

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

Printing date 14.11.2023

Version number 23 (replaces version 22)

Revision: 14.11.2023

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

##### · 1.1 Product identifier

· Product name: **Vario Silica Citric Acid 10 ml, 25 ml**

· Catalog number: 00531719, 531710, 531713, 531940, 00531949, 531943, 4531710, 4531940

· CAS No.:  
77-92-9

· Registration number 01-2119457026-42-XXXX

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

· Application of the substance / the preparation: Reagent for water analysis

##### · 1.3 Details of the supplier of the safety data sheet

##### · Supplier:

Tintometer GmbH  
Schleefstraße 8-12  
44287 Dortmund  
Made in Germany  
www.lovibond.com

phone: +49 (0)231 94510-0  
e-mail: sales@lovibond.com

The Tintometer Limited  
Lovibond® House  
Sun Rise Way  
Amesbury  
Wiltshire SP4 7GR  
United Kingdom

phone : +44 1980 664800  
e-mail: SDS@lovibond.uk

· Informing department:  
e-mail: sds@lovibond.com  
Product Safety Department

· 1.4 Emergency telephone number:  
+44 1235 239670  
Languages: English

#### SECTION 2: Hazards identification

##### · 2.1 Classification of the substance or mixture

· Classification according to Regulation (EC) No 1272/2008



Eye Irrit. 2 H319 Causes serious eye irritation.  
STOT SE 3 H335 May cause respiratory irritation.

##### · 2.2 Label elements

· Labelling according to Regulation (EC) No 1272/2008

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

##### · Hazard pictograms



· Signal word Warning

· Hazard-determining components of labelling:  
citric acid

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**Product name: Vario Silica Citric Acid 10 ml, 25 ml**


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- **Hazard statements**

H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.

- **Precautionary statements**

P261 Avoid breathing dust.  
P280 Wear 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.  
P311 Call a doctor.

- **2.3 Other hazards** No further relevant information available.

- **Results of PBT and vPvB assessment**

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

- **Determination of endocrine-disrupting properties**

The product does not contain substances with endocrine disrupting properties.

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### SECTION 3: Composition/information on ingredients

- **3.1 Substances**

- **CAS No. Designation:**

CAS: 77-92-9 citric acid

- **Identification number(s):**

· **EC No:** 201-069-1

· **Index No:** 607-750-00-3

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### SECTION 4: First aid measures

- **4.1 Description of first aid measures**

- **General information** Instantly remove any clothing soiled by the product.

- **After inhalation** Supply fresh air; consult doctor in case of symptoms.

- **After skin contact** Instantly wash with water and soap and rinse thoroughly.

- **After eye contact** Rinse opened eye for several minutes (at least 15 min) under running water. Then consult doctor.

- **After swallowing**

Rinse out mouth and then drink 1-2 glasses of water.

In case of persistent symptoms consult doctor.

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

irritations

after inhalation:

mucosal irritations, cough, shortness of breath

after swallowing of large amounts:

vomiting

pain

- **4.3 Indication of any immediate medical attention and special treatment needed:** No further relevant information available.

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### SECTION 5: Firefighting measures

- **5.1 Extinguishing media**

- **Suitable extinguishing agents** Water, Carbon dioxide (CO<sub>2</sub>), Foam, Fire-extinguishing powder

- **For safety reasons unsuitable extinguishing agents**

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

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

combustible

Risk of dust explosion

Formation of toxic gases is possible during heating or in case of fire.

- **5.3 Advice for firefighters**

- **Protective equipment:**

Wear self-contained breathing apparatus.

Wear full protective suit.

- **Additional information**

Collect contaminated fire fighting water separately. It must not enter drains.

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

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Ambient fire may liberate hazardous vapours.

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### SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
- **Advice for non-emergency personnel:**
  - Wear protective equipment. Keep unprotected persons away.
  - Ensure adequate ventilation
  - Avoid breathing dust.
- **Advice for emergency responders:** Protective equipment: see section 8
- **6.2 Environmental precautions:** Do not allow product to reach sewage system or water bodies.
- **6.3 Methods and material for containment and cleaning up:**
  - Ensure adequate ventilation.
  - Collect mechanically.
  - Dispose of contaminated material as waste according to item 13.
- **6.4 Reference to other sections**
  - See Section 8 for information on personal protection equipment.
  - See Section 13 for information on disposal.

### SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
- **Advice on safe handling:**
  - Prevent formation of dust.
  - Provide suction extractors if dust is formed.
  - Keep ignition sources away - Do not smoke.
- **Hygiene measures:**
  - Do not inhale dust / smoke / mist.
  - Avoid contact with the eyes.
  - Take off immediately all contaminated clothing.
  - Wash hands during breaks and at the end of the work.
  - Do not eat, drink or smoke when using this product.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Requirements to be met by storerooms and containers:**
  - Store in cool location.
  - Unsuitable material for container: metals, metal alloys
- **Information about storage in one common storage facility:**
  - Store away from metals.
  - Store away from oxidising agents.
- **Further information about storage conditions:**
  - Protect from heat and direct sunlight.
  - Protect from the effects of light.
  - Store under dry conditions.
  - Protect from humidity and keep away from water.
- **Recommended storage temperature:** 20°C +/- 5°C
- **7.3 Specific end use(s)** No further relevant information available.

### SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Recommended monitoring procedures:**
  - Methods for measurement of the workplace atmosphere have to correspond to the requirements of norms DIN EN 482 and DIN EN 689.
- **Additional information:** The lists that were valid during the compilation were used as basis.
- **8.2 Exposure controls**
- **Engineering measures:**
  - Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

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See item 7.

- **Individual protection measures, such as personal protective equipment**  
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.
- **Eye/face protection**  
Safety glasses  
Use safety glasses that have been tested and approved in accordance with government standards such as EN 166.
- **Hand protection**  
Preventive skin protection by use of skin-protecting agents is recommended.  
After use of gloves apply skin-cleaning agents and skin cosmetics.
- **Material of gloves**  
nitrile rubber, NBR  
Recommended thickness of the material:  $\geq 0.11$  mm
- **Penetration time of glove material**  
Value for the permeation: Level = 1 ( < 10 min )  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Other skin protection (body protection):** Protective work clothing.
- **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
- **Recommended filter device for short term use:** Filter P1
- **Environmental exposure controls** Do not allow product to reach sewage system or water bodies.

### SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**
- **Physical state** Solid.
- **Form:** Powder
- **Colour:** White
- **Odour:** Odourless
- **Odour threshold:** Not applicable.
- **Melting point/Freezing point:** 153°C (OECD 102)  
Decomposition
- **Boiling point or initial boiling point and boiling range** Not applicable.  
Decomposition
- **Flammability** combustible
- **Explosive properties:** The following applies in general to flammable organic substances / preparations: Dust explosion possible if in powder or granular form (fine distribution), mixed with air.
- **Lower and upper explosion limit**  
  **Lower:** Not determined.  
  **Upper:** Not applicable (solid).
- **Flash point:** Not applicable (solid).
- **Auto-ignition temperature:** 345°C
- **Decomposition temperature:** 175°C
- **pH (100 g/l) at 20°C** 1.7
- **Kinematic viscosity** Not applicable (solid).
- **Solubility**
- **Water at 20°C:** 1330 g/l  
Readily soluble
- **Partition coefficient n-octanol/water (log value) at 20°C** -1.72 log POW (OECD 117)
- **Vapour pressure at 20°C:** <0.1 hPa
- **Density and/or relative density**
- **Density at 20°C:** 1.66 g/cm<sup>3</sup>
- **Relative density:** Not determined.
- **Relative gas density** Not applicable (solid).
- **Particle characteristics** Not determined.
- **9.2 Other information**
- **Information with regard to physical hazard classes**
- **Corrosive to metals** Void
- **Other safety characteristics**
- **Oxidising properties:** none

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· <b>Additional information</b>	
· <b>Solids content:</b>	100 %
· <b>Molecular formula</b>	C <sub>6</sub> H <sub>8</sub> O <sub>7</sub> (M=192 g/mol)

### SECTION 10: Stability and reactivity

- **10.1 Reactivity** Risk of dust explosion
- **10.2 Chemical stability** Stable at ambient temperature (room temperature).
- **10.3 Possibility of hazardous reactions**  
Aqueous solution reacts acidic.  
Aqueous solution reacts with metals.  
Citric acid: Incompatible with bases, strong oxidising agents, amines. Contact with metal nitrates causes explosion hazard.  
Attacks aluminium, copper, zinc and their alloys - in case of moisture.
- **10.4 Conditions to avoid** Strong heating (decomposition)
- **10.5 Incompatible materials:**  
metals  
aluminium, copper, zinc, metal ions  
combustible substances
- **10.6 Hazardous decomposition products:** see section 5

### SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Based on available data, the classification criteria are not met.

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

##### **CAS: 77-92-9 citric acid**

Oral	LD50	3000 mg/kg (rat) (IUCLID)
Dermal	LD50	>2000 mg/kg (rat) (limit test: there were no deaths)

- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation** Causes serious eye irritation.
- **Information on components:**  
Citric acid: A single drop of a 2% or 5% solution in water causes little or no irritation.  
A 0.5% solution held in contact with the eye causes irreversible tissue damage to the cornea.  
Citric Acid caused mild irritation when 500 mg was tested on rabbit skin in a 24-hour test.  
(CHEMINFO, Canadian Centre for Occupational Health and Safety)

##### **CAS: 77-92-9 citric acid**

Irritation of skin	OECD 404	(rabbit: no irritation)
Irritation of eyes	OECD 405	(rabbit: severe irritations)

- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

#### · **Information on components:**

##### **CAS: 77-92-9 citric acid**

Sensitisation	OECD 406	(guinea pig: negative) (EPA OPP 81-6: Guinea pig maximisation test)
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- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.

#### · **Information on components:**

CAS 77-92-9: No impairment of reproductive performance in animal experiments.  
OECD 414: Teratogenicity testing  
OECD 473: Mutagenicity testing  
OECD 471, 474, 476, 487: Germ cell mutagenicity testing

##### **CAS: 77-92-9 citric acid**

OECD 471	(negative) (Bacterial Reverse Mutation Test - Ames test)
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- **STOT (specific target organ toxicity) -single exposure** May cause respiratory irritation.

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- **STOT (specific target organ toxicity) -repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

**Information on likely routes of exposure**

Under workplace conditions, inhalative exposure is the main route of exposure of citric acid. Inhalative exposure is possible in the form of dust or aerosols of aqueous solutions, although the warning irritant effect means that inhalation of very high concentrations is only to be expected accidentally.

Irrespective of this, citric acid is mainly ingested orally with food. [GESTIS]

**Additional toxicological information:**
**CAS: 77-92-9 citric acid**

(source: GESTIS)

Main toxic effects:

Acute: Irritant effect on the eyes and upper respiratory tract; no evidence of systemic toxic effects under occupationally relevant exposure conditions

chronic: irritative effects on mucous membranes and skin.

Enamel damage, dermatitis (Merck)

Further information:

Depending on the pH value, dust or concentrated aqueous solutions are highly irritating to corrosive to the eye.

**11.2 Information on other hazards**

- **Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.

**Other information**

According to the information available to us, the chemical, physical and toxicological properties of the substances mentioned in Chapter 3 have not been thoroughly investigated.

## SECTION 12: Ecological information

**12.1 Toxicity**
**Aquatic toxicity:**
**CAS: 77-92-9 citric acid**

EC50 ~120 mg/l (Daphnia magna) (72 h)  
(IUCLID)

EC5 485 mg/l (Entosiphon sulcatum) (72h)  
(MERCK)

LC50 440–760 mg/l/96h (gold orfe)  
(IUCLID)

**Bacterial toxicity:**
**CAS: 77-92-9 citric acid**

EC5 >10000 mg/l (Pseudomonas putida) (16h (Lit.))

**12.2 Persistence and degradability**
**CAS: 77-92-9 citric acid**

OECD 301 B 97 % / 28 d (readily biodegradable) (CO2 Evolution Test)

OECD 302 B 98 % / 2 d (readily eliminated from water) (Zahn-Wellens / EMPA Test)

**Other information:**

The product is biodegradable.

Easily eliminable from water.

**12.3 Bioaccumulative potential**

Pow = n-octanol/wasser partition coefficient

log Pow < 1 = Does not accumulate in organisms.

**CAS: 77-92-9 citric acid**

log Pow -1.72 (.) (OECD 117, 20°C)

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

**12.5 Results of PBT and vPvB assessment**

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

- **12.6 Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.

**12.7 Other adverse effects**

Harmful effect due to pH shift.

Avoid transfer into the environment.

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**· Water hazard:**

Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.  
Must not reach sewage water or drainage ditch undiluted or unneutralised.

### SECTION 13: Disposal considerations

**· 13.1 Waste treatment methods**
**· Recommendation**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.  
Hand over to disposers of hazardous waste.

**· European waste catalogue**

16 05 08*	discarded organic chemicals consisting of or containing hazardous substances
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**· Uncleaned packagings:**
**· Recommendation:** Disposal must be made according to official regulations.

**· Recommended cleaning agent:** Water, if necessary with cleaning agent.

### SECTION 14: Transport information

**· 14.1 UN number or ID number**
**· ADR, IMDG, IATA** Void

**· 14.2 UN proper shipping name**
**· ADR, IMDG, IATA** Void

**· 14.3 Transport hazard class(es)**
**· ADR, IMDG, IATA**
**· Class** Void

**· 14.4 Packing group**
**· ADR, IMDG, IATA** Void

**· 14.5 Environmental hazards:** Not applicable.

**· 14.6 Special precautions for user** Not applicable.

**· 14.7 Maritime transport in bulk according to IMO instruments** Not applicable.

**· Transport/Additional information:** Not dangerous according to the above specifications.

### SECTION 15: Regulatory information

**· 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
**· Poisons Act UK**
**· Regulated explosives precursors**

Substance is not listed.

**· Regulated poisons**

Substance is not listed.

**· Reportable explosives precursors**

Substance is not listed.

**· Reportable poisons**

Substance is not listed.

**· Regulation (EU) 2019/1148 on the marketing and use of explosives precursors** not regulated

**· Regulation (EU) No 649/2012 concerning the export and import of hazardous chemicals (PIC)**

Substance is not listed.

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<ul style="list-style-type: none"> <li>· <b>Regulation (EC) No 1334/2000 setting up a Community regime for the control of exports of dual-use items and technology:</b> Substance is not listed.</li> </ul>
<ul style="list-style-type: none"> <li>· <b>Regulation (EC) No 273/2004 on drug precursors</b> Substance is not listed.</li> </ul>
<ul style="list-style-type: none"> <li>· <b>Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors</b> Substance is not listed.</li> </ul>
<ul style="list-style-type: none"> <li>· <b>Regulation (EC) No 1005/2009 on substances that deplete the ozone layer:</b> Substance is not listed.</li> </ul>
<ul style="list-style-type: none"> <li>· <b>REGULATION (EU) 2019/1021 on persistent organic pollutants (POP)</b> Substance is not listed.</li> </ul>
<ul style="list-style-type: none"> <li>· <b>LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)</b> Substance is not listed.</li> </ul>
<ul style="list-style-type: none"> <li>· <b>Substances of very high concern (SVHC) according to REACH, Article 57</b> This product does not contain any substances of very high concern above the legal concentration limit of <math>\geq 0.1\%</math> (w / w).</li> <li>· <b>Substances of very high concern (SVHC) according to UK REACH</b> This product does not contain any substances of very high concern above the legal concentration limit of <math>\geq 0.1\%</math> (w / w).</li> <li>· <b>Directive 2012/18/EU (SEVESO III):</b></li> <li>· <b>Named dangerous substances - ANNEX I</b> Substance is not listed.</li> <li>· <b>Information about limitation of use:</b> Not required.</li> <li>· <b>15.2 Chemical safety assessment:</b> A Chemical Safety Assessment has not been carried out.</li> </ul>

### SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

This Safety Data Sheet is in compliance with Regulation (EC) No 1907/2006, Article 31 as amended by Regulation (EU) 2020/878.

- **Training hints** Provide adequate information, instruction and training for operators.

- **Abbreviations and acronyms:**

OECD: Organisation for Economic Co-operation and Development

STOT: specific target organ toxicity

SE: single exposure

RE: repeated exposure

EC50: half maximal effective concentration

IC50: half maximal inhibitory concentration

NOEL or NOEC: No Observed Effect Level or Concentration

ADR: Accord relatif au transport international 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

GHS: Globally Harmonised 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

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

- **Sources**

Data arise from safety data sheets, reference works and literature.

IUCLID (International Uniform Chemical Information Database)

GESTIS- Stoffdatenbank (Substance Database, Germany)

ECHA: European Chemicals Agency <http://echa.europa.eu>

- **\* Data compared to the previous version altered.**