0001013

SAFETY DATA SHEET

Citric Acid Anhydrous

Jungbunzlauer

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SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Citric Acid Anhydrous
Substance name	:	Citric Acid
Molecular formula	:	C6-H8-O7
Chemical identity	:	2-hydroxypropane-1,2,3-tricarboxylic acid
CAS-No.	:	77-92-9
Chemical nature	:	Solid

Manufacturer or supplier's details

Company	:	Jungbunzlauer Inc. 7 Wells Avenue Newton Centre, Massachusetts 02459 USA www.jungbunzlauer.com
Telephone	:	+1 617 969-0900
Telefax	:	+1 617 964-2921
E-mail address Responsible/issuing person	:	msds@jungbunzlauer.com

Distributed by Hubbard Hall

Hubbard-Hall

563 S. Leonard St.
Waterbury, CT 06708
203-756-5521

Emergency telephone number	:	CHEMTREC +1 800 424 9300

Recommended use of the chemical and restrictions on use

Recommended use	:	Food/ feedstuff additives, Cosmetic additive, Medical aids, Industrial use
Restrictions on use	:	None known.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Eye irritation : Category 2

GHS-Labelling - Label elements

Hazard pictograms :

Signal word : Warning

Hazard statements : H319 Causes serious eye irritation.

Precautionary statements : **Prevention:**
P264 Wash skin thoroughly after handling.

P280 Wear protective gloves/ eye protection/ face protection.
Response:
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.

Hazards Not Otherwise Classified

May form combustible dust concentrations in air (during processing).

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Pure substance

Hazardous components

Chemical Name	CAS-No.	Concentration [%]
Citric acid anhydrous	77-92-9	100

SECTION 4. FIRST AID MEASURES

First aid procedures

Protection of first-aiders : Avoid inhalation, ingestion and contact with skin and eyes. Consult a physician.

If inhaled : If breathed in, move person into fresh air.
If symptoms persist, call a physician.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.

In case of skin contact : In case of contact, immediately flush skin with plenty of water. Get medical attention if symptoms occur.

In case of eye contact : If easy to do, remove contact lens, if worn.
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
If eye irritation persists, consult a specialist.

If swallowed : Drink plenty of water.
If swallowed, DO NOT induce vomiting.

Notes to physician

Symptoms : Eye irritation may cause mild and mechanical irritation and thus symptoms which would be redness and pain.

Risks : Causes serious eye irritation.

Treatment : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Fire fighting

Suitable extinguishing media : Water spray
Dry powder
Foam
Carbon dioxide (CO2)

Further information : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
In the event of fire and/or explosion do not breathe fumes.

Protective equipment and precautions for firefighters

Specific hazards during firefighting : Do not use a solid water stream as it may scatter and spread fire.
Hazardous decomposition products formed under fire conditions.
Exposure to decomposition products may be a hazard to health.

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.
Wear fire resistant or flame retardant clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Avoid dust formation.
Avoid breathing dust.
Ensure adequate ventilation, especially in confined areas.
Refer to protective measures listed in sections 7 and 8.

Environmental precautions : Prevent further leakage or spillage if safe to do so.
No special environmental precautions required.

Methods and materials for containment and cleaning up : Use mechanical handling equipment.
Keep in suitable, closed containers for disposal.
Clean contaminated surface thoroughly.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Handling

Advice on safe handling : Risk of dust explosion.
May form combustible dust concentrations in air (during processing).
Avoid creating dust.
Do not breathe dust.
Avoid contact with skin and eyes.
For personal protection see section 8.

Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Dust explosion class	:	St1

Storage

Requirements for storage areas and containers	:	Take measures to prevent the build up of electrostatic charge. Keep in an area equipped with acid resistant flooring. Keep container tightly closed in a dry and well-ventilated place.
Further information on storage conditions	:	Do not store at temperatures above 30 °C / 86 °F.
Advice on common storage	:	Incompatible with strong bases and oxidizing agents.
Other data	:	No decomposition if stored and applied as directed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Engineering measures	:	Provide adequate ventilation.

Personal protective equipment

Respiratory protection	:	In the case of dust or aerosol formation use respirator with an approved filter. Use NIOSH approved respiratory protection.
Hand protection Remarks	:	Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer.
Eye protection	:	Safety glasses Ensure that eyewash stations and safety showers are close to the workstation location.
Skin and body protection	:	Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and immediately after handling the product. Remove contaminated clothing and protective equipment before entering eating areas.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	crystalline
Colour	:	white
Odour	:	odourless
pH	:	1.8, 5 % (25 °C)
Melting point/range	:	ca. 153 °C
Flash point	:	Not applicable
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	does not ignite
Upper explosion limit	:	not determined
Lower explosion limit	:	not determined
Vapour pressure	:	Not applicable
Relative vapour density	:	Not applicable
Density	:	1,665 g/cm3 (20 °C)
Solubility(ies)		
Water solubility	:	ca. 800 g/l (20 °C)
Partition coefficient: n-octanol/water	:	log Pow: -1.8 - -0.2 Calculation
Ignition temperature	:	Not applicable
Thermal decomposition	:	No data available
Viscosity		
Viscosity, dynamic	:	Not applicable
Oxidizing properties	:	No oxidising effect.
Molecular weight	:	192.12 g/mol

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use.
Conditions to avoid	:	Avoid dust formation.
Incompatible materials	:	Strong bases Oxidizing agents

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Hazardous decomposition products	:	Build-up of dangerous/toxic fumes possible in cases of fire/high temperature.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Components:

Citric acid anhydrous:

Acute oral toxicity	:	LD50 Oral Mouse: 5,400 mg/kg Method: OECD Test Guideline 401 LD50 Oral Rat: 11,700 mg/kg Method: OECD Test Guideline 401
Acute dermal toxicity	:	LD50 Dermal Rat: > 2,000 mg/kg
Acute toxicity (other routes of administration)	:	LD50 Rat: 725 mg/kg Application Route: i.p. LD50 Mouse: 940 mg/kg Application Route: i.p.

Skin corrosion/irritation

Components:

Citric acid anhydrous:

: Species: Rabbit
Result: No skin irritation
Method: OECD Test Guideline 404
Remarks: May cause skin irritation in susceptible persons.

Serious eye damage/eye irritation

Components:

Citric acid anhydrous:

: Species: Rabbit
Result: Irritating to eyes.
Method: OECD Test Guideline 405

Respiratory or skin sensitisation

Components:

Citric acid anhydrous:

: Test Method: Maximisation Test (GPMT)
Species: Guinea pig
Result: Does not cause skin sensitisation.
Method: OECD Test Guideline 406

Germ cell mutagenicity

Components:

Citric acid anhydrous:
Germ cell mutagenicity- Assessment : In vivo tests did not show mutagenic effects

Carcinogenicity

Components:

Citric acid anhydrous:
Carcinogenicity - Assessment : Did not show carcinogenic or teratogenic effects in animal experiments.

Reproductive toxicity

Components:

Citric acid anhydrous:
Reproductive toxicity - Assessment : No toxicity to reproduction

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Aspiration toxicity

No data available

Potential Health Effects

Aggravated Medical Condition : None known.

Symptoms of Overexposure : Eye irritation may cause mild and mechanical irritation and thus symptoms which would be redness and pain.

Experience with human exposure

Inhalation : Respiratory system
No information available.

Skin contact : Skin
May cause skin irritation in susceptible persons.

Eye contact : Eyes
Redness

pruritis

Ingestion : Digestive organs
No information available.

NTP
No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
IARC
No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA
No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
ACGIH
No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:
Citric acid anhydrous :

Toxicity to fish	:	LC50 (Leuciscus idus (Golden orfe)): 440 mg/l Exposure time: 48 h Test Method: static test Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Daphnia magna (Water flea)): 1,535 mg/l Exposure time: 24 h Test Method: static test
Toxicity to algae	:	NOEC (Scenedesmus quadricauda (Green algae)): 425 mg/l Exposure time: 8 d Test Type: static test
Toxicity to bacteria	:	TT (Pseudomonas putida): > 10,000 mg/l Exposure time: 16 h

Persistence and degradability

Components:
Citric acid anhydrous :

Biodegradability	:	Biodegradation: 97 % Testing period: 28 d Method: OECD Test Guideline 301B Remarks: Readily biodegradable Biodegradation: 100 % Testing period: 19 d Method: OECD Test Guideline 301E Remarks: Readily biodegradable
Biochemical Oxygen Demand (BOD)	:	526 mg/g
Chemical Oxygen Demand (COD)	:	728 mg/g

Bioaccumulative potential

Product:

Partition coefficient: n-octanol/water : log Pow: -1.8 - -0.2
Remarks: Calculation

Components:
Citric acid anhydrous :
Bioaccumulation : Remarks: The product is miscible in water and readily biodegradable in both water and soil. Accumulation is not expected.

Other adverse effects

Components:
Citric acid anhydrous :

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Where possible recycling is preferred to disposal or incineration.
Can be landfilled or incinerated, when in compliance with local regulations.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

DOT
Not dangerous goods

IATA
Not dangerous goods

IMDG
Not dangerous goods

SECTION 15. REGULATORY INFORMATION

OSHA Hazards : CAUSES EYE IRRITATION

SARA 311/312 Hazards : No SARA Hazards

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop 65 : This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

The components of this product are reported in the following inventories:

REACH	On the inventory, or in compliance with the inventory
TSCA	On TSCA Inventory
EINECS	On the inventory, or in compliance with the inventory
DSL	All components of this product are on the Canadian DSL

Inventories

AICS (Australia), DSL (Canada), IECSC (China), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA)

SECTION 16. OTHER INFORMATION

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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