

Safety Data Sheet acc. to OSHA HCS (HazCom 2012)

Printing date 05/09/2022

Reviewed on 05/09/2022

1 Identification

- **Product identifier**
- **Trade name: Vario Silica Citric Acid 10 ml, 25 ml**
- **Catalogue number:** 00531719, 531710, 531713, 531940, 00531949, 531943, 4531710, 4531940
- **CAS Number:**
77-92-9
- **Application of the substance / the mixture:** Reagent for water analysis
- **Manufacturer/Supplier:**
Tintometer Inc.
6456 Parkland Drive
Sarasota, FL 34243
USA
phone: (941) 756-6410
fax: (941) 727-9654
www.lovibond.us
Made in Germany
- **Emergency telephone number:** + 1 866 928 0789 (English, French, Spanish)

* 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS07

Eye Irritation 2A

H319 Causes serious eye irritation.

Specific Target Organ Toxicity - Single Exposure 3 H335 May cause respiratory irritation.

- **Label elements**
- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS07

- **Signal word** Warning
- **Hazard-determining components of labeling:**
citric acid
- **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.
- **Other hazards** No further relevant information available.

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* 3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**
CAS: 77-92-9 citric acid
- **EC number: 201-069-1**

4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Immediately 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 a doctor.
- **After swallowing:**
Rinse out mouth and then drink 1-2 glasses of water.
If symptoms persist consult doctor.
- **Most important symptoms and effects, both acute and delayed**
irritations
after inhalation:
mucosal irritations, cough, breathing difficulty
after swallowing of large amounts:
vomiting
pain
- **Indication of any immediate medical attention and special treatment needed:** No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Water, Carbon dioxide (CO₂), Foam, Fire-extinguishing powder
- **For safety reasons unsuitable extinguishing agents:**
For this substance / mixture no limitations of extinguishing agents are given.
- **Special hazards arising from the substance or mixture**
Can burn in fire.
Risk of dust explosion.
Formation of toxic gases is possible during heating or in case of fire.
- **Advice for firefighters**
- **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
- **Additional information**
Collect contaminated fire fighting water separately. It must not enter the sewage system.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Ambient fire may liberate hazardous vapours.

6 Accidental release measures

- **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
- **Environmental precautions:** Do not allow product to reach sewage system or any water course.
- **Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Pick up mechanically.
Dispose contaminated material as waste according to item 13.
- **Reference to other sections**
See Section 8 for information on personal protection equipment.

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See Section 13 for disposal information.

* 7 Handling and storage

- **Precautions for safe handling**
- **Advice on safe handling:**
 - Prevent formation of dust.
 - Provide suction extractors if dust is formed.
- **Hygiene measures:**
 - Do not inhale dust / smoke / mist.
 - Avoid contact with the eyes.
 - Take off immediately all contaminated clothing.
 - Wash hands before breaks and at the end of work.
 - Do not eat, drink or smoke when using this product.
- **Conditions for safe storage, including any incompatibilities**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:**
 - Store away from metals.
 - Store away from oxidizing agents.
- **Further information about storage conditions:**
 - Protect from heat and direct sunlight.
 - Protect from exposure to the light.
 - Store in dry conditions.
 - Protect from humidity and water.
- **Recommended storage temperature:** 20°C +/- 5°C (approx. 68°F)
- **Specific end use(s)** No further relevant information available.

* 8 Exposure controls/personal protection

- **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.
- **Engineering measures:**
 - Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.
 - See item 7.
- **Personal protective equipment:**
 - Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.
- **Breathing equipment:** Use respiratory protective device against the effects of fume/dust/aerosol.
- **Recommended filter device for short term use:** Filter P1
- **Protection of hands:**
 - 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: ≥ 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.
- **Eye protection:**
 - Safety glasses
 - Use protective goggles that have been tested and approved in accordance with government standards (like NIOSH).
- **Body protection:** Protective work clothing
- **Limitation and supervision of exposure into the environment:**
 - Do not allow product to reach sewage system or any water course.

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9 Physical and chemical properties

· Information on basic physical and chemical properties

· Appearance:

· Form / Physical state:

Powder

· Color:

White

· Odor:

Odorless

· Odor threshold:

Not applicable.

· pH-value (100 g/l) at 20°C (68°F):

1.7

· Melting point/freezing point:

153°C (307.4°F) (OECD 102)

· Initial boiling point and boiling range:

Not applicable.

Decomposition

· Flash point:

Not applicable (solid).

· Flammability (solid, gas):

Not determined.

· Ignition temperature:

345°C (653°F)

· Decomposition temperature:

175°C (347°F)

· Auto-ignition temperature:

Not determined.

· Danger of explosion:

The following applies in general to flammable organic substances / preparations: Dust explosion possible if in powder or granular form (fine distribution), mixed with air.

· Flammability or explosive limits:

· Lower:

Not determined.

· Upper:

Not applicable (solid).

· Oxidizing properties:

none

· Vapor Pressure at 20°C (68°F):

<0.1 hPa (<0.1 mm Hg)

· Density at 20°C (68°F):

1.66 g/cm³ (13.85 lbs/gal)

· Relative density:

Not determined.

· Vapor density:

Not applicable.

· Evaporation rate:

Not applicable.

· Solubility(ies)

· Water at 20°C (68°F):

1330 g/l

Easily soluble.

· Partition coefficient (n-octanol/water) at 20°C (68°F): -1.72 log POW (OECD 117)

· Viscosity:

· Kinematic:

Not applicable (solid).

· Other information

· Solids content:

100 %

10 Stability and reactivity

· **Reactivity** Dust can combine with air to form an explosive mixture.

· **Chemical stability** Stable at ambient temperature (room temperature).

· Possibility of hazardous reactions

Aqueous solution reacts acidic.

Aqueous solution reacts with metals.

Citric acid: incompatible with bases, strong oxidizers, amines. Contact with metal nitrates may be explosive. Attacks aluminum, copper, zinc and their alloys, when wet.

· **Conditions to avoid** No further relevant information available.

· Incompatible materials:

metals

aluminum, copper, zinc, metal ions

· **Hazardous decomposition products:** see section 5

* 11 Toxicological information

· Information on toxicological effects

· **Acute toxicity:** Based on available data, the classification criteria are not met.

· LD/LC50 values that are relevant for classification:

The following statements refer to the individual components.

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US

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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)

· **Primary irritant effect:**

· **on the skin:** Based on available data, the classification criteria are not met.

· **on the eye:** 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)

· **Sensitization:** Based on available data, the classification criteria are not met.

· **Information on components:**

CAS: 77-92-9 citric acid		
Sensitization	OECD 406	(guinea pig: negative) (EPA OPP 81-6: Guinea pig maximisation test)

· **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)	
Substance is not listed.	

· NTP (National Toxicology Program)	
Substance is not listed.	

· OSHA-Ca (Occupational Safety & Health Administration)	
Substance is not listed.	

· **Other information:** see section 8 / 15

· **Synergistic Products:** None

· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction):**

· **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.

· **STOT (specific target organ toxicity) -single exposure** May cause respiratory irritation.

· **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 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)

· **Additional toxicological information:**

CAS: 77-92-9 citric acid	
<p>(source: GESTIS)</p> <p>Main toxic effects:</p> <p>Acute: Irritant effect on the eyes and upper respiratory tract; no evidence of systemic toxic effects under occupationally relevant exposure conditions</p> <p>chronic: irritative effects on mucous membranes and skin.</p> <p>Enamel damage, dermatitis (Merck)</p> <p>Further information:</p> <p>Depending on the pH value, dust or concentrated aqueous solutions are highly irritating to corrosive to the eye.</p>	

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12 Ecological information

· 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.))
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· 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.

· 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)
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· Mobility in soil

No further relevant information available.

· Other adverse effects

Harmful effect due to pH shift.
Avoid transfer into the environment.

13 Disposal considerations

· Waste treatment methods

· Recommendation:

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

· Uncleaned packagings:

· Recommendation:

Disposal must be made according to official regulations.

· Recommended cleansing agent:

Water, if necessary with cleansing agents.

14 Transport information

· UN-Number

· DOT, IMDG, IATA none

· UN proper shipping name

· DOT, IMDG, IATA none

· Transport hazard class(es)

· DOT, IMDG, IATA

· Class none

· Packing group

· DOT, IMDG, IATA none

· Environmental hazards:

Not applicable.

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· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	Not dangerous according to the above specifications.

* 15 Regulatory information

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

· Section 355 (Extremely hazardous substances):
Substance is not listed.
· Section 313 (Specific toxic chemical listings):
Substance is not listed.
· TSCA (Toxic Substances Control Act):
ACTIVE
· Hazardous Air Pollutants
Substance is not listed.
· Proposition 65
· Chemicals known to cause cancer:
Substance is not listed.
· Chemicals known to cause reproductive toxicity for females:
Substance is not listed.
· Chemicals known to cause reproductive toxicity for males:
Substance is not listed.
· Chemicals known to cause developmental toxicity:
Substance is not listed.
· New Jersey Right-to-Know List:
Substance is not listed.
· New Jersey Special Hazardous Substance List:
Substance is not listed.
· Pennsylvania Right-to-Know List:
Substance is not listed.
· Pennsylvania Special Hazardous Substance List:
Substance is not listed.
· EPA (Environmental Protection Agency)
Substance is not listed.
· NIOSH-Ca (National Institute for Occupational Safety and Health)
Substance is not listed.

- **Information about limitation of use:** Not required.
- **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.

- **Date of preparation / last revision** 05/09/2022 / 22

- **Abbreviations and acronyms:**

OECD: Organisation for Economic Co-operation and Development
 STOT: specific target organ toxicity
 SE: single exposure
 RE: repeated exposure

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EC50: half maximal effective concentration
 IC50: half maximal inhibitory concentration
 NOEL or NOEC: No Observed Effect Level or Concentration
 ACGIH[®] - American Conference of Governmental Industrial Hygienists
 •A1 - Confirmed human carcinogen
 •A2 - Suspected human carcinogen
 •A3 - Confirmed animal carcinogen with unknown relevance to humans
 •A4 - Not classifiable as a human carcinogen
 •A5 - Not suspected as a human carcinogen
 IARC - International Agency for Research on Cancer
 •Group 1 - Carcinogenic to humans
 •Group 2A - Probably carcinogenic to humans
 •Group 2B - Possibly carcinogenic to humans
 •Group 3 - Not classifiable as to carcinogenicity to humans
 •Group 4 - Probably not carcinogenic to humans
 NTP - National Toxicology Program, U.S. Department of Health and Human Services
 •Group K - Known to be Human Carcinogens
 •Group R - Reasonably Anticipated to be Human Carcinogens
 IMDG: International Maritime Code for Dangerous Goods
 DOT: US Department of Transportation
 IATA: International Air Transport Association
 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
 NIOSH: National Institute for Occupational Safety
 OSHA: Occupational Safety & Health
 TLV: Threshold Limit Value
 PEL: Permissible Exposure Limit
 REL: Recommended Exposure Limit
 Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A
 Specific Target Organ Toxicity - Single Exposure 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.