

SAFETY DATA SHEET

2001/58/EC

Product name

Citric Acid

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Identification of the substance/preparation

Product name **Citric Acid, Citric acid anhydrous, Citric acid monohydrate**

Use of the Substance/Preparation Food, Pharmaceutical and Industrial additive
(acidifier, sequestering agent)

Company/Undertaking Identification

Supplier **JUNGBUNZLAUER Austria AG**
A-2064 Pernhofen
Austria

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2. COMPOSITION/INFORMATION ON INGREDIENTS

| | Citric acid anhydrous | Citric acid monohydrate |
|--------------------------------|--|---|
| Chemical name of the substance | C ₆ H ₈ O ₇ | C ₆ H ₈ O ₇ · H ₂ O |
| Chemical Name | 2-hydroxypropane-1,2,3-tricarboxylic acid anhydrous | monohydrate |
| Synonyms | Citric Acid | |
| EC-No. | 201-069-1 | 201-069-1 |
| CAS-No. | 77-92-9 | 5949-29-1 |
| Hazardous impurities | None. | |

3. HAZARDS IDENTIFICATION

Classification Xi - Irritant, R36

Most important hazards Irritating to eyes.

May cause skin irritation in susceptible persons.

4. FIRST AID MEASURES

General advice Show this safety data sheet to the doctor in attendance.
Immediate medical attention is not required.

Inhalation Move to fresh air.

Skin contact Wash off immediately with soap and plenty of water.
If skin irritation persists, call a physician.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at
least 15 minutes. If eye irritation persists, consult a specialist.

Ingestion Drink plenty of water. Do not induce vomiting.
Consult a physician if necessary.

Protection of first-aiders Use personal protective equipment.

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5. FIRE-FIGHTING MEASURES

| | |
|---|---|
| Suitable extinguishing media | water, water spray, dry powder, foam, carbon dioxide (CO2). |
| Extinguishing media which must not be used for safety reasons | None. |
| Hazardous decomposition products | carbon oxides |
| Special protective equipment for firefighters | Use personal protective equipment. |
| Specific methods | Standard procedure for chemical fires. |

6. ACCIDENTAL RELEASE MEASURES

| | |
|---------------------------|---|
| Personal precautions | Use personal protective equipment. Avoid contact with skin and eyes. |
| Environmental precautions | Prevent further leakage or spillage if safe to do so. No special environmental precautions required. |
| Methods for cleaning up | Pick up and transfer to properly labelled containers. After cleaning, flush away traces with water. |

7. HANDLING AND STORAGE

| | |
|---------------------------------------|---|
| Handling | |
| Technical measures/Precautions | Avoid dust formation. Take precautionary measures against static discharges. |
| Safe handling advice | Use personal protective equipment. |
| Storage | |
| Technical measures/Storage conditions | Keep tightly closed in a dry and cool place. |
| Incompatible products | strong oxidizing agents, strong bases. |
| Packaging material | Polyethylene coated paperbags or polyethylene/propylene big bags. |
| Specific use(s) | See chapter 1 |

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

| | |
|---|--|
| Occupational exposure controls | |
| Exposure Limit Values | We are not aware of any national exposure limit. |
| Engineering measures to reduce exposure | Ensure adequate ventilation, especially in confined areas. |
| Exposure controls | No special precautions required. |
| Personal protective equipment | |
| Respiratory protection | effective dust mask |
| Hand protection | rubber gloves Break through time > 8 hours |
| Eye protection | safety glasses |
| Skin and body protection | lightweight protective clothing |
| Hygiene measures | Handle in accordance with good industrial hygiene and safety practice. |
| Environmental exposure controls | No special environmental precautions required. |

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9. PHYSICAL AND CHEMICAL PROPERTIES

General Information (appearance, odour)

Form powder / crystalline
 Colour white / colourless
 Odour none

Important Health Safety and Environmental Information

| | Citric acid anhydrous | Citric acid monohydrate |
|--|------------------------------|--------------------------------|
| pH solution (5 %) (25°C) | 1.80 | 1.85 |
| Decomposition temperature | > 170°C | > 170 °C |
| Autoignition temperature | no data available | no data available |
| Explosive properties, Risk of explosion.: | Class St 1 | Class St 0 |
| Relative density | 1.665 g/cm ³ | 1.542 g/cm ³ |
| Bulk density granular | 850 - 950 kg/m ³ | 850 - 950 kg/m ³ |
| powder | 550 - 650 kg/m ³ | 550 - 650 kg/m ³ |
| Solubility | | |
| Water solubility (25°C) | 61.8 % (w/w) | 67.6 % (w/w) |
| log P _{ow} (oct) | -1.72 (measured) | |
| | -1.25 – -1.80 (calculated) | |
| Other information | | |
| Melting point/range | 153°C | 135 – 152°C |
| Solubility in other solvents | | |
| Ethanol (25°C) | 38.3 % (w/w) | 41.9 % (w/w) |

10. STABILITY AND REACTIVITY

Stability Stable at normal conditions.
 Hazardous polymerisation does not occur.

Conditions to avoid Avoid dust formation.
 Take precautionary measures against static discharges.

Materials to avoid Incompatible with strong bases and oxidizing agents.

Hazardous decomposition products No decomposition if stored normally. Thermal decomposition can lead to release of irritating gases and vapours.

11. TOXICOLOGICAL INFORMATION

Acute toxicity LD50/p.o./rat = 11.700 mg/kg ⁽¹⁾
 LD50/i.p./rat = 883 mg/kg ⁽²⁾
 LD50/p.o./mouse = 5.040 mg/kg ⁽¹⁾
 LD50/i.v./mouse = 42 mg/kg ⁽¹⁾
 LD50/i.p./mouse = 961 mg/kg ⁽²⁾

Local effects Irritating to eyes.
 May cause skin irritation in susceptible persons.

Chronic toxicity None.

Human experience Health injuries are not known or expected under normal use.

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12. ECOLOGICAL INFORMATION

| | |
|-------------------------------------|---|
| Mobility | completely soluble |
| Persistence / degradability | |
| Chemical oxygen demand (COD) = | 750 ± 50 mg O ₂ /g |
| Biochemical oxygen demand | |
| within 5 days (BOD5) = | 625 ± 50 mg O ₂ /g |
| DIN 38412 Part 25 (DIN EN ISO 9888) | Readily biodegradable (98% after 2 days) ⁽⁴⁾ |
| Ecotoxicity | |
| DIN 38412 Part 15 (DIN EN ISO 7346) | Toxicity to fish 440 - 706 mg/l |
| DIN 38412 Part 5 | Toxicity to bacteria >10.000 mg/l |
| Bioaccumulation | None. |

13. DISPOSAL CONSIDERATIONS

| | |
|---------------------------------------|--|
| Waste from residues / unused products | 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 for local recycling, recovery or waste disposal. |
| Further Information | According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. |

14. TRANSPORT INFORMATION

Not classified as dangerous in the meaning of transport regulations.

15. REGULATORY INFORMATION

The product is classified and labelled in accordance with EC directives or respective national laws.^{(5),(6)}

| | |
|---------------|---|
| Symbol(s): | X _i - Irritant |
| R -phrase(s): | R36 - Irritating to eyes. |
| S -phrase(s) | S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. |

16. OTHER INFORMATION

Food Additive E 330 USA FDA GRAS Status

Sources of key data used to compile the datasheet

- (1) H.T. Yokotani et al, J. Takeda Res. Lab 30 (1) 25 (1971)
- (2) C.M. Gruber & W.A. Halbeisen, J. Pharmac. Exp. Ther. 94 65 (1948)
- (3) FDA 223-75-2004 (1977)
- (4) P. Creach: C. R. Acad. Sci. Paris 240 2551 (1955)
- (5) ECAMA Internal Report 1998, Citric acid has irritancy equivalent to fumaric acid see Annex 1 Directive 67/548/EEC.
- (6) Directive 67/548/EEC Annex 7, non toxic to the environment.

Indicates updated section.

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