

## Citric Acid

### MSDS

#### 1. Identification of the substance and company.

Product name: **Citric Acid** anhydrous

- Use
- additive in processed food and beverages
  - Ingredient in pharmaceutical preparations, especially in effervescent tablets
  - Synergist in antioxidant mixtures
  - Additive for cosmetics

#### Company Information:

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#### 2. Hazards identification

Most important hazards - Irritating to eyes.

#### 3. Composition/Information on ingredients

Chemical name 2-Hydroxy-1,2,3-propanetricarboxylic acid

- Synonyms
- **Citric Acid**
  - **Citric Acid** Anhydrous Fine Granular
  - **Citric Acid** Anhydrous Medium Granular
  - **Citric Acid** Anhydrous Powder
  - **Citric Acid** Anhydrous GP

CAS number 77-92-9

EINECS number 201 069 1

Ro number Ro 01-7548/001

Empirical formula  $C_6H_8O_7$

Molecular mass 192.12 g/mol

#### 4. First-aid measures

Eye contact - rinse immediately with tap water for 10 minutes - open eyelids forcibly  
- consult physician

Skin contact - remove contaminated clothes, wash affected skin with water and soap - do not use any solvents

Inhalation - remove the casualty to fresh air and keep him/her calm  
- in the event of symptoms get medical treatment

Note to physician - treat symptomatically

## 5. Fire-fighting measures

- Suitable extinguishing media - water spray jet, dry powder, foam, carbon dioxide  
Specific hazards - severe dust explosion hazard  
Protection of fire-fighters - precipitate gases/vapors/mists with water spray

## 6. Accidental release measures

- Methods for cleaning up - collect solids (avoid dust formation) and hand over to waste removal  
- rinse with plenty of water

## 7. Handling and storage

### Handling

- Technical measures - transfer and handle only in enclosed systems  
- local exhaust ventilation necessary  
- take precautionary measures against electrostatic charging  
- avoid dust formation; high dust explosion hazard
- Suitable materials - stainless steel, enamel, glass, polyethylene, polypropylene
- Unsuitable materials - aluminum, copper, zinc, steel

### Storage

- Storage conditions - in closed containers  
- 10 - 30 °C  
- protected from humidity
- Packaging materials - tightly closing; material: glass, stainless steel, polyethylene, polypropylene, PVC.

## 8. Exposure controls/Personal protection

- Engineering Measures** see 7.

### Monitoring

- Analytcs sampling on glass fiber filter and gravimetric or chemical determination

### Personal protective equipment

- Respiratory protection in case of open handling of larger quantities or accidental release: particle mask or respirator with independent air supply
- Hand protection protective gloves (eg made of NR Natural Rubber, NBR Acrylnitril-Butadien-Rubber)
- Eye protection afety glasses

## 9. Physical and chemical properties

- Color white
- Form powder, different granular size
- Odor odorless, with a strong acidic taste
- Density 1.665 g/cm<sup>3</sup> (20 °C)
- Bulk density ~ 725 kg/m<sup>3</sup>
- Solubility ~ 750'000 mg/l, water soluble, ethanol badly soluble, diethyl ether insoluble, benzene insoluble, chloroform
- Partition coefficient log Pow -1.72 (octanol/water)
- pH value (20 °C) 2.2 (10 g/l aqueous solution)

Melting temperature 152 to 154 °C

Ignition point (liquid) 500 °C

**10. Stability and reactivity**

Conditions to avoid humidity  
 - temperatures above 40 °C

Materials to avoid potassium tartrate, alkalis, alkaline earth carbonates and bicarbonates, metal nitrates, acetates, sulfides

Note slightly hygroscopic

**11. Toxicological information**

Acute toxicity - LD50 5'400 mg/kg (oral, mouse)  
 - LD50 > 7'000 mg/kg (oral, rabbit)  
 - LD50 > 6'730 mg/kg (oral, rat)

Subacute toxicity - NOEL 4'000 mg/kg/d (oral, rat, 5 d)

Local effects - eye: strongly irritant (rabbit)  
 - skin: moderately irritating (rabbit)

Chronic toxicity well tolerated 2000 mg/kg/d (oral, rat; 90 days)

Mutagenicity not mutagenic

Carcinogenicity not carcinogenic (rat)  
 - not carcinogenic (mouse)

Reproduction toxicity not teratogenic

Note intermediate product of human metabolism (**Citric Acid cycle**)

**12. Ecological information**

Inherent biodegradability - well inherently biodegradable  
 98 %, 7 days  
 (Zahn-Wellens test, OECD No. 302 B)

Ecotoxicity - moderately toxic for planktonic crustaceans (*Daphnia magna*)  
 LC0 80 mg/l  
 - barely toxic for fish (goldfish)  
 LC0 625 mg/l  
 - barely toxic for microorganisms (*Pseudomonas putida*)  
 EC0 (16 h) > 10000 mg/l  
 - barely toxic for protozoa (*Entosiphon sulcatum*)  
 EC0 (72 h) 485 mg/l  
 - barely toxic for algae (*Scenedesmus quadricauda*)  
 EC0 640 mg/l  
 - moderately toxic for algae (*Microcystis aeruginosa*)  
 EC0 80 mg/l

Air pollution - observe local/national regulations

**13. Disposal considerations**

**14. Transport information**

Waste from residues - observe local/national regulations regarding waste disposal

Note - not classified by transport regulations

**15. Regulatory information**



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Classification and labeling according to EU directives

R36 Irritating to eyes.

S24/25 Avoid contact with skin and eyes.

Water hazard class (Germany) 1: weakly hazardous for water (according to annex 1 or 2 of directive VwVwS of 17.05.1999)

## 16. Other information

Safety-lab number - BS-8269

- the present safety data sheet covers the following products:

- **Citric Acid** Anhydrous Fine Granular 51N
- **Citric Acid** Anhydrous Fine Granular 16/40
- **Citric Acid** Anhydrous Fine Granular 700
- **Citric Acid** Anhydrous Medium Granular 1200
- **Citric Acid** Anhydrous Fine Powder
- **Citric Acid** Anhydrous Powder
- **Citric Acid** Anhydrous GP

Note