

## SAFETY DATA SHEET

Version 8.5  
Revision Date 21.03.2023  
Print Date 30.12.2023

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Citric acid anhydrous EMPLURA®  
Product Number : 1.93427  
Catalogue No. : 193427  
Brand : Millipore  
Index-No. : 607-750-00-3  
CAS-No. : 77-92-9

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

Identified uses : Reagent for analysis, Chemical production

**1.3 Details of the supplier of the safety data sheet**

Company : MilliporeSigma Canada Ltd.  
2149 WINSTON PARK DRIVE  
OAKVILLE ON L6H 6J8  
CANADA  
Telephone : +1 905 829-9500  
Fax : +1 905 829-9292

**1.4 Emergency telephone**

Emergency Phone # : +1-703-527-3887 CHEMTREC  
(International)  
24 Hours/day; 7 Days/week

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with Hazardous Products Regulations (HPR) (SOR/2015-17)**

Eye irritation (Category 2A), H319  
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335  
For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal Word

Warning

Hazard statement(s)  
H319

Causes serious eye irritation.

H335	May cause respiratory irritation.
Precautionary statement(s)	
P261	Avoid breathing dust.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear eye protection/ face protection.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
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.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

- none

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Formula	: C <sub>6</sub> H <sub>8</sub> O <sub>7</sub>
Molecular weight	: 192.12 g/mol
CAS-No.	: 77-92-9
EC-No.	: 201-069-1
Index-No.	: 607-750-00-3

Component	Classification	Concentration *
<b>citric acid</b>		
	Eye Irrit. 2A; STOT SE 3; H319, H335	<= 100 %
* Weight %		

For the full text of the H-Statements mentioned in this Section, see Section 16.

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## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air.

#### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

**In case of eye contact**

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

**If swallowed**

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

**4.2 Most important symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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

No data available

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**SECTION 5: Firefighting measures****5.1 Extinguishing media****Suitable extinguishing media**

Water Foam Carbon dioxide (CO<sub>2</sub>) Dry powder

**Unsuitable extinguishing media**

For this substance/mixture no limitations of extinguishing agents are given.

**5.2 Special hazards arising from the substance or mixture**

Carbon oxides

Combustible.

Development of hazardous combustion gases or vapours possible in the event of fire.

**5.3 Advice for firefighters**

In the event of fire, wear self-contained breathing apparatus.

**5.4 Further information**

Prevent fire extinguishing water from contaminating surface water or the ground water system.

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**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

**6.2 Environmental precautions**

Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

**6.4 Reference to other sections**

For disposal see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

#### Storage conditions

No metal containers.

Tightly closed. Dry.

Recommended storage temperature see product label.

#### Storage class

Storage class (TRGS 510): 11: Combustible Solids

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

### 8.2 Exposure controls

#### Appropriate engineering controls

Change contaminated clothing. Wash hands after working with substance.

#### Personal protective equipment

##### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

##### Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

**Body Protection**

protective clothing

**Respiratory protection**

required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

**Control of environmental exposure**

Do not let product enter drains.

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**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties**

- |   |  |
|---|--|
| a) Appearance                                   | Form: solid<br>Color: colorless                                    |
| b) Odor   | odorless   |
| c) Odor Threshold                               | Not applicable   |
| d) pH   | ca.1.7 at 100 g/l at 20 °C (68 °F)                                 |
| e) Melting point/freezing point                 | Melting point: ca.153 °C (ca.307 °F)                               |
| f) Initial boiling point and boiling range      | 200 °C 392 °F at 1,013 hPa - (decomposition)                       |
| g) Flash point                                  | ( )Not applicable  |
| h) Evaporation rate                             | No data available  |
| i) Flammability (solid, gas)                    | No data available  |
| j) Upper/lower flammability or explosive limits | No data available  |
| k) Vapor pressure                               | < 0.1 hPa at 25 °C (77 °F)   |
| l) Vapor density                                | No data available  |
| m) Density                                      | 1.67 g/cm <sup>3</sup> at 20 °C (68 °F)                            |
| Relative density                                | 1.6720 °C  |
| n) Water solubility                             | 1,330 g/l at 20 °C (68 °F)   |
| o) Partition coefficient: n-octanol/water       | log Pow: -1.72 at 20 °C (68 °F) - Bioaccumulation is not expected. |
| p) Autoignition temperature                     | No data available  |
| q) Decomposition temperature                    | No data available  |
| r) Viscosity                                    | No data available  |
| s) Explosive properties                         | No data available  |

t) Oxidizing properties none

## 9.2 Other safety information

Bulk density ca.560 kg/m<sup>3</sup>

Dissociation constant 3.13 at 25 °C (77 °F)

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Violent reactions possible with:

Metals  
Oxidizing agents  
Bases  
Reducing agents

### 10.4 Conditions to avoid

no information available

### 10.5 Incompatible materials

No data available

### 10.6 Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Mouse - male and female - 5,400 mg/kg  
(OECD Test Guideline 401)

Inhalation: No data available

LD50 Dermal - Rat - male and female - > 2,000 mg/kg  
(OECD Test Guideline 402)

#### Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h  
(OECD Test Guideline 404)

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Irritating to eyes.  
(OECD Test Guideline 405)

Remarks: (ECHA)

### **Respiratory or skin sensitization**

Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

### **Germ cell mutagenicity**

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: Mutagenicity (mammal cell test): micronucleus.

Test system: Human lymphocytes

Metabolic activation: without metabolic activation

Method: OECD Test Guideline 487

Result: positive

Test Type: Chromosome aberration test

Species: Rat

Cell type: Bone marrow

Application Route: Oral

Method: OECD Test Guideline 475

Result: negative

Test Type: dominant lethal test

Species: Rat

Application Route: Oral

Method: Regulation (EC) No. 440/2008, Annex, B.22

Result: negative

### **Carcinogenicity**

No data available

### **Reproductive toxicity**

No data available

### **Specific target organ toxicity - single exposure**

Inhalation - May cause respiratory irritation.

### **Specific target organ toxicity - repeated exposure**

No data available

### **Aspiration hazard**

No data available

## **11.2 Additional Information**

Vomiting, Diarrhea, Damage to tooth enamel., Dermatitis

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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## **SECTION 12: Ecological information**

### **12.1 Toxicity**

Toxicity to fish

LC50 - Leuciscus idus (Golden orfe) - 440 - 760 mg/l - 96 h

Remarks: (IUCLID)

Millipore - 1.93427

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Toxicity to algae	static test NOEC - Scenedesmus quadricauda (Green algae) - 425 mg/l - 8 h Remarks: (ECHA) (citric acid)
Toxicity to bacteria	Remarks: (maximum permissible toxic concentration) (Lit.) (citric acid)

## 12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 28 d  
Result: 97 % - Readily biodegradable.  
(OECD Test Guideline 301B)

Biochemical Oxygen Demand (BOD) 526 mg/g  
Remarks: (IUCLID)

Chemical Oxygen Demand (COD) 728 mg/g  
Remarks: (IUCLID)

## 12.3 Bioaccumulative potential

No data available

## 12.4 Mobility in soil

No data available

## 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

## 12.6 Endocrine disrupting properties

No data available

## 12.7 Other adverse effects

Harmful effect due to pH shift.  
Discharge into the environment must be avoided.

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14: Transport information

#### TDG

Not regulated as a dangerous good

#### IMDG

Not dangerous goods



**IATA**

Not dangerous goods

**Further information**

Not classified as dangerous in the meaning of transport regulations.

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**SECTION 15: Regulatory information**

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

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**SECTION 16: Other information****Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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