

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 02.12.2011

Version number 1

Revision: 21.10.2011

## 1 Identification of the substance/mixture and of the company/undertaking

- **1.1. Product identifier**
- **Trade name:** Citric Acid
- **Article number:** 43814
- **CAS Number:**  
5949-29-1
- **EC number:**  
201-069-1
- **1.2. Relevant identified uses of the substance or mixture and uses advised against**
- **Application of the substance / the preparation** Laboratory chemicals
- **1.3. Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
SERVA Electrophoresis GmbH  
Carl-Benz-Str. 7  
D-69115 Heidelberg  
Tel.: +49 6221 13840-0  
FAX: +49 6221 13840-10  
msds.info@serva.de
- **Information department:** Product Safety department Tel.: +49 6221 13840-35
- **1.4. Emergency telephone number:** +49 6131 19240 (university hospital Mainz)

**SERVA**  
Electrophoresis

## 2 Hazards identification

- **2.1. Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS07

Eye Irrit. 2 H319 Causes serious eye irritation.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



Xi; Irritant

R36: Irritating to eyes.

- **Information concerning particular hazards for human and environment:** not applicable
- **Classification system:**

The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.

- **2.2. Label elements**

- **Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

- **Hazard pictograms** GHS07

- **Signal word** Warning

- **Hazard statements**

H319 Causes serious eye irritation.

- **Precautionary statements**

P264 Wash 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**

- **Results of PBT and vPvB assessment**

- **PBT:** PBT - assessment not available.

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· **vPvB:** vPvB - assessment not available.**3 Composition/information on ingredients**· **3.1. Chemical characterization: Substances**· **CAS No. Description:**

5949-29-1 Citric acid monohydrate

· **Identification number(s):**· **EC number:** 201-069-1· **Description:**· **Empirical formula:**  $C_6H_8O_7 \cdot H_2O$ · **MW:** 210,1 g/mol**4 First aid measures**· **4.1. Description of first aid measures**· **After inhalation** Supply fresh air; consult doctor in case of complaints.· **After skin contact** Immediately rinse with water.· **After eye contact**

Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing.

· **After swallowing** Rinse out mouth and then drink plenty of water.· **Information for doctor**· **4.2. Most important symptoms and effects, both acute and delayed**

No further relevant information available.

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

No further relevant information available.

**5 Firefighting measures**· **5.1. Extinguishing media**· **Suitable extinguishing agents**CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.· **5.2. Special hazards arising from the substance or mixture**

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

· **5.3. Advice for firefighters**· **Protective equipment:** Mount respiratory protective device.**6 Accidental release measures**· **6.1. Personal precautions, protective equipment and emergency procedures** Wear protective clothing.· **6.2. Environmental precautions:** Do not allow to enter sewers/ surface or ground water.· **6.3. Methods and material for containment and cleaning up:** Pick up mechanically.· **6.4. Reference to other sections**

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

**7 Handling and storage**· **Handling**· **7.1. Precautions for safe handling** Prevent formation of dust.

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- **Information about protection against explosions and fires:** No special measures required.
- **7.2. Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
  - Store in dry conditions.
  - Keep receptacle tightly sealed.
- **7.3. Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **8.1. Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **8.2. Exposure controls**
- **Personal protective equipment**
- **General protective and hygienic measures**
  - Keep away from foodstuffs, beverages and feed.
  - Immediately remove all soiled and contaminated clothing
  - Wash hands before breaks and at the end of work.
  - Avoid contact with the eyes.
  - Avoid contact with the eyes and skin.
- **Breathing equipment:**
  - Short term filter device:
  - Filter P2.
- **Protection of hands:**
  - Protective gloves.
  - The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
  - Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
  - Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**
  - The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- **Penetration time of glove material**
  - The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**
  - Natural rubber, NR
- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing.

## 9 Physical and chemical properties

- **9.1. Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**

<b>Form:</b>	Crystalline
<b>Colour:</b>	White
<b>Odour:</b>	Odourless

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· <b>Odour threshold:</b>	<i>Not determined.</i>
· <b>pH-value at 20°C:</b>	<i>1.8</i>
· <b>Change in condition</b> <b>Melting point/Melting range:</b> <b>Boiling point/Boiling range:</b>	<i>135 - 152°C</i> <i>undetermined</i>
· <b>Flash point:</b>	<i>Not applicable</i>
· <b>Flammability (solid, gaseous)</b>	<i>Product is not flammable.</i>
· <b>Ignition temperature:</b>	<i>345°C</i>
· <b>Self igniting:</b>	<i>Not determined.</i>
· <b>Danger of explosion:</b>	<i>Product does not present an explosion hazard.</i>
· <b>Explosion limits:</b> <b>Lower:</b> <b>Upper:</b>	<i>Not determined.</i> <i>Not determined.</i>
· <b>Vapour pressure:</b>	<i>Not applicable.</i>
· <b>Density at 20°C:</b>	<i>1.54 g/cm<sup>3</sup></i>
· <b>Bulk density at 20°C:</b> · <b>Relative density</b> · <b>Vapour density</b> · <b>Evaporation rate</b>	<i>550 - 950 kg/m<sup>3</sup></i> <i>Not determined.</i> <i>Not applicable.</i> <i>Not applicable.</i>
· <b>Solubility in / Miscibility with</b> <b>Water at 25°C:</b>	<i>675 g/l</i>
· <b>Segregation coefficient (n-octanol/water):</b>	<i>Not determined.</i>
· <b>Viscosity:</b> <b>dynamic:</b> <b>kinematic:</b> <b>Organic solvents:</b> · <b>VOC %:</b>	<i>Not applicable.</i> <i>Not applicable.</i> <i>0.0 %</i> <i>0.00 %</i>
· <b>Solids content:</b>	<i>100.0 %</i>
· <b>9.2. Other information</b>	<i>No further relevant information available.</i>

## 10 Stability and reactivity

- **10.1. Reactivity** *No further relevant informations available*
- **10.2. Chemical stability**
- **Thermal decomposition / conditions to be avoided:** *No decomposition if used according to specifications.*
- **10.3. Possibility of hazardous reactions**  
  *Reacts with strong oxidizing agents*  
  *Reacts with reducing agents*
- **10.4. Conditions to avoid** *No further relevant information available.*
- **10.5. Incompatible materials:** *No further relevant information available.*
- **10.6. Hazardous decomposition products:** *Carbon monoxide and carbon dioxide*

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### 11 Toxicological information

· **11.1. Information on toxicological effects**

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

**5949-29-1 Citric acid monohydrate**

Oral	LD50	3000 mg/kg (rat)
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· **Primary irritant effect:**

· **on the skin:** No irritant effect.

· **on the eye:** Irritating effect.

· **Sensitization:** No sensitizing effects known.

### 12 Ecological information

· **12.1. Toxicity**

· **Aquatic toxicity:** No further relevant information available.

· **12.2. Persistence and degradability** No further relevant information available.

· **Other information:** The product is easily biodegradable.

· **Behaviour in environmental systems:**

· **12.3. Bioaccumulative potential** No further relevant information available.

· **12.4. Mobility in soil** No further relevant information available.

· **Additional ecological information:**

· **General notes:**

Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

· **12.5. Results of PBT and vPvB assessment**

· **PBT:** PBT - assessment not available.

· **vPvB:** vPvB - assessment not available.

· **12.6. Other adverse effects** No further relevant information available.

### 13 Disposal considerations

· **13.1. Waste treatment methods**

· **Recommendation**

Small amounts may be diluted with plenty of water and washed away. Dispose of bigger amounts in accordance with Local Authority requirements.

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to official regulations.

· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

· **14.1. UN-Number**

· **ADR, ADN, IMDG, IATA** Void

· **14.2. UN proper shipping name**

· **ADR, ADN, IMDG, IATA** Void

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· <b>14.3. Transport hazard class(es)</b>	
· <b>ADR, ADN, IMDG, IATA</b>	
· <b>Class</b>	Void
· <b>14.4. Packing group</b>	
· <b>ADR, IMDG, IATA</b>	Void
· <b>14.5. Environmental hazards:</b>	
· <b>Marine pollutant:</b>	No
· <b>14.6. Special precautions for user</b>	Not applicable.
· <b>14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	Not dangerous according to the above specifications.
· <b>UN "Model Regulation":</b>	-

### 15 Regulatory information

- **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **National regulations**
- **Water hazard class:** Water hazard class 1 (Assessment by list): slightly hazardous for water.
- **15.2. Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

- **Department issuing MSDS:** Product safety department

· **Contact:** +49 6221 13840-35

- **Abbreviations and acronyms:**

PBT: persistent, bioaccumulative, toxic substance (REACH)

vPvB: very persistent, very bioaccumulative substance (REACH)

REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

CLP: Regulation on classification, labelling and packaging of substances and mixtures

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

ICAO: International Civil Aviation Organization

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent