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; Citric Acid
Uses	Food applications.
Chemical Family	No Data Available
Chemical Formula	C6H8O7
Chemical Name	Citric Acid Anhydrous
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
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust) No Data Available

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	**P261**	Avoid breathing dust.
		P264	Wash exposed skin thoroughly after handling.
		P271	Use only outdoors or in a well-ventilated area.
		P280	Wear protective gloves/protective clothing/eye protection/face protection.
	Response	**P302 + P352**	IF ON SKIN: Wash with plenty of soap and water.
		P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
		P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		P312	Call a POISON CENTER or doctor/physician if you feel unwell.
		P321	Specific treatment (see First Aid Measures on Safety Data Sheet).
		P332 + P313	If skin irritation occurs: Get medical advice/attention.
		P337 + P313	If eye irritation persists: Get medical advice/attention.
		P362	Take off contaminated clothing and wash before reuse.
	Storage	**P403 + P233**	Store in a well-ventilated place. Keep container tightly closed.
		P405	Store locked up.
	Disposal	**P501**	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)

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)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Citric Acid	C6H8O7	77-92-9	100.0 %

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	Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk.
Flammability Conditions	No Data Available
Extinguishing Media	In case of fire, appropriate extinguishing media include water fog, carbon dioxide, foam, or dry chemicals.
Fire and Explosion Hazard	Non-combustible solid. Material does not burn nor will it support combustion.
Hazardous Products of Combustion	Hazardous decomposition products may include noxious and toxic fumes of carbon monoxide and carbon dioxide.
Special Fire Fighting Instructions	Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.
Personal Protective Equipment	Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves).
Flash Point	No Data Available
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	Avoid accidents, clean up immediately. May be slippery when spilt. Eliminate all sources of ignition. Increase ventilation. Avoid generating dust. Stop leak if safe to do so. Isolate the danger area. Use clean, non-sparking tools and equipment.
Clean Up Procedures	Contain and sweep/shovel up spills with dust binding material or use an industrial vacuum cleaner. Transfer to a suitable, labelled container and dispose of promptly as hazardous waste.
Containment	Stop leak if safe to do so. Isolate the danger area.
Decontamination	Neutralize the acidity, of the remaining solid, using a dilute solution of soda ash, lime, other agent appropriate for neutralizing acidic solids. Flush the spill area with water: collect the rinsates for disposal or sewer, as appropriate.
Environmental Precautionary Measures	Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management.
Evacuation Criteria	Evacuate all unnecessary personnel.
Personal Precautionary Measures	Personnel involved in the clean up should wear full protective clothing as listed in section 8.

7. HANDLING AND STORAGE

Handling	Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Take precautionary measures against static discharges by bonding and grounding equipment. Avoid contact with eyes, skin and clothing. Do not inhale product dust/fumes.
Storage	Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 10. This product is not classified dangerous for transport according to The Australian Code for the Transport of Dangerous Goods By Road and Rail.

Container	Store in original packaging as approved by manufacturer.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No exposure standard has been established for this product by The Safe Work Australia (SWA). However, the exposure standard for dust not otherwise specified is 10mg/m3 (for inspirable dust) and 3mg/m3 (for respirable dust). NOTE: The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. These exposure standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.
Exposure Limits	No Data Available
Biological Limits	No information available on biological limit values for this product.
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. Adequate ventilation should be provided so that exposure limits are not exceeded.
Personal Protection Equipment	RESPIRATOR: Dust mask (AS1715/1716). EYES: Safety glasses with side shields (AS1336/1337). HANDS: Wear impervious rubber gloves (AS2161). CLOTHING: Long-sleeved protective clothing and safety footwear (AS3765/2210).
Work Hygienic Practices	Wash hands after contact with this material. Do not eat, drink, or smoke around this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Free Flowing Crystalline Powder
Odour	Odourless
Colour	Colourless to white
pH	1.5 - 2.5 in solution at 5%
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	No Data Available
Melting Point	153 °C
Freezing Point	No Data Available
Solubility	134 g/100 g water (appreciable)
Specific Gravity	1.665
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
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	No Data Available
Potential for Dust Explosion	May form flammable dust clouds in air.
Fast or Intensely Burning Characteristics	No Data Available
Flame Propagation or Burning Rate of Solid Materials	No Data Available
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No Data Available
Properties That May Initiate or Contribute to Fire Intensity	No Data Available
Reactions That Release Gases or Vapours	No Data Available
Release of Invisible Flammable Vapours and Gases	No Data Available

10. STABILITY AND REACTIVITY

Chemical Stability	Product is stable under normal conditions of use, storage and temperature.
Conditions to Avoid	High temperature, sparks, and open flames.
Materials to Avoid	Caustic (Alkalis). Solutions are mildly corrosive to Carbon Steel.
Hazardous Decomposition Products	Hazardous decomposition products may include noxious and toxic fumes of carbon monoxide and carbon dioxide.
Hazardous Polymerisation	Hazardous polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

General Information	Oral LD50 (rat): 3000 mg/kg. Oral LD50 (mice): 5040 mg/kg SKIN: Mild irritant (rabbit). EYES: Severe irritant (rabbit). Acute toxicity LD50 Oral - Rat - 5,400 mg/kg (OECD Test Guideline 401) LD50 Dermal - Rat - > 2,000 mg/kg (OECD Test Guideline 402) Skin corrosion/irritation Skin - Rabbit Result: Mild skin irritation (OECD Test Guideline 404) Serious eye damage/eye irritation Eyes - Rabbit Result: Irritating to eyes. (OECD Test Guideline 405) Respiratory or skin sensitisation Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.
EyeIrritant	A severe eye irritant. Contamination of eyes can result in permanent injury.
Ingestion	No adverse effects expected, however, large amounts may cause nausea and vomiting. Swallowing may result in irritation to the mouth and throat. Frequent or large oral doses can cause tooth erosion. This product is a permitted food additive. Ingestion of a large amount may cause digestive tract irritation.
Inhalation	Breathing in dust may result in respiratory irritation with sore throat, coughing and shortness of breath.
SkinIrritant	Contact with skin may result in irritation.

Carcinogen Category No Data Available

12. ECOLOGICAL INFORMATION

Ecotoxicity Toxicity Effects: Highly Toxic for fish, not considered to be toxic for bacteria.
Air Pollution: 50mg/m3 for a mass emission >0.5Kg/h
Toxicity to fish mortality LC50 - Leuciscus idus melanotus - 440 mg/l - 48 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates: static test - Daphnia magna (Water flea) - 1,535 mg/l - 24 h

Persistence/Degradability Easily Biodegradable.

Mobility No information available on mobility for this product.

Environmental Fate Do NOT let product reach waterways, drains and sewers.

Bioaccumulation Potential No information available on bioaccumulation for this product.

Environmental Impact No Data Available

13. DISPOSAL CONSIDERATIONS

General Information Dispose of in accordance with all local, state and federal regulations. All empty packaging should be disposed of in accordance with Local, State, and Federal Regulations or recycled/reconditioned at an approved facility.

Special Precautions for Land Fill Contact a specialist disposal company or the local waste regulator for advice.

14. TRANSPORT INFORMATION

Land Transport (Australia)
ADG Code

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

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

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

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)

15. REGULATORY INFORMATION

General Information	No Data Available
Poisons Schedule (Aust)	No Data Available

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

ClACID0200, ClACID0300, ClACID0301, ClACID0400, ClACID0401, ClACID0600, ClACID0601, ClACID0602, ClACID0603, ClACID0604, ClACID0605, ClACID0700, ClACID0701, ClACID0702, ClACID0800, ClACID0801, ClACID0900, ClACID0901, ClACID1000, ClACID1001, ClACID1002, ClACID1003, ClACID1004, ClACID1005, ClACID1006, ClACID1007, ClACID1008, ClACID1009, ClACID1010, ClACID1011, ClACID1012, ClACID1013, ClACID1014, ClACID1015, ClACID1016, ClACID1017, ClACID1018, ClACID1019, ClACID1020, ClACID1021, ClACID1022, ClACID1023, ClACID1024, ClACID1025, ClACID1026, ClACID1027, ClACID1028, ClACID1029, ClACID1030, ClACID1031, ClACID1032, ClACID1033, ClACID1034, ClACID1035, ClACID1036, ClACID1037, ClACID1038, ClACID1039, ClACID1040, ClACID1041, ClACID1042, ClACID1043, ClACID1044, ClACID1045, ClACID1046, ClACID1047, ClACID1048, ClACID1049, ClACID1050, ClACID1051, ClACID1052, ClACID1053, ClACID1054, ClACID1055, ClACID1056, ClACID1057, ClACID1058, ClACID1059, ClACID1060, ClACID1061, ClACID1062, ClACID1063, ClACID1064, 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ClACID2703, ClACID5510, ClACID0750

Revision

2

Revision Date

18 Nov 2014

Key/Legend

< Less Than
> 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