SAFETY DATA SHEET

According to 29 CFR 1910.1200

CITRIC ACID ANHYDROUS

Date of issue: September 01, 2023 **Revision date:** - **Version:** 1

SECTION 1.- IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1 Product identifier

Product form Solid

Substance name Citric acid anhydrous

CAS No. 77-92-9

Formula $C_6H_8O_7$

Synonyms 2-Hydroxypropane-1,2,3-tricarboxylic acid, hydroxytricarballylic acid

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

Use of the substance/mixture Fertilizers

1.3 Details of the supplier of the safety data sheet

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Del Cobre 20, Parque Industrial Hermosillo
Hermosillo, Sonora, México. C.P. 83297 Tel. 011 (662) 251-0010 / (662) 251-0316
ventas@qpima.com
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1.4 Emergency telephone number

Emergency number CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

SECTION 2.- HAZARD IDENTIFICATION

2.1 GHS-US classification

Serious Eye Damage/Eye Irritation	2A	H319
Hazardous to Aquatic Environment (Acute)	2	H401

2.2 Label elements

GHS-US labelling

Hazard pictograms (GHS-US)

Signal Word (GHS-US): Danger

Hazard statement (GHS-US):
H319 Causes serious eye irritation
H401 Toxic to aquatic life

Precautionary statements (GHS-US):
P264 Wash your hands thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338+P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
P337+P313 If eye irritation persists: Get medical advice/attention.

P501 Dispose of the contents/container in accordance with federal, state, and local laws.

2.3 Other hazards No data available

2.4 Unknown acute toxicity (GHS-US) Not applicable

SECCIÓN 3.- COMPOSITION / INFORMATION OF INGREDIENTS

3.1 Substance

Name	*Product identifier*	*%*
Citric acid	(CAS No.) 77-92-9	> 99.7

3.2 Mixture

Not applicable

SECCIÓN 4.- FIRST AID MEASURE

4.1 Description of first aid measure

First-aid measures general Check vital signs. Unconscious: keep airways clear and provide breathing assistance. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform CPR. Conscious victim with breathing difficulty: semi-upright position. Victim in shock: lying on back with legs slightly elevated. Vomiting: prevent choking or aspiration. Avoid cooling by covering the victim (without heating). Continue monitoring the victim. Provide psychological support. Keep the victim calm, and avoid physical strain. Depending on the victim's condition: seek medical attention/hospital. Never give anything by mouth to an unconscious person. If feeling unwell, seek medical attention (if possible, show the label).

First-aid measures after eye contact Immediately rinse eyes with water for at least 20 minutes, keeping eyelids open to ensure thorough flushing of the eye and eyelid tissues. Rinsing the eyes within seconds is essential for maximum effectiveness. If wearing contact lenses, remove them after the first 5 minutes and then continue rinsing the eyes. Consult a doctor.

First-aid measures after skin contact As a precautionary measure, thoroughly wash the exposed area for at least 15 minutes. Remove contaminated clothing. Wash contaminated clothing before using it again. Consult a doctor.

First-aid measures after inhalation Move the victim to fresh air and keep them calm. If they are not breathing, administer artificial respiration. If they have difficulty breathing, provide oxygen. Seek medical attention immediately.

First-aid measures after ingestion Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth thoroughly with water. Give water to drink. If vomiting occurs, keep the person's head low to prevent aspiration. Seek medical attention.

4.2 Most important

Symptoms/injuries after inhalation It can cause irritation.

Symptoms/injuries after skin contact It can cause skin dryness.

Symptoms/injuries after eye contact It can irritate due to mechanical abrasion.

Symptoms/injuries after ingestión No known effects.

Chronic symptoms No data available.

4.3 Indications of any immediate medical attention and special treatment needed

Symptomatic treatment. For more information, consult a Poison Control Center.

SECCIÓN 5.- FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media Use dry chemical powder, foam, sand, or CO_2. Use the product according to the surrounding materials.

Unsuitable extinguishing media DO NOT USE direct water jets.

5.2 Special hazard arising from the substance or mixture

Fire hazard No data available

Explosion hazard The product and its packaging, when burning in enclosed spaces for extended periods, can produce quantities of carbon monoxide that reach the lower explosive limit (LEL) of carbon monoxide, which is 12.5% in the air. Under certain conditions, any airborne dust can pose an explosion hazard.

Reactivity No data available.

5.3 Advice for firefighters

Precautionary measures fire Spray water on packaging to prevent ignition if exposed to excessive heat or fire. Remove packaging if it has not yet been reached by flames, and if it can be done safely. In case of fire, it may release irritating and/or toxic fumes and gases, such as carbon monoxide and other substances from incomplete combustion.

Firefighting instructions Cool packaging with water well after the fire has been extinguished, removing residues until embers are eliminated. Prevent water used for firefighting or dilution from entering waterways, drains, or springs.

Protection during firefighting Use a self-contained breathing apparatus. Structural firefighter protective clothing provides limited protection in fire situations ONLY; it may not be effective in spill situations.

SECCIÓN 6.- ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment, and emergency procedures

6.1.1 For non-emergency personnel

Protective equipment	Use the recommended protective equipment in section 8.
Emergency procedures	Avoid ignition sources. Evacuate personnel to a ventilated area.
Measures in case of dust release	Ventilate immediately, avoiding the generation of dust clouds.

6.1.2 For emergency responders

Avoid ignition sources. Evacuate personnel to a ventilated area. Use self-contained breathing apparatus and eye and skin protection. Wear impermeable protective gloves. Ventilate immediately, avoiding the generation of dust clouds. Do not allow spilled product to be reused. Consider the information and recommendations in sections 5 and 7. Use the recommended protective equipment in section 8.

6.2 Environmental precautions

Contain the solid and cover it to prevent its dispersion into the environment. Prevent the dust from reaching water bodies.

6.3 Methods and material for containment and cleaning up

Method for containment Contain the solid and cover it to prevent its dispersion into the environment.

Method for cleaning up Collect the product with a shovel and place it into a suitable container. Sweep or vacuum, avoiding dust dispersion. It may be necessary to lightly dampen it. Clean or wash the contaminated area thoroughly. Dispose of the water and collected residue in labeled containers for chemical waste disposal.

6.4 Reference to other sections

For further information refer to section 8: Exposure-controls/personal protection

SECTION 7.- HANDLING AND STORAGE

7.1 Precautions for safe handling

Precautions for safe handling — Prohibited to eat, drink, or smoke during handling. Avoid contact with eyes, skin, and clothing. Wash arms, hands, and nails after handling this product. The use of gloves is recommended. Provide access to emergency showers and eye wash stations. Avoid inhalation of the product. Keep the container closed. Use with adequate ventilation. Handle containers with care.

Hygiene measures — Use local exhaust ventilation to keep vapor concentrations in the air below permissible exposure levels. Wash hands before breaks and at the end of the workday. Remove and launder soiled clothing.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions — Store in a well-ventilated area. Keep away from incompatible materials. Store closed containers in a clean, cool, open, or well-ventilated area. Keep away from direct sunlight.

Incompatible products — The product should be kept away from strong oxidizing agents and bases.

Heat-ignition — It can react explosively with hydrocarbons (fuels), igniting other combustible materials (wood, paper, oil, clothing, etc.).

Storage area — Store in a well-ventilated area. Keep away from incompatible materials. Store closed containers in a clean, cool, open, or well-ventilated area. Keep away from direct sunlight.

Special rules on packaging — Store closed containers in a clean, cool, open, or well-ventilated area.

Packaging materials — Suitable storage material: polyethylene-coated paper, polyvinyl, or polyethylene/polypropylene.

7.3 Specific end use(s)

No additional information is available

SECTION 8.- EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Name	*ACGIH TLV*	*OSHA PEL*	*NIOSH IDLH*
Citric acid 77-92-9	No data available	No data available	No data available

8.2 Exposure controls

Appropriate engineering controls — Keep the workplace ventilated. Normal ventilation for routine manufacturing operations is generally adequate. Local exhaust hoods should be used during operations that produce or release large quantities of product. Mechanical ventilation should be provided in low or confined areas. Eye-wash stations and showers should be available.

Personal protective equipment — Safety glasses, face shield, respiratory protection from dust, gloves.

Material for protective clothing — Nitrile, butyl, or PVC.

Hand protection — Use appropriate protective gloves to avoid skin exposure. Wear suitable protective clothing to minimize skin contact. Nitrile, butyl, or PVC gloves are recommended. Do not use materials made of natural fibers.

Eye protection — Safety glasses tightly sealed against chemical splashes. Face shield (minimum of 8 inches). Use eye protection equipment tested and approved under appropriate government standards, such as NIOSH (USA) or EN 166 (EU).

Skin and body protection	Wear appropriate protective gloves to prevent skin exposure. Use suitable protective clothing to minimize skin contact. Nitrile, butyl, or PVC gloves are recommended. Do not use materials made from natural fibers.
Respiratory protection	In cases where necessary, use respiratory protection for dust (P2). Special attention should be paid to oxygen levels in the air. If large releases occur, use a self-contained breathing apparatus (SCBA).
Environmental exposure controls	Avoid release to the environment.

SECTION 9.- PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Crystalline solid
Odor	Odorless
Color	White
Molecular mass	192.124 g/mol
Odor threshold	No data available
pH	2.1
pH solution	0.1 M
Relative evaporation rate (butyl acetate = 1)	No data available
Melting/Freezing point	153 ºC (307 ºF)
Boiling point	No data available
Flash point	Lower limit: 0.3 kg/m^3 Upper limit: 2.3 kg/m^3
Self-ignition temperature	1010 ºC (1850 ºF)
Decomposition temperature	175 ºC (347 ºF)
Flammability (solid, gas)	The product is non-flammable but combustible.
Vapor pressure	1.7 mmHg
Relative vapor density at 20 ºC	No data available
Relative density	1.542 (20 ºC)
Solubility	100% in water
Log Kow/Pow	-1.72
Viscosity, kinematic	No data available
Viscosity, dynamic	No data available
Explosive properties	Non-explosive under normal conditions
Oxidizing properties	Combustible.
Explosive limits	0.3 to 2.3 kg/m^3

9.2 Other information

No additional information is available

SECTION 10.- STABILITY AND REACTIVITY

10.1 Reactivity	This material is stable under normal handling and storage conditions.
10.2 Chemical stability	This material is stable under normal handling and storage conditions.
10.3 Possibility of hazardous reactions	This material is stable under normal handling and storage conditions.

10.4 Conditions to avoid Avoid high temperatures.

10.5 Incompatible materials Strong oxidizing agents and bases.

10.6 Hazardous decomposition products In case of heating, it may release irritating and toxic vapors.

SECTION 11.- TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Likely routes of exposure	Skin and eyes contact, inhalation, and ingestion.
Acute toxicity	It can cause irritation.
Skin corrosión/irritation	It can cause skin dryness.
Serious eye damage/irritation	It can irritate due to mechanical abrasion.
Respiratory or skin sensitization	It can cause irritation.
Germ cell mutagenicity	No data available
Carcinogenicity	Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Reproductive toxicity	No data available
Specific target toxicity (single exposure)	No data available
Specific target toxicity (repeat exposure)	No data available
Aspiration hazard	It can cause irritation.

Name	LD_{50} oral	LD_{50} dermal	LC_{50} inhalation
Citric acid	> 2000 mg/kg (rat)	> 2000 mg/kg (rabbit)	> 5 mg/l (4h, rat)

SECTION 12.- ECOLOGICAL INFORMATION

12.1 Toxicity

Ecology – General	No data available
Ecology – Air	No data available
Ecology – Water	This material has demonstrated toxicity to aquatic organisms: ATE-EC_{50} *O. mykiss* (> 100 mg/l, 48 h, OECD 203). ATE-EC_{50} *D. magna* (> 100 mg/l, 48 h, OECD 203). ATE-EC_{50} *P. subcapitata* (80 mg/l, 48 h, OECD 201). ATE-EC_{50} *T. pyriformis* (1.6 mg/l, 48 h, OECD 209)

12.2 Persistence and degradability

Easily biodegradable (estimated: 97% in 28 days).

12.3 Bioacumulative potential

BIOACCUMULATION IN FISH - BCF (OECD 305): 3.2 l/kg

12.4 Mobility in soil

No data available

12.5 Other adverse effects

Other information

SECCIÓN 13.- INFORMACIÓN RELATIVA A LA ELIMINACIÓN DE LOS PRODUCTOS

13.1 Waste treatment methods

Waste treatment methods	Both the leftover products and empty containers should be disposed of following current legislation on Environmental Protection and particularly Hazardous Waste. You must classify the waste and dispose of it through an authorized company. Disposal methods may include wastewater treatment or disposal in a sanitary landfill.
Waste disposal recommendations	Dispose of the waste material following local, regional, national, and international regulations.

SECTION 14.- TRANSPORT INFORMATION

14.1 UN Number	Not available
14.2 UN proper shipping name	Not available
14.3 Class of hazards in transportation	Not available
14.4 Packaging group	Not available
14.3 Additional information	
Other information	No supplementary information is available.
Overland transport	No additional information is available.
Transport by sea	No additional information is available.
Air transport	No additional information is available.

SECTION 15.- REGULATORY INFORMATION

International inventories

TSCA Not available

TSCA – Toxic Substances Control Act Inventory Section 8(b).

DSL/NDSL - Domestic Substance List/Non-Domestic Substance List.

US Federal Regulations: Not available

SARA 311/312 Categories.

Acute Health Hazard	No	Chronic Health Hazard	No	Fire Hazard	No
Sudden Hazardous Pressure Release	No	Reactive Hazard	Yes		

Clean Water Act. No data available

CERCLA. No data available

Official Mexican Standard NOM-002-SCT/2011, List of the Most Commonly Transported Hazardous Substances and Materials.

SECTION 16.- OTHER INFORMATION

NFPA	NFPA health Hazard	2	NFPA fire Hazard	1	NFPA instability Hazard	0	NFPA Special hazard	-
HMIS III	Health	2	Flammability	1	Physical	0	Personal protection	G

Splash goggles, gloves, and vapor respirator.

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IMPORTANT NOTE: Information in this SDS is from available published sources and is believed to be accurate, but is not exhaustive and will be used only as a guide, which is based on current knowledge of the chemical substance or mixture and applied to the appropriate product for safety precautions. No warranty, express or implied, is made and Pima Chemicals & Fertilizers, LLC and Quimica Pima, S.A. de C.V. assumes no liability resulting from the use of this SDS. The user must determine the suitability of this information for his application.

End of Safety Data Sheet