

Safety Data Sheet
Citric acid, Anhydrous
Revision 3, Date 27 Jun 2017

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

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) 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.	

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 %

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 effects 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 (Australia)

ADG 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

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)
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15. REGULATORY INFORMATION

General Information	No Data Available
Poisons Schedule (Aust)	Not Scheduled

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, CIACID0300, CIACID0301, CIACID0400, CIACID0401, CIACID0600, CIACID0601, CIACID0602, CIACID0603, CIACID0604, CIACID0605, CIACID0700, CIACID0701, CIACID0702, CIACID0800, CIACID0801, CIACID0900, CIACID0901, CIACID1000, CIACID1001, CIACID1002, CIACID1003, CIACID1004, CIACID1005,
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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, CIACID1062, CIACID1063, CIACID1064, CIACID1065, CIACID1066, CIACID1067, CIACID1068, CIACID1069, CIACID1070, CIACID1071, CIACID1072, CIACID1073, CIACID1074, CIACID1075, CIACID1076, CIACID1077, CIACID1078, CIACID1079, CIACID1080, CIACID1081, CIACID1082, CIACID1083, CIACID1084, CIACID1085, CIACID1086, CIACID1087, CIACID1088, 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Revision

3

Revision Date

27 Jun 2017

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 insoluble 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 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