**Engineering Measures**

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.

**Personal Protection Equipment**

- Respiratory protection: Wear respiratory protection in case of inadequate ventilation or if an inhalation risk exists. Recommended: Dust mask/particulate respirator (refer to AS/NZS 1715 & 1716).
- Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Chemical goggles.
- Hand protection: Wear protective gloves. Recommended: Impervious gloves.
- Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Overalls, safety shoes.

**Special Hazards Precautions**

No information available.

**Work Hygienic Practices**

Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Take off contaminated clothing and wash before reuse.

**9. PHYSICAL AND CHEMICAL PROPERTIES****Physical State**

Solid

**Appearance**

Crystalline powder

**Odour**

Odourless

**Colour**

White

**pH**

1.5 - 2.5 (5% soln.)

**Vapour Pressure**

No Data Available

**Relative Vapour Density**

No Data Available

**Boiling Point**

Decomposes before boiling

**Melting Point**

ca. 153 °C

**Freezing Point**

No Data Available

**Solubility**

Soluble in water

**Specific Gravity**

ca. 1.665

**Flash Point**

No Data Available

<b>Auto Ignition Temp</b>	No Data Available
<b>Evaporation Rate</b>	No Data Available
<b>Bulk Density</b>	No Data Available
<b>Corrosion Rate</b>	No Data Available
<b>Decomposition Temperature</b>	No Data Available
<b>Density</b>	No Data Available
<b>Specific Heat</b>	No Data Available
<b>Molecular Weight</b>	210.14 g/mol
<b>Net Propellant Weight</b>	No Data Available
<b>Octanol Water Coefficient</b>	No Data Available
<b>Particle Size</b>	No Data Available
<b>Partition Coefficient</b>	No Data Available
<b>Saturated Vapour Concentration</b>	No Data Available
<b>Vapour Temperature</b>	No Data Available
<b>Viscosity</b>	No Data Available
<b>Volatile Percent</b>	No Data Available
<b>VOC Volume</b>	No Data Available
<b>Additional Characteristics</b>	No information available.
<b>Potential for Dust Explosion</b>	Combustible dust: May form flammable dust clouds in air.
<b>Fast or Intensely Burning Characteristics</b>	No information available.
<b>Flame Propagation or Burning Rate of Solid Materials</b>	No information available.
<b>Non-Flammables That Could Contribute Unusual Hazards to a Fire</b>	No information available.
<b>Properties That May Initiate or Contribute to Fire Intensity</b>	May burn but does not ignite readily.
<b>Reactions That Release Gases or Vapours</b>	Fire/decomposition may produce irritating, toxic and/or corrosive fumes, including oxides of Carbon.
<b>Release of Invisible Flammable Vapours and Gases</b>	No information available.

## 10. STABILITY AND REACTIVITY

<b>General Information</b>	Reacts exothermically with alkalis.
<b>Chemical Stability</b>	Stable under normal conditions.
<b>Conditions to Avoid</b>	Avoid dust formation. Keep away from heat and all sources of ignition. Protect from moisture/humidity.
<b>Materials to Avoid</b>	Incompatible/reactive with strong oxidising agents, alkalis, water/moisture, carbon steel.
<b>Hazardous Decomposition Products</b>	Fire/decomposition may produce irritating, toxic and/or corrosive fumes, including oxides of Carbon.
<b>Hazardous Polymerisation</b>	Will not occur.

## 11. TOXICOLOGICAL INFORMATION

<b>General Information</b>	<ul style="list-style-type: none"> <li>- Acute toxicity: No adverse effects expected. Swallowing may cause nausea, vomiting and (severe) irritation to the mouth, throat and stomach mucosa.</li> <li>- Skin corrosion/irritation: Causes skin irritation.</li> <li>- Eye damage/irritation: Causes serious eye irritation. There is some evidence of severe and permanent damage to eyes (non-standard tests).</li> <li>- Respiratory/skin sensitisation: Based on the available information on Citric acid, no hazard classification for sensitisation is recommended [NICNAS].</li> </ul>
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- Germ cell mutagenicity: Based on the available information, no hazard classification for mutagenicity is recommended [NICNAS].
- Carcinogenicity: Based on the available information, no hazard classification for carcinogenicity is recommended [NICNAS].
- Reproductive toxicity: Based on the available information, no hazard classification for reproductive or developmental toxicity is recommended [NICNAS].
- STOT (single exposure): May cause respiratory irritation and coughing.
- STOT (repeated exposure): Not considered to cause serious damage to health from repeated (oral) exposure. The main effects relating to large and/or frequent doses of citric acid relate to its acidity and strong chelating properties, potentially leading to dental erosion or effects on bioavailability, absorption and excretion of metals. However, these effects are only seen at relatively large doses.
- Aspiration toxicity: No information available.

#### **Acute**

<b>Ingestion</b>	Acute toxicity (Oral): - LD50, Rats: >=3,000 mg/kg bw.
<b>Other</b>	Acute toxicity (Dermal): - LD50, Rats: >2,000 mg/kg bw. [OECD TG 402].
<b>Carcinogen Category</b>	None

## **12. ECOLOGICAL INFORMATION**

<b>Ecotoxicity</b>	No information available.
<b>Persistence/Degradability</b>	Readily biodegradable.
<b>Mobility</b>	No information available.
<b>Environmental Fate</b>	Prevent entry into drains and waterways.
<b>Bioaccumulation Potential</b>	No information available.
<b>Environmental Impact</b>	No Data Available

## **13. DISPOSAL CONSIDERATIONS**

<b>General Information</b>	Dispose of contents/container in accordance with local/regional/national regulations.
<b>Special Precautions for Land Fill</b>	No information available.

## **14. TRANSPORT INFORMATION**

### **Land Transport (Australia)**

ADG Code

<b>Proper Shipping Name</b>	CITRIC ACID MONOHYDRATE
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>Comments</b>	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (Malaysia)

ADR Code

Proper Shipping Name	CITRIC ACID MONOHYDRATE
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (New Caledonia)

Proper Shipping Name	CITRIC ACID MONOHYDRATE
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (New Zealand)

NZS5433

Proper Shipping Name	CITRIC ACID MONOHYDRATE
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (United States of America)

US DOT

Proper Shipping Name	CITRIC ACID MONOHYDRATE
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Sea Transport

IMDG Code

Proper Shipping Name	CITRIC ACID MONOHYDRATE
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
EMS	No Data Available
Marine Pollutant	No
Comments	NON-DANGEROUS GOODS: Not regulated for SEA transport.

Air Transport

IATA DGR

Proper Shipping Name	CITRIC ACID MONOHYDRATE
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for AIR transport.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
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15. REGULATORY INFORMATION

General Information	- No known restrictions for Citric acid, monohydrate have been identified. - WCO (World Customs organisation) HS Code: 2918.14
Poisons Schedule (Aust)	Not Scheduled

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code	HSR003688
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National/Regional Inventories

Australia (AICS)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined

China (IECSC)	Not Determined
Europe (EINECS)	Not Determined
Europe (REACH)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Not Determined

## 16. OTHER INFORMATION

Related Product Codes	CIACID0100, CIACID0101, CIACID0103, CIACID0105, CIACID0110, CIACID0500, CIACID0501, CIACID0502, CIACID0505, CIACID0510, CIACID1190, CIACID1500, CIACID1501, CIACID1502, CIACID1503, CIACID1504, CIACID1505, CIACID1506, CIACID1700, CIACID1701, CIACID1702, CIACID1703, CIACID1704, CIACID1705, CIACID1706, CIACID1863, CIACID2100, CIACID2101, CIACID2102, CIACID2103, CIACID2104, CIACID2105, CIACID2106, CIACID2107, CIACID2108, CIACID2109, CIACID2110, CIACID2111, CIACID2112, CIACID2113, CIACID2114, CIACID2115, CIACID2116, CIACID2117, CIACID2118, CIACID2119, CIACID2120, CIACID2121, CIACID2122, CIACID2900, CIACID2901, CIACID2902, CIACID2903, CIACID2904, CIACID2905, CIACID3300, CIACID3301, CIACID3310, CIACID3400, CIACID3401, CIACID3500, CIACID3501, CIACID3502, CIACID3503, CIACID4000, CIACID4001, CIACID4002, CIACID4003, CIACID4004, CIACID4005, CIACID4006, CIACID4300, CIACID4301, CIACID4302, CIACID4400, CIACID4401, CIACID4402, CIACID4403, CIACID4900, CIACID4901, CIACID4902, CIACID4903, CIACID4904, CIACID4905, CIACID4906, CIACID4920, CIACID4930, CIACID5600, CIACID5601, CIACID5700, CIACID6400, CIACID7500, CIACID7501, CIACID7502, CIACID7503, CIACID7800, CIACID8200, CIACID8300, CIACID8900, CIACID8901, CIACID9000, CIACID9001, CIACID9400, CIACID9601, CIACID9700, CIACID9701, CIACRR1000
Revision	3
Revision Date	09 Nov 2018
Key/Legend	< Less Than > Greater Than <b>AICS</b> Australian Inventory of Chemical Substances <b>atm</b> Atmosphere <b>CAS</b> Chemical Abstracts Service (Registry Number) <b>cm<sup>2</sup></b> Square Centimetres <b>CO<sub>2</sub></b> Carbon Dioxide <b>COD</b> Chemical Oxygen Demand <b>deg C (°C)</b> Degrees Celcius <b>EPA (New Zealand)</b> Environmental Protection Authority of New Zealand <b>deg F (°F)</b> Degrees Farenheit <b>g</b> Grams <b>g/cm<sup>3</sup></b> Grams per Cubic Centimetre <b>g/l</b> Grams per Litre <b>HSNO</b> Hazardous Substance and New Organism <b>IDLH</b> Immediately Dangerous to Life and Health <b>immiscible</b> Liquids are insoluable in each other. <b>inHg</b> Inch of Mercury <b>inH<sub>2</sub>O</b> Inch of Water <b>K</b> Kelvin <b>kg</b> Kilogram <b>kg/m<sup>3</sup></b> Kilograms per Cubic Metre <b>lb</b> Pound

**LC50** LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.

**LD50** LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.

**ltr** or **L** Litre

**m³** Cubic Metre

**mbar** Millibar

**mg** Milligram

**mg/24H** Milligrams per 24 Hours

**mg/kg** Milligrams per Kilogram

**mg/m³** Milligrams per Cubic Metre

**Misc** or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.

**mm** Millimetre

**mmH2O** Millimetres of Water

**mPa.s** Millipascals per Second

**N/A** Not Applicable

**NIOSH** National Institute for Occupational Safety and Health

**NOHSC** National Occupational Health and Safety Commission

**OECD** Organisation for Economic Co-operation and Development

**Oz** Ounce

**PEL** Permissible Exposure Limit

**Pa** Pascal

**ppb** Parts per Billion

**ppm** Parts per Million

**ppm/2h** Parts per Million per 2 Hours

**ppm/6h** Parts per Million per 6 Hours

**psi** Pounds per Square Inch

**R** Rankine

**RCP** Reciprocal Calculation Procedure

**STEL** Short Term Exposure Limit

**TLV** Threshold Limit Value

**tne** Tonne

**TWA** Time Weighted Average

**ug/24H** Micrograms per 24 Hours

**UN** United Nations

**wt** Weight