

1. IDENTIFICATION

Product Name	Citric acid, Anhydrous
Other Names	1,2,3-Propanetricarboxylic acid, 2-hydroxy; 2-Hydroxy-1,2,3-propanetricarboxylic acid; 2-Hydroxypropane-1,2,3-tricarboxylic acid
Uses	Food applications.
Chemical Family	No Data Available
Chemical Formula	C ₆ H ₈ O ₇
Chemical Name	1,2,3-Propanetricarboxylic acid, 2-hydroxy-
Product Description	Organic acid

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
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.

Organisation	Location	Telephone
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust) Not Scheduled

Globally Harmonised System

Hazard Classification Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)

Hazard Categories Serious Eye Damage/Irritation - Category 2A
Skin Corrosion/Irritation - Category 2
Specific Target Organ Toxicity (Single Exposure) - Category 3



Pictograms



Signal Word

Warning

Hazard Statements

H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary Statements

Prevention	P280	Wear protective gloves/eye protection/face protection.	
	P261	Avoid breathing dust.	
	P271	Use only outdoors or in a well-ventilated area.	
	Response	P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
		P337 + P313	If eye irritation persists: Get medical advice/attention.
		P312	Call a POISON CENTER or doctor/physician if you feel unwell.
		P332 + P313	If skin irritation occurs: Get medical advice/attention.
	Storage	P362	Take off contaminated clothing and wash before reuse.
		P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Disposal	P403 + P233	Store in a well-ventilated place. Keep container tightly closed.	
	P405	Store locked up.	
	P501	Dispose of contents/container in accordance with local / regional / national / international regulations.	

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

HSNO Classifications

Health Hazards	6.1E	Substances that are acutely toxic –May be harmful, Aspiration hazard
	6.3B	Substances that are mildly irritating to the skin
	8.3A	Substances that are corrosive to ocular tissue

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Citric acid	C6H8O7	77-92-9	<=100 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed

Rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water. Seek medical advice.

Eye

Immediately wash in and around the eye area with large amounts of luke-warm water for at least 15 minutes. Eyelids to be held apart. Remove clothing if contaminated and wash skin. Urgently seek medical assistance. Transport to hospital or medical centre. Continue to wash with large amounts of water until medical help is available.

Skin

If skin or hair contact occurs, immediately remove any contaminated clothing and wash skin and hair thoroughly with



running water. If swelling, redness, blistering or irritation occurs seek medical assistance.

Inhaled

Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. Seek medical advice if effects persist.

Advice to Doctor

Treat symptomatically based on judgement of doctor and individual reactions of patient.

Medical Conditions Aggravated by Exposure

No information available on medical conditions aggravated by exposure to this product.

5. FIRE FIGHTING MEASURES

General Measures

If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out.

Flammability Conditions

Combustible solid - May burn but does not ignite readily.

Extinguishing Media

Use dry chemical, Carbon dioxide, foam or water spray for extinction.

Fire and Explosion Hazard

Dust explosion possible if in powder or granular form, mixed with air.

Hazardous Products of Combustion

Fire will produce irritating and/or toxic gases, Carbon oxides.

Special Fire Fighting Instructions

Contain runoff from fire control or dilution water - Runoff may pollute waterways.

Personal Protective Equipment

Wear self-contained breathing apparatus (SCBA) in combination with normal firefighting clothing (fire kit).

Flash Point

345 °C

Lower Explosion Limit

No Data Available

Upper Explosion Limit

No Data Available

Auto Ignition Temperature

No Data Available

Hazchem Code

No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure

Ensure adequate ventilation. ELIMINATE all ignition sources (no smoking, flares, sparks or flames). Do not touch or walk through spilled material. Avoid breathing dust and contact with eyes, skin and clothing.

Clean Up Procedures

Sweep or vacuum up material; if appropriate, moisten first to prevent dusting. Collect and seal in properly labelled containers for disposal (see SECTION 13).

Containment

Prevent entry into waterways, drains or confined areas.

Decontamination

Neutralise residues with lime or soda ash; Wash away remainder with plenty of water.

Environmental Precautionary Measures

Collect spillage; decontamination runoff may be washed to drains with large quantities of water; Due care must still be exercised to avoid unnecessary pollution of watercourses.

Evacuation Criteria

Spill or leak area should be isolated immediately. Keep unauthorised personnel away; Keep upwind.

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. Use only outdoors or in a well-ventilated area. Handle in accordance with good industrial hygiene and safety practice. Avoid dust formation/dispersion. Avoid breathing dust and contact with eyes, skin and clothing. Wear protective gloves/eye protection/face protection (see SECTION 8). Dust explosion hazard; Keep away from heat and ignition sources - No smoking. Take precautionary measures against static discharge.

Storage

Store in a cool, dry and well-ventilated place. Keep container tightly closed - Check regularly for leaks. Avoid exposure to direct sunlight. Protect from moisture. Keep away from incompatible materials (strong oxidants, strong bases, metal nitrates and metals). Store locked up.

Container

Keep in the original container.



8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No specific exposure standards are available for this product. For dusts from solid substances without specific occupational exposure standards: - Safe Work Australia Exposure Standard (Nuisance dusts): 8 hr TWA = 10 mg/m ³ (measured as inhalable dust). - New Zealand WES (Particulates not otherwise classified): TWA = 10 mg/m ³ (total); TWA = 3 mg/m ³ (respirable). - OSHA PEL (Particulates not otherwise regulated): TWA = 15 mg/m ³ (total); TWA = 5 mg/m ³ (respirable).
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: If determined by a risk assessment an inhalation risk exists, wear a dust mask/respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716. Eye/face protection: Wear eye protection/face protection. Recommended: Protective eyeglasses or chemical goggles. Hand protection: Wear protective gloves. Recommended: Impervious rubber 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. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Crystalline powder
Odour	Odourless
Colour	Colourless to white
pH	1.5 - 2.5 (5 % solution)
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	Decomposes
Melting Point	153 °C
Freezing Point	No Data Available
Solubility	59 g/100 mL water 20°C
Specific Gravity	1.665
Flash Point	345 °C
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	175 °C
Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available



Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	The solution in water is a medium-strong acid.
Potential for Dust Explosion	May form flammable dust clouds in air.
Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	Combustible solid - May burn but does not ignite readily.
Reactions That Release Gases or Vapours	Fire will produce irritating and/or toxic gases, Carbon oxides.
Release of Invisible Flammable Vapours and Gases	No information available.

10. STABILITY AND REACTIVITY

General Information	Reacts with oxidants and bases. Attacks metal.
Chemical Stability	The product is stable under normal conditions.
Conditions to Avoid	Avoid dust formation/dispersion. Keep away from heat and ignition sources. Avoid exposure to direct sunlight. Protect from moisture.
Materials to Avoid	Incompatible/reactive with strong oxidants, strong bases, metal nitrates and metals.
Hazardous Decomposition Products	Fire will produce irritating and/or toxic gases, Carbon oxides.
Hazardous Polymerisation	No information available.

11. TOXICOLOGICAL INFORMATION

General Information	<p>Acute toxicity: No adverse affects expected; However, swallowing (large amounts) may cause abdominal pain, nausea, vomiting and irritation to the mouth and throat. Physiological disturbances may include acidosis and calcium deficiency; The substance may have effects on the teeth, resulting in erosion.</p> <p>Skin corrosion/irritation: May cause skin irritation, redness.</p> <p>Eye damage/irritation: Causes serious eye irritation.</p> <p>Respiratory/skin sensitisation: No evidence of sensitisation.</p> <p>Germ cell mutagenicity: No evidence of mutagenicity.</p> <p>Carcinogenicity: No evidence of carcinogenicity.</p> <p>Reproductive toxicity: No evidence of reproductive or developmental toxicity.</p> <p>STOT - single exposure: May cause respiratory irritation; Inhalation of citric acid aerosols may induce coughing and bronchoconstriction.</p> <p>STOT - repeated exposure: Not considered to cause serious damage to health from repeated exposure.</p> <p>Aspiration toxicity: No information available.</p>
Acute	
Ingestion	<p>Acute toxicity:</p> <p>- LD50, Rats: 3,000 - 12,000 mg/kg bw</p>
Other	<p>Acute toxicity:</p> <p>- LD50, Rats: 2,000 mg/kg bw [OECD TG 402].</p>
Carcinogen Category	None



12. ECOLOGICAL INFORMATION

Ecotoxicity	Aquatic toxicity: - LC50, Fish: 440 mg/L (48 h) [OECD 203]. - EC50, Daphnia: 1,535 mg/L (24 h) [OECD 202]. - EC50, Algae: 425 mg/L (8 d).
Persistence/Degradability	Readily biodegradable.
Mobility	No information available.
Environmental Fate	Prevent entry into drains and waterways.
Bioaccumulation Potential	Low potential for bioaccumulation.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of contents/container in accordance with local/regional/national regulations. Refer to waste management authority for disposal methods.
Special Precautions for Land Fill	No information available.

14. TRANSPORT INFORMATION**Land Transport (New Zealand)**

NZS5433

Proper Shipping Name	CITRIC ACID ANHYDROUS
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 ANHYDROUS
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 ANHYDROUS
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.

15. REGULATORY INFORMATION

General Information	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	HSR003138
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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

CIACID0200, CIACID0201, CIACID0205, CIACID0300, CIACID0301, CIACID0400, CIACID0401, CIACID0600, CIACID0601, CIACID0602, CIACID0603, CIACID0604, CIACID0605, CIACID0700, CIACID0701, CIACID0702, CIACID0750, CIACID0800, CIACID0801, CIACID0900, CIACID0901, CIACID1000, CIACID1001, CIACID1002, CIACID1003, CIACID1004, CIACID1005, CIACID1006, CIACID1007, CIACID1008, CIACID1009, CIACID1010, CIACID1011, CIACID1012, CIACID1013, CIACID1014, CIACID1015, CIACID1016, CIACID1017, CIACID1018, CIACID1019, CIACID1020, CIACID1021, CIACID1022, CIACID1023, CIACID1024, CIACID1025, CIACID1026, CIACID1027, CIACID1028, CIACID1029, CIACID1030, CIACID1031, CIACID1032, CIACID1033, CIACID1034, CIACID1035, CIACID1036, CIACID1037, CIACID1038, CIACID1039, CIACID1040, CIACID1041, CIACID1042, CIACID1043, CIACID1044, CIACID1045, CIACID1046, CIACID1047, CIACID1048, CIACID1049, CIACID1050, CIACID1051, CIACID1052, CIACID1053, CIACID1054, CIACID1055, CIACID1056, CIACID1057, CIACID1058, CIACID1059, CIACID1060, CIACID1061, 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Revision

3

Revision Date

27 Jun 2017

< Less Than



Key/Legend

> Greater Than
AICS Australian Inventory of Chemical Substances
atm Atmosphere
CAS Chemical Abstracts Service (Registry Number)
cm² Square Centimetres
CO₂ Carbon Dioxide
COD Chemical Oxygen Demand
deg C (°C) Degrees Celcius
EPA (New Zealand) Environmental Protection Authority of New Zealand
deg F (°F) Degrees Farenheit
g Grams
g/cm³ Grams per Cubic Centimetre
g/l Grams per Litre
HSNO Hazardous Substance and New Organism
IDLH Immediately Dangerous to Life and Health
immiscible Liquids are insoluable in each other.
inHg Inch of Mercury
inH₂O Inch of Water
K Kelvin
kg Kilogram
kg/m³ Kilograms per Cubic Metre
lb 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 Heath 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

