

### SECTION 1: Identification

#### 1.1. Product identifier

Trade name : CITRIC ACID 1hydr  
 IUPAC name : 2-hydroxypropane-1,2,3-tricarboxylic acid  
 EC-No. : 201-069-1  
 CAS-No. : 5949-29-1  
 Product code : 103090xxx  
 Formula : C6H8O7.H2O

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended uses and restrictions : For laboratory use only

#### 1.3. Supplier's details

Labchem (Pty)Ltd  
 6 Wakefield Road  
 Founders Hill  
 1609 Johannesburg - South Africa  
 T +27 11 452 1116 - F +27 86 588 0293  
[techlab@labchem.co.za](mailto:techlab@labchem.co.za) - [www.labchem.co.za](http://www.labchem.co.za)

#### 1.4. Emergency telephone number

Emergency number : +27 11 452 1116

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification according to the United Nations GHS

Acute toxicity (oral) Not classified  
 Skin corrosion/irritation Not classified  
 Serious eye damage/eye irritation, H319  
 Category 2A  
 Hazardous to the aquatic environment -  
 Acute Hazard Not classified  
 Full text of H statements : see section 16

#### 2.2. Label elements

##### Labelling according to the United Nations GHS

Hazard pictograms (GHS-ZA) :



GHS07

Signal word (GHS-ZA) : Warning  
 Hazard statements (GHS-ZA) : H319 - Causes serious eye irritation.  
 Precautionary statements (GHS-ZA) : P264 - Wash hands, forearms and face thoroughly after handling.  
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
 P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P337+P313 - If eye irritation persists: Get medical advice/attention.

#### 2.3. Other hazards

Adverse physicochemical, human health and environmental effects : Causes severe skin burns and eye damage, Causes skin irritation, Causes serious eye irritation.

### SECTION 3: Composition/information on ingredients

#### 3.1. Substances

IUPAC name : 2-hydroxypropane-1,2,3-tricarboxylic acid  
 Substance identification codes: See section 1.1

Name	Product identifier	%	Classification according to the United Nations GHS
citric acid (Main constituent)	(CAS-No.) 5949-29-1	≥ 99.5	Acute Tox. Not classified (Oral) Skin Corr./Irrit. Not classified Eye Irrit. 2A, H319 Aquatic Acute Not classified

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According to SANS 10234:2008 and SANS 11014:2010

Full text of H-statements: see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general	: Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital. Call a physician immediately.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
First-aid measures after skin contact	: Rinse with water. Soap may be used. Do not apply (chemical) neutralizing agents. Take victim to a doctor if irritation persists. Rinse skin with water/shower. Take off immediately all contaminated clothing. Call a physician immediately.
First-aid measures after eye contact	: Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
First-aid measures after ingestion	: Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Call Poison Information Centre ( <a href="http://www.big.be/antigif.html">www.big.be/antigif.html</a> ). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital. Rinse mouth. Do not induce vomiting. Call a physician immediately.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation	: AFTER INHALATION OF DUST: Dry/sore throat. Coughing. Slight irritation. EXPOSURE TO HIGH CONCENTRATIONS: Irritation of the respiratory tract. Respiratory difficulties.
Symptoms/effects after skin contact	: Red skin. ON CONTINUOUS EXPOSURE/CONTACT: Tingling/irritation of the skin. Burns. Irritation.
Symptoms/effects after eye contact	: Irritation of the eye tissue. ON CONTINUOUS EXPOSURE/CONTACT: Inflammation/damage of the eye tissue. Serious damage to eyes. Eye irritation.
Symptoms/effects after ingestion	: AFTER INGESTION OF HIGH QUANTITIES: Abdominal pain. Vomiting. Coughing. Irritation of the gastric/intestinal mucosa. Burns.
Chronic symptoms	: ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Affection/discolouration of the teeth.
Potential adverse human health effects and symptoms	: Not irritant to skin. Practically non-toxic in contact with skin (LD50 skin > 2000 mg/kg). Causes serious eye irritation. Not irritant to eyes.

### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media	: Quick-acting ABC powder extinguisher. Class A foam extinguisher. Water (quick-acting extinguisher, reel). Water. Class A foam. Water spray. Dry powder. Foam.
Unsuitable extinguishing media	: Quick-acting BC powder extinguisher. Quick-acting CO2 extinguisher.

### 5.2. Special hazards arising from the substance or mixture

Fire hazard	: DIRECT FIRE HAZARD: Not easily combustible. In finely divided state: increased fire hazard. INDIRECT FIRE HAZARD: Heating increases the fire hazard. Reactions involving a fire hazard: see "Reactivity Hazard".
Explosion hazard	: DIRECT EXPLOSION HAZARD: Fine dust is explosive with air. INDIRECT EXPLOSION HAZARD: Dust cloud can be ignited by a spark. Reactions with explosion hazards: see "Reactivity Hazard".
Hazardous decomposition products in case of fire	: Upon combustion: CO and CO2 are formed.

### 5.3. Advice for firefighters

Precautionary measures fire	: Exposure to fire/heat: keep upwind. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions	: Cool tanks/drums with water spray/remove them into safety.
Protection during firefighting	: Heat/fire exposure: compressed air apparatus (EN 136 + EN 137). Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

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According to SANS 10234:2008 and SANS 11014:2010

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

No additional information available

##### 6.1.1. For non-emergency personnel

- Protective equipment : Gloves (EN 374). Safety glasses (EN166). Protective clothing (EN 14605 or EN 13034). Dust cloud production: compressed air apparatus (EN 136 + EN 137).
- Emergency procedures : Ventilate spillage area. Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Wash contaminated clothes. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray.

##### 6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

#### 6.2. Environmental precautions

Avoid release to the environment.

#### 6.3. Methods and material for containment and cleaning up

- For containment : Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray. Powdered form: no compressed air for pumping over spills.
- Methods for cleaning up : Mechanically recover the product. Prevent dust cloud formation. Scoop solid spill into closing containers. Powdered: do not use compressed air for pumping over spills. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.
- Other information : Dispose of materials or solid residues at an authorized site.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

- Precautions for safe handling : Ensure good ventilation of the work station. Avoid raising dust. Use earthed equipment. Keep away from naked flames/heat. In finely divided state: use spark-/explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Powdered form: no compressed air for pumping over. Keep container tightly closed. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray. Wear personal protective equipment.
- Hygiene measures : Observe normal hygiene standards. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

#### 7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store locked up. Store in a well-ventilated place. Keep cool.
- Storage area : Store in a dry area. Keep container in a well-ventilated place. Provide the tank with earthing. Keep only in the original container. Store at ambient temperature. Meet the legal requirements.
- Heat and ignition sources : KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
- Information on mixed storage : KEEP SUBSTANCE AWAY FROM: reducing agents. (strong) bases. oxidizing agents. water/moisture.
- Special rules on packaging : SPECIAL REQUIREMENTS: closing. watertight. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
- Packaging materials : SUITABLE MATERIAL: polyethylene. polypropylene. MATERIAL TO AVOID: aluminium. copper. zinc.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

No additional information available

#### 8.2. Appropriate engineering controls

- Appropriate engineering controls : Ensure good ventilation of the work station.
- Environmental exposure controls : Avoid release to the environment.

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According to SANS 10234:2008 and SANS 11014:2010

### 8.3. Individual protection measures, such as personal protective equipment (PPE)

Materials for protective clothing	: GIVE EXCELLENT RESISTANCE: butyl rubber. natural rubber. neoprene. nitrile rubber. PVC. viton. GIVE GOOD RESISTANCE: polyethylene. GIVE POOR RESISTANCE: PVA
Hand protection	: Gloves
Eye protection	: Safety glasses (EN166). In case of dust production: protective goggles (EN 166)
Skin and body protection	: Protective clothing (EN 14605 or EN 13034)
Respiratory protection	: Dust production: dust mask with filter type P1

#### Personal protective equipment symbol(s):



### 8.4. Exposure limit values for the other components

No additional information available

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Crystalline solid. Powder.
Molecular mass	: 210.16 g/mol
Colour	: Colourless or white.
Odour	: Odourless.
Odour threshold	: No data available
pH	: 1.8 (5 %, 25 °C)
pH solution	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Relative evaporation rate (ether=1)	: No data available
Melting point	: 153 °C (Anhydrous form)
Freezing point	: 135 – 152 °C
Boiling point	: Not applicable (decomposes)
Flash point	: 345 °C
Auto-ignition temperature	: 1010 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: Non flammable.
Vapour pressure	: 0.000221 hPa (25 °C, Anhydrous form)
Vapour pressure at 50 °C	: No data available
Relative vapour density at 20 °C	: Not applicable
Relative density	: 1.67 (20 °C, Anhydrous form)
Relative density of saturated gas/air mixture	: No data available
Density	: 1670 kg/m <sup>3</sup> (20 °C)
Relative gas density	: No data available
Solubility	: Soluble in water. Soluble in ethanol. Soluble in methanol. Soluble in 1-propanol. Soluble in ethylacetate. Soluble in pentanol. Soluble in pentylacetate. Water: 54 g/100ml Ethanol: 50 g/100ml
Partition coefficient n-octanol/water (Log Pow)	: -1.8 – -1.55 (Anhydrous form, Experimental value)
Partition coefficient n-octanol/water (Log Kow)	: No data available
Viscosity, kinematic	: 3.892 mm <sup>2</sup> /s
Viscosity, dynamic	: 6.5 mPa·s (25 °C, 50 % aqueous solution)
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: Not applicable
Lower explosive limit (LEL)	: No data available
Upper explosive limit (UEL)	: No data available

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According to SANS 10234:2008 and SANS 11014:2010

### 9.2. Other information

VOC content : 0 %  
Other properties : Hygroscopic. Acid reaction.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Reacts violently with (some) bases: (increased) risk of fire. Reacts violently with (strong) oxidizers: (increased) risk of fire. Reacts with (strong) reducers.

### 10.2. Chemical stability

Hygroscopic.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified.  
Acute toxicity (dermal) : Not classified  
Acute toxicity (inhalation) : Not classified

CITRIC ACID 1hydr (5949-29-1)	
LD50 oral	5400 mg/kg bodyweight (Equivalent or similar to OECD 401, Mouse, Male / female, Experimental value, Anhydrous form, Oral, 10 day(s))
LD50 dermal rat	> 2000 mg/kg bodyweight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal, 14 day(s))

Skin corrosion/irritation : Not classified.  
pH: 1.8 (5 %, 25 °C)  
Serious eye damage/irritation : Causes serious eye irritation.  
pH: 1.8 (5 %, 25 °C)  
Respiratory or skin sensitisation : Not classified  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Not classified  
Reproductive toxicity : Not classified  
STOT-single exposure : Not classified  
STOT-repeated exposure : Not classified  
Aspiration hazard : Not classified

CITRIC ACID 1hydr (5949-29-1)	
Viscosity, kinematic	3.892 mm <sup>2</sup> /s

Potential adverse human health effects and symptoms : Not irritant to skin. Practically non-toxic in contact with skin (LD50 skin > 2000 mg/kg). Causes serious eye irritation. Not irritant to eyes.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008. Before neutralisation, the product may represent a danger to aquatic organisms.  
Ecology - air : Not included in the list of substances which may contribute to the greenhouse effect (IPCC). Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014). Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).  
Ecology - water : Not harmful to crustacea. Slightly harmful to fishes. Nitrification of activated sludge isn't inhibited. Slightly harmful to algae. Not harmful to bacteria. pH shift.  
Hazardous to the aquatic environment, short-term (acute) : Not classified.  
Hazardous to the aquatic environment, long-term (chronic) : Not classified

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CITRIC ACID 1hydr (5949-29-1)	
LC50 fish 1	440 – 760 mg/l (Equivalent or similar to OECD 203, 48 h, Leuciscus idus, Static system, Fresh water, Experimental value, Anhydrous form)
EC50 Daphnia 1	1535 mg/l (Other, 24 h, Daphnia magna, Static system, Fresh water, Experimental value, Anhydrous form)
Partition coefficient n-octanol/water (Log Pow)	-1.8 – -1.55 (Anhydrous form, Experimental value)

### 12.2. Persistence and degradability

CITRIC ACID 1hydr (5949-29-1)	
Persistence and degradability	Biodegradable in the soil. Readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.481 g O <sub>2</sub> /g substance
Chemical oxygen demand (COD)	0.665 g O <sub>2</sub> /g substance

### 12.3. Bioaccumulative potential

CITRIC ACID 1hydr (5949-29-1)	
Partition coefficient n-octanol/water (Log Pow)	-1.8 – -1.55 (Anhydrous form, Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

### 12.4. Mobility in soil

CITRIC ACID 1hydr (5949-29-1)	
Mobility in soil	No additional information available
Partition coefficient n-octanol/water (Log Pow)	-1.8 – -1.55 (Anhydrous form, Experimental value)
Ecology - soil	No (test)data on mobility of the substance available.

### 12.5. Other adverse effects

Ozone	: Not classified
Other adverse effects	: No additional information available

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Product/Packaging disposal recommendations	: Treat using the best available techniques before discharge into drains or the aquatic environment. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle/reuse. Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery. Dissolve or mix with a combustible solvent.
Additional information	: Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

## SECTION 14: Transport information

In accordance with SANS / IMDG / IATA

SANS	IMDG	IATA
<b>14.1. UN number</b>		
Not regulated for transport		
<b>14.2. Proper Shipping Name</b>		
Not applicable	Not applicable	Not applicable
<b>14.3. Transport hazard class(es)</b>		
Not applicable	Not applicable	Not applicable
Not applicable	Not applicable	Not applicable
<b>14.4. Packing group</b>		
Not applicable	Not applicable	Not applicable
<b>14.5. Environmental hazards</b>		
Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available		

### 14.6. Special precautions for user

#### - SANS

Transport regulations (UN)	: Not subject
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## Safety Data Sheet

According to SANS 10234:2008 and SANS 11014:2010

### - IMDG

Transport regulations (IMDG) : Not subject

### - IATA

Transport regulations (IATA) : Not subject

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

## SECTION 15: Regulatory information

### 15.1. Safety, health, and environmental national regulations specific for the product

Regulatory reference : SANS 10234:2008; SANS 11014:2010; SANS 10228:2012;SANS 10229:2010; SANS 10232(1,2,4), SANS 10231:2018; Occupational Health and Safety Act 85 of 1993; National Road Traffic Act 93 of 1996.

## SECTION 16: Other information

Issue date : 13/02/2020

Revision date : 13/02/2025

Full text of H-statements:

H319	Causes serious eye irritation.
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SDS South Africa

*The data provided in this Safety Data Sheet (SDS) is correct to the best of our knowledge. The data relates to the specific product as named and is intended as a guide to the safe handling of the product in all its facets. The data may no longer be valid if the product is used in any process or in combination with other products. This SDS is not a quality specification nor any form of guarantee.*