

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 8.0

Revision Date 12.05.2022

Print Date 13.05.2022

GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

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

Product name : Citric acid monohydrate for analysis
EMSURE® ACS,ISO,Reag. Ph Eur

Product Number : 1.00244
Catalogue No. : 100244
Brand : Millipore
REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

CAS-No. : 5949-29-1

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 : Merck KGaA
Frankfurter Str. 250
D-64271 DARMSTADT

Telephone : +49 (0)6151 72-0
Fax : +49 6151 727780
E-mail address : TechnicalService@merckgroup.com

1.4 Emergency telephone

Emergency Phone # : +(44)-870-8200418 (CHEMTREC (GB))
+(353)-19014670 (CHEMTREC Ireland)
001-803-017-9114 (CHEMTREC India)

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008**

Eye irritation (Category 2), 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 Label elements**Labelling according Regulation (EC) No 1272/2008**

Millipore- 1.00244


Page 1 of 11

The life science business of Merck operates as MilliporeSigma in
the US and Canada



| | |
|--------------------------------|--|
| Pictogram |  |
| Signal Word | Warning |
| Hazard statement(s) | |
| H319 | Causes serious eye irritation. |
| H335 | May cause respiratory irritation. |
| Precautionary statement(s) | |
| P261 | Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray. |
| 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. |
| Supplemental Hazard Statements | none |

Reduced Labeling (<= 125 ml)

| | |
|--------------------------------|---|
| Pictogram |  |
| Signal Word | Warning |
| Hazard statement(s) | none |
| Precautionary statement(s) | none |
| Supplemental Hazard Statements | none |

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

| | |
|------------------|---|
| Formula | : C ₆ H ₈ O ₇ · H ₂ O |
| Molecular weight | : 210,14 g/mol |
| CAS-No. | : 5949-29-1 |
| EC-No. | : 201-069-1 |

| Component | Classification | Concentration |
|--------------------------------|-------------------------------------|---------------|
| Citric acid monohydrate | | |
| CAS-No. | 5949-29-1 | <= 100 % |
| EC-No. | 201-069-1 | |
| | Eye Irrit. 2; STOT SE 3; H319, H335 | |



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

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

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water Foam Carbon dioxide (CO₂) 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.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

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.



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.

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

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

| | |
|---------|-------------------|
| Remarks | No data available |
|---------|-------------------|

8.2 Exposure controls

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).



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).

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.
Recommended Filter type: Filter type P2

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- | | |
|---|-----------------------------------|
| a) Physical state | crystalline |
| b) Color | white |
| c) Odor | odorless |
| d) Melting point/freezing point | Melting point/range: 135 - 152 °C |
| e) Initial boiling point and boiling range | (decomposition) |
| f) Flammability (solid, gas) | No data available |
| g) Upper/lower flammability or explosive limits | No data available |
| h) Flash point | 173,9 °C |
| i) Autoignition | No data available |



| | | |
|----|--|--|
| | temperature | |
| j) | Decomposition temperature | > 170 °C - |
| k) | pH | 1,85 at 50 g/l at 25 °C |
| l) | Viscosity | Viscosity, kinematic: No data available Viscosity, dynamic: No data available |
| m) | Water solubility | ca.880 g/l at 20 °C |
| n) | Partition coefficient: n-octanol/water | log Pow: -1,72 at 20 °C - (anhydrous substance), Bioaccumulation is not expected. |
| o) | Vapor pressure | < 0,01 hPa at 25 °C - (anhydrous substance) |
| p) | Density | 1,54 g/cm ³ at 20 °C |
| | Relative density | No data available |
| q) | Relative vapor density | No data available |
| r) | Particle characteristics | No data available |
| s) | Explosive properties | No data available |
| t) | Oxidizing properties | none |

9.2 Other safety information

Bulk density ca.800 - 1.000 kg/m³

SECTION 10: Stability and reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.
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

Strong heating.

10.5 Incompatible materials

Metals



10.6 Hazardous decomposition products

In the event of fire: see section 5

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)

Remarks: (anhydrous substance)

LD50 Oral - Rat - male - 11.700 mg/kg

(OECD Test Guideline 401)

Remarks: (anhydrous substance)

Symptoms: In high doses:, Irritation of mucous membranes, Pain, Bloody vomiting

Symptoms: Possible damages:, Irritation symptoms in the respiratory tract.

LD50 Dermal - Rat - male and female - > 2.000 mg/kg

(OECD Test Guideline 402)

Remarks: (anhydrous substance)

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

Remarks: (anhydrous substance)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Severe irritations

(OECD Test Guideline 405)

Remarks: (anhydrous substance)

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

Remarks: (anhydrous substance)

Test Type: Chromosome aberration test

Species: Rat

Cell type: Bone marrow

Application Route: Oral

Method: OECD Test Guideline 475

Result: negative

Remarks: (anhydrous substance)

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**Endocrine disrupting properties****Product:**

Assessment

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Vomiting, Diarrhea, Damage to tooth enamel., Dermatitis

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

Substance which occurs in the human body under physiological conditions.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information**12.1 Toxicity**

| | |
|---|---|
| Toxicity to fish | LC50 - Leuciscus idus (Golden orfe) - 440 - 760 mg/l - 96 h Remarks: (anhydrous substance) (IUCLID) |
| Toxicity to daphnia and other aquatic invertebrates | EC5 - E.sulcatum - 485 mg/l - 72 h Remarks: (anhydrous substance) (maximum permissible toxic concentration) (Lit.) |
| | EC50 - Daphnia magna (Water flea) - ca. 120 mg/l - 72 h Remarks: (anhydrous substance) (IUCLID) |
| Toxicity to algae | IC5 - M.aeruginosa - 80 mg/l - 8 d Remarks: (anhydrous substance) (maximum permissible toxic concentration) (Lit.) |
| Toxicity to bacteria | EC5 - Pseudomonas putida - > 10.000 mg/l - 16 h |



Remarks: (anhydrous substance)
(Lit.)

12.2 Persistence and degradability

Biodegradability Result: 98 % - Readily eliminated from water
(OECD Test Guideline 302B)
Remarks: (anhydrous substance)

Biochemical Oxygen Demand (BOD) 481 mg/g
Remarks: (External MSDS)

Chemical Oxygen Demand (COD) 685 mg/g
Remarks: (External MSDS)

Theoretical oxygen demand 686 mg/g
Remarks: (Lit.)

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Additional ecological information Harmful effect due to pH shift.

Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

14.1 UN number

ADR/RID: -

IMDG: -

IATA: -

Millipore- 1.00244

Page 9 of 11

The life science business of Merck operates as MilliporeSigma in the US and Canada



14.2 UN proper shipping name

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

14.3 Transport hazard class(es)

ADR/RID: -

IMDG: -

IATA: -

14.4 Packaging group

ADR/RID: -

IMDG: -

IATA: -

14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

14.6 Special precautions for user

Further information

Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Other regulations

Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

Relevant changes since previous version

2. Hazards identification

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 and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the



information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

