

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

Printing date 05.07.2018

Version number 21

Revision: 05.07.2018

### 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:** 251411, 251412, 251422

· **CAS No.:**  
77-92-9

#### · 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:**

Xylem Analytics Germany GmbH  
WTW  
Dr.-Karl-Slevogt-Straße 1  
82362 Weilheim  
Germany  
Tel. +49 881 183-0

· **Informing department:** E-Mail: Info.WTW@Xyleminc.com

· **1.4 Emergency telephone number:** Chemtrec (USA & Canada) 800-424-9300 (INTERNATIONAL) 001 703-527-3887

### SECTION 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.

#### · 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**

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 POISON CENTER/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.

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 21

Revision: 05.07.2018

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

(Contd. of page 1)

### SECTION 3: Composition/information on ingredients

- **3.1 Substances**
- **CAS No. Designation:**  
77-92-9 citric acid
- **Identification number(s):**
- **EC No:** 201-069-1

### 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 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:  
mucous membrane irritation  
breathing difficulty  
coughing  
after swallowing of large amounts:  
vomiting  
pain
- **4.3 Indication of any immediate medical attention and special treatment needed:** No further relevant information available.

### 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.  
Ambient fire may liberate hazardous vapours.

### 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 inhalation of 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.

(Contd. on page 3)

GB

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 21

Revision: 05.07.2018

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

(Contd. of page 2)

### · 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.  
Thorough dedusting.

#### · Hygiene measures:

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

#### · Storage

#### · Requirements to be met by storerooms and containers: Store in cool location.

#### · 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.  
See item 7.

#### · Personal protective equipment

#### · Breathing equipment: Use breathing protection against the effects of fumes/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:  $\geq 0.11$  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.

#### · Eye protection: Safety glasses

#### · Body protection: Protective work clothing.

(Contd. on page 4)

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 21

Revision: 05.07.2018

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

(Contd. of page 3)

**· Limitation and supervision of exposure into the environment:**

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**
**· Appearance:**
**Form / Physical state:**

Powder

**Colour:**

White

**· Odour:**

Odourless

**· Odour threshold:**

Not applicable

**· pH-value (100 g/l) at 20°C:**

1.7

**· Melting point/Freezing point:**

153°C (OECD 102)

Decomposition

**· Initial boiling point and boiling range:**

Not applicable

Decomposition

**· Flash point:**

Not applicable

**· Flammability (solid, gas):**

Not determined.

**· Ignition temperature:**

345°C

**· Decomposition temperature:**

175°C

**· Auto-ignition temperature:**

Not determined.

**· Explosive properties:**

Product is not explosive.

Product is not explosive. However, formation of explosive air mixtures is possible.

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 determined.

**· Oxidising properties:**

none

**· Vapour pressure at 20°C:**

&lt; 0.1 hPa

**· Density at 20°C:**

1.66 g/cm³

**· Relative density:**

Not determined.

**· Vapour density:**

Not applicable.

**· Evaporation rate:**

Not applicable.

**· Solubility(ies):**
**Water at 20°C:**

1330 g/l

Readily soluble

**· Partition coefficient: n-octanol/water at 20°C:**

-1.72 log POW (OECD 117)

**· Viscosity:**

Not applicable.

**· Organic solvents:**

0.0 %

**· Solids content:**

100.0 %

**· 9.2 Other information**

No further relevant information available.

### 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 oxidizers, amines. Contact with metal nitrates may be explosive. Attacks aluminum, copper, zinc and their alloys, when wet.

(Contd. on page 5)

— GB —

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 21

Revision: 05.07.2018

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

(Contd. of page 4)

- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:**  
metals  
aluminium, copper, zinc, metal ions
- **10.6 Hazardous decomposition products:** see section 5

## SECTION 11: Toxicological information

- **11.1 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.

**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:**
- **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)
---------------	----------	---

- **CMR effects (carcinogenicity, 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** Based on available data, the classification criteria are not met.
- **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.

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

OECD 471	(negative) (Bacterial Reverse Mutation Test - Ames test)
----------	--

- **Additional toxicological information:**
- **Experience with humans:** CAS 77-92-9: Can cause kidney damages.

## SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:**

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

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

(Contd. on page 6)

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 21

Revision: 05.07.2018

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

(Contd. of page 5)

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 &gt;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 &lt; 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 Other adverse effects**

Harmful effect due to pH shift.

Avoid transfer into the environment.

**· 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

**· 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****· 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.

(Contd. on page 7)

GB

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 21

Revision: 05.07.2018

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

(Contd. of page 6)

· <b>14.6 Special precautions for user</b>	Not applicable.
· <b>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	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**

 · **Regulation (EC) No 1005/2009 on substances that deplete the ozone layer:**

Substance is not listed.

 · **Directive 2012/18/EU (SEVESO III):**

 · **Named dangerous substances - ANNEX I** Substance is not listed.

 · **Information about limitation of use:** Employment restrictions concerning young persons must be observed.

 · **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 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.

 · **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 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

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

vPvB: very Persistent and very Bioaccumulative

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

 · **Sources**

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

IUCLID (International Uniform Chemical Information Database)

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

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

Printing date 05.07.2018

Version number 11

Revision: 05.07.2018

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

- **1.1 Product identifier**
- **Product name:** Vario LR Silica Amino Acid F / F 10 ml
- **Catalog number:** 251411
- **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:**  
Xylem Analytics Germany GmbH  
WTW  
Dr.-Karl-Slevogt-Straße 1  
82362 Weilheim  
Germany  
Tel. +49 881 183-0
- **Informing department:** E-Mail: Info.WTW@Xyleminc.com
- **1.4 Emergency telephone number:** Chemtrec (USA & Canada) 800-424-9300 (INTERNATIONAL) 001 703-527-3887

### SECTION 2: Hazards identification

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



GHS08 health hazard

STOT RE 2      H373 May cause damage to organs through prolonged or repeated exposure.



GHS05 corrosion

Eye Dam. 1      H318 Causes serious eye damage.



GHS09 environment

Aquatic Acute 1      H400 Very toxic to aquatic life.

Aquatic Chronic 1      H410 Very toxic to aquatic life with long lasting effects.



GHS07

Acute Tox. 4      H302 Harmful if swallowed.

Skin Sens. 1      H317 May cause an allergic skin reaction.

- **2.2 Label elements**

- **Labelling according to Regulation (EC) No 1272/2008** The product is classified and labelled according to the CLP regulation.

(Contd. on page 2)

GB



# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 11

Revision: 05.07.2018

**Product name: Vario LR Silica Amino Acid F / F 10 ml**

(Contd. of page 1)

**Hazard pictograms**

GHS05 GHS07 GHS08 GHS09

**Signal word** Danger**Hazard-determining components of labelling:**

disodium disulphite  
bis(4-hydroxy-N-methylanilinium) sulphate

**Hazard statements**

H302 Harmful if swallowed.  
H318 Causes serious eye damage.  
H317 May cause an allergic skin reaction.  
H373 May cause damage to organs through prolonged or repeated exposure.  
H410 Very toxic to aquatic life with long lasting effects.

**Precautionary statements**

P260 Do not breathe dust.  
P280 Wear protective gloves/protective clothing/eye protection.  
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.  
P302+P352 IF ON SKIN: Wash with plenty of water.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310 Immediately call a doctor.

**Additional information:**

EUH031 Contact with acids liberates toxic gas.

**2.3 Other hazards** No further relevant information available.**Results of PBT and vPvB assessment**

This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.

## SECTION 3: Composition/information on ingredients

**3.2 Mixtures****Description:** Mixture of organic and inorganic compounds**Dangerous components:**

CAS: 7681-57-4 EINECS: 231-673-0 Index No: 016-063-00-2 Reg.nr.: 01-2119531326-45-XXXX	disodium disulphite ☠ Eye Dam. 1, H318; ⚠ Acute Tox. 4, H302	60-70%
CAS: 55-55-0 EINECS: 200-237-1 Index No: 650-031-00-4	bis(4-hydroxy-N-methylanilinium) sulphate ☠ STOT RE 2, H373; ⚠ Aquatic Acute 1, H400 (M=10); Aquatic Chronic 1, H410 (M=1); ⚠ Acute Tox. 4, H302; Skin Sens. 1, H317	25-35%
CAS: 7758-98-7 EINECS: 231-847-6 Index No: 029-004-00-0	copper sulphate ⚠ Aquatic Acute 1, H400 (M=10); Aquatic Chronic 1, H410 (M=10); ⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2, H319	0.1-1.0%

**Additional information** For the wording of the listed hazard phrases refer to section 16.

## 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 rinse with water.

If skin irritation or rash occurs: Get medical advice/attention.

**After eye contact**

Rinse opened eye for several minutes (at least 15 min) under running water.

Call a doctor immediately.

(Contd. on page 3)

GB

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 11

Revision: 05.07.2018

**Product name: Vario LR Silica Amino Acid F / F 10 ml**

(Contd. of page 2)

- **After swallowing**  
Rinse out mouth and then drink 1-2 glasses of water.  
Seek medical treatment.
- **4.2 Most important symptoms and effects, both acute and delayed:**  
burns  
allergic reactions  
after inhalation:  
irritations  
coughing  
breathing difficulty  
after swallowing:  
absorption  
gastric or intestinal trouble  
mucous membrane irritation  
after swallowing of large amounts:  
sickness  
vomiting  
cardiovascular disorders  
cyanosis  
methaemoglobinaemia  
cramps
- **Information for doctor** Sulphites are strong sensitizers.
- **Danger** risk of skin sensitization
- **4.3 Indication of any immediate medical attention and special treatment needed:**  
Symptoms of poisoning may even occur after several hours.

## SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
- **5.2 Special hazards arising from the substance or mixture**  
The product is not combustible.  
Formation of toxic gases is possible during heating or in case of fire.  
Sulphur oxides (SO<sub>x</sub>)  
Nitrogen oxides (NO<sub>x</sub>)  
Sodium oxide  
Carbon monoxide (CO) and carbon dioxide (CO<sub>2</sub>)
- **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.  
Ambient fire may liberate hazardous vapours.

## 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
- **Advice for emergency responders:**  
Put on breathing apparatus.  
Protective equipment: see section 8
- **6.2 Environmental precautions:**  
Do not allow product to reach sewage system or water bodies.  
Inform respective authorities in case product reaches water or sewage system.
- **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.

(Contd. on page 4)

— GB —

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 11

Revision: 05.07.2018

**Product name: Vario LR Silica Amino Acid F / F 10 ml**

(Contd. of page 3)

### 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:

Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of dust.

#### Hygiene measures:

Do not inhale dust / smoke / mist.  
Avoid contact with the skin.  
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

#### Storage

**Requirements to be met by storerooms and containers:** Store in cool location.

#### Information about storage in one common storage facility:

Do not store together with acids.  
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:**

#### CAS: 7681-57-4 disodium disulphite

WEL (Great Britain) Long-term value: 5 mg/m<sup>3</sup>

#### CAS: 7758-98-7 copper sulphate

OEL (Sweden) Long-term value: 1\* 0.2\*\* mg/m<sup>3</sup>  
som Cu; \*totaldamm \*\*respirabelt damm

### Regulatory information

WEL (Great Britain): EH40/2011  
OEL (Sweden): AFS2011:18

### DNELs

Derived No Effect Level (DNEL)

#### CAS: 7681-57-4 disodium disulphite

Inhalative	DNEL	10 mg/m <sup>3</sup> (Worker / long-term /systemic effects) (MERCK)
------------	------	--

### 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.

### PNECs

Predicted No Effect Concentration (PNEC)

#### CAS: 7681-57-4 disodium disulphite

PNEC	75.4 mg/l (Sewage treatment plant) 0.1 mg/l (Marine water) 1 mg/l (Fresh water)
------	---

(Contd. on page 5)

GB

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 11

Revision: 05.07.2018

**Product name: Vario LR Silica Amino Acid F / F 10 ml**

(Contd. of page 4)

- **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.  
See item 7.
- **Personal protective equipment**
- **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
- **Recommended filter device for short term use:** Filter P2
- **Protection of hands:**  
Protective gloves.  
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.
- **Eye protection:** Tightly sealed safety glasses.
- **Body protection:** Protective work clothing.
- **Limitation and supervision of exposure into the environment:**  
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

##### · **Appearance:**

<b>Form / Physical state:</b>	Powder
<b>Colour:</b>	White

<b>· Odour:</b>	Odourless
-----------------	-----------

<b>· Odour threshold:</b>	Not applicable
---------------------------	----------------

<b>· pH-value (4 g/l) at 20°C:</b>	5.3
------------------------------------	-----

<b>· Melting point/Freezing point:</b>	Not determined
--	----------------

<b>· Initial boiling point and boiling range:</b>	Not determined
---	----------------

<b>· Flash point:</b>	Not applicable
-----------------------	----------------

<b>· Flammability (solid, gas):</b>	The product is not combustible.
-------------------------------------	---------------------------------

<b>· Ignition temperature:</b>	Not applicable
--------------------------------	----------------

<b>· Decomposition temperature:</b>	> 150°C (CAS 7681-57-4) Not determined.
-------------------------------------	--

<b>· Auto-ignition temperature:</b>	Product is not self-igniting.
-------------------------------------	-------------------------------

<b>· Explosive properties:</b>	Product is not explosive.
--------------------------------	---------------------------

##### · **Flammability or explosive limits:**

<b>Lower:</b>	Not applicable
<b>Upper:</b>	Not applicable

<b>· Oxidising properties:</b>	none
--------------------------------	------

<b>· Vapour pressure:</b>	Not applicable.
---------------------------	-----------------

<b>· Density at 20°C:</b>	1.26 g/cm <sup>3</sup>
---------------------------	------------------------

<b>· Relative density:</b>	Not determined.
----------------------------	-----------------

<b>· Vapour density:</b>	Not applicable.
--------------------------	-----------------

<b>· Evaporation rate:</b>	Not applicable.
----------------------------	-----------------

##### · **Solubility(ies):**

<b>Water:</b>	Soluble
---------------	---------

<b>· Partition coefficient: n-octanol/water:</b>	Not applicable.
--	-----------------

(Contd. on page 6)

— GB —

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 11

Revision: 05.07.2018

**Product name: Vario LR Silica Amino Acid F / F 10 ml**

(Contd. of page 5)

· <b>Viscosity:</b>	Not applicable.
· <b>Solvent content:</b>	
<b>Organic solvents:</b>	0.0 %
<b>Solids content:</b>	100.0 %
· <b>9.2 Other information</b>	No further relevant information available.

### SECTION 10: Stability and reactivity

- **10.1 Reactivity** see section 10.3
- **10.2 Chemical stability**  
Stable at ambient temperature (room temperature).  
sensitivity to light
- **10.3 Possibility of hazardous reactions**  
In contact with nitrites, nitrates or nitrous acid possible release of nitrosamines (carcinogenic)!  
Contact with acids releases toxic gases  
Reacts with acids releasing sulphur dioxide  
Reacts with oxidizing agents
- **10.4 Conditions to avoid** Strong heating (decomposition)
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:**  
Sulphur dioxide  
see section 5

### SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity**  
Classification according to calculation procedure:  
Harmful if swallowed.

#### · **Acute toxicity estimate (ATE<sub>(MIX)</sub>) - Calculation method:**

Oral	ATE <sub>(MIX)</sub>	594 mg/kg (.)
------	----------------------	---------------

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

##### **CAS: 7681-57-4 disodium disulphite**

Oral	LD50	1540 mg/kg (rat) (OECD 401) (MERCK)
Dermal	LD50.	> 2000 mg/kg (rat) (RTECS)

##### **CAS: 55-55-0 bis(4-hydroxy-N-methylanilinium) sulphate**

Oral	LD50	237 mg/kg (rat)
Dermal	LD50.	> 1000 mg/kg (rat)

##### **CAS: 7758-98-7 copper sulphate**

Oral	LD50	481 mg/kg (rat) (OECD 401) (Merck)
	LDLo	50 mg/kg (human)

- **Primary irritant effect:**
- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation**  
Causes serious eye damage.  
Risk of corneal clouding.

#### · **Information on components:**

##### **CAS: 7681-57-4 disodium disulphite**

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

- **Respiratory or skin sensitisation**  
May cause an allergic skin reaction.

(Contd. on page 7)

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 11

Revision: 05.07.2018

**Product name: Vario LR Silica Amino Acid F / F 10 ml**

(Contd. of page 6)

**Information on components:**

CAS 55-55-0: Sensitizing effect by inhalation and skin contact is possible by prolonged exposure.

**CAS: 7681-57-4 disodium disulphite**

Sensitisation OECD 406 (guinea pig: negative)

**CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)** The following statements refer to the mixture:

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

**STOT (specific target organ toxicity) -repeated exposure**

May cause damage to organs through prolonged or repeated exposure.

**Aspiration hazard** Based on available data, the classification criteria are not met.

**Information on components:**

CAS 7681-57-4: Did not show carcinogenic effects in animal experiments (IUCLID).

CAS 7681-57-4: No impairment of reproductive performance in animal experiments (IUCLID).

CAS 7681-57-4: Did not show teratogenic effects in animal experiments.

**CAS: 7681-57-4 disodium disulphite**

OECD 471 (negative) (Bacterial Reverse Mutation Test - Ames test)

## SECTION 12: Ecological information

**12.1 Toxicity**
**Aquatic toxicity:**
**CAS: 7681-57-4 disodium disulphite**
EC50 89 mg/l/48h (Daphnia magna) (OECD 202)  
(MERCK)IC50 48 mg/l/72h (Desmodesmus subspicatus) (OECD 201)  
(MERCK)LC50 150 - 220 mg/l/96h (rainbow trout) (DIN 38412 Teil 15)  
(Merck)
**CAS: 55-55-0 bis(4-hydroxy-N-methylanilinium) sulphate**
EC50 0.019 mg/l/96h (Daphnia magna)  
(Merck)
**CAS: 7758-98-7 copper sulphate**
EC50 0.02 mg/l/48h (Daphnia magna)  
(ECOTOX)LC50 0.11 mg/l/96h (rainbow trout)  
(ECOTOX)
**Bacterial toxicity:**

sulphates toxic &gt; 2.5 g/l

**CAS: 7681-57-4 disodium disulphite**
EC50 56 mg/l (Pseudomonas putida) (17h)  
(IUCLID)
**Other information:**

Toxic for fish:

sulphates &gt; 7 g/l

copper ions at concentration below 1 mg/l

**12.2 Persistence and degradability**

CAS 55-55-0: not easily biodegradable

**CAS: 55-55-0 bis(4-hydroxy-N-methylanilinium) sulphate**

OECD 301 D ~ 30% (.) (Closed Bottle Test)

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

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

**12.5 Results of PBT and vPvB assessment**

This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.

**12.6 Other adverse effects** Avoid transfer into the environment.

(Contd. on page 8)

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 11

Revision: 05.07.2018

**Product name: Vario LR Silica Amino Acid F / F 10 ml**

(Contd. of page 7)

**Water hazard:**

Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.  
Danger to drinking water if even extremely small quantities leak into soil.

### 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 06\* laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals

**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**
**ADR, IMDG, IATA**

UN3077

**14.2 UN proper shipping name**
**ADR**

3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE,  
SOLID, N.O.S. (bis(4-hydroxy-N-methylanilinium) sulphate,  
copper sulphate)

**IMDG**

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,  
N.O.S. (bis(4-hydroxy-N-methylanilinium) sulphate, copper  
sulphate), MARINE POLLUTANT

**IATA**

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,  
N.O.S. (bis(4-hydroxy-N-methylanilinium) sulphate, copper  
sulphate)

**14.3 Transport hazard class(es)**
**ADR**

**Class**

9 (M7) Miscellaneous dangerous substances and articles.

**Label**

9

**IMDG, IATA**

**Class**

9 Miscellaneous dangerous substances and articles.

**Label**

9

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

III

**14.5 Environmental hazards:**
**Marine pollutant:**

Symbol (fish and tree)

**Special marking (ADR):**

Symbol (fish and tree)

**Special marking (IATA):**

Symbol (fish and tree)

**14.6 Special precautions for user**

Warning: Miscellaneous dangerous substances and articles.

**Kemler Number:**

90

**EMS Number:**

F-A,S-F

(Contd. on page 9)

— GB —



# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 11

Revision: 05.07.2018

**Product name: Vario LR Silica Amino Acid F / F 10 ml**

(Contd. of page 8)

· <b>Stowage Category</b>	A
· <b>Stowage Code</b>	SW23 When transported in BK3 bulk container, see 7.6.2.12 and 7.7.3.9.
· <b>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>ADR</b>	
· <b>Limited quantities (LQ)</b>	5 kg
· <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· <b>Transport category</b>	3
· <b>Tunnel restriction code</b>	E
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	5 kg
· <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g

## SECTION 15: Regulatory information

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

#### · Regulation (EC) No 1005/2009 on substances that deplete the ozone layer:

None of the ingredients is listed.

#### · Directive 2012/18/EU (SEVESO III):

· **Named dangerous substances - ANNEX I** None of the ingredients is listed.· **Seveso category** E1 Hazardous to the Aquatic Environment· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 100 t· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t

#### · Information about limitation of use:

Observe employment restrictions for pregnant and nursing mothers according to the 'mother protection guideline' (92/85/EEC).  
Employment restrictions concerning young persons must be observed.

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## \* 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.

#### · Relevant phrases

H302 Harmful if swallowed.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H373 May cause damage to organs through prolonged or repeated exposure.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

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

(Contd. on page 10)

— GB —



# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 11

Revision: 05.07.2018

---

**Product name: Vario LR Silica Amino Acid F / F 10 ml**


---

(Contd. of page 9)

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

ELINCS: European List of Notified Chemical Substances

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

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

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

Skin Sens. 1: Skin sensitisation – Category 1

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1

Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

### · Sources

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

ECOTOX Database

IUCLID (International Uniform Chemical Information Database)

RTECS (Registry of Toxic Effects of Chemical Substances )

· \* Data compared to the previous version altered.

---

GB

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 20

Revision: 05.07.2018

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

- **1.1 Product identifier**
- **Product name:** Vario Molybdate 3 Reagent Solution
- **Catalog number:** 531730
- **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:**  
 Xylem Analytics Germany GmbH  
 WTW  
 Dr.-Karl-Slevogt-Straße 1  
 82362 Weilheim  
 Germany  
 Tel. +49 881 183-0
- **Informing department:** E-Mail: Info.WTW@Xylem-inc.com
- **1.4 Emergency telephone number:** Chemtrec (USA & Canada) 800-424-9300 (INTERNATIONAL) 001 703-527-3887

### SECTION 2: Hazards identification

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



GHS05 corrosion

Met. Corr. 1 H290 May be corrosive to metals.  
 Skin Corr. 1A H314 Causes severe skin burns and eye damage.  
 Eye Dam. 1 H318 Causes serious eye damage.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008** The product is classified and labelled according to the CLP regulation.
- **Hazard pictograms**



GHS05

- **Signal word** Danger
- **Hazard-determining components of labelling:**  
 sulphuric acid 23 %
- **Hazard statements**  
 H290 May be corrosive to metals.  
 H314 Causes severe skin burns and eye damage.
- **Precautionary statements**  
 P260 Do not breathe mist/vapours/spray.  
 P280 Wear protective gloves/protective clothing/eye protection.  
 P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
 P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.  
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P310 Immediately call a POISON CENTER/doctor.
- **2.3 Other hazards** No further relevant information available.

(Contd. on page 2)

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 20

Revision: 05.07.2018

**Product name: Vario Molybdate 3 Reagent Solution**

(Contd. of page 1)

**Results of PBT and vPvB assessment**


This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.

### SECTION 3: Composition/information on ingredients

**3.2 Mixtures**

**Description:** Mixture of inorganic compounds.

**Dangerous components:**

CAS: 7664-93-9 EINECS: 231-639-5 Index No: 016-020-00-8 Reg.nr.: 01-2119458838-20-XXXX	sulphuric acid	 Met. Corr.1, H290; Skin Corr. 1A, H314	20-30%
---	----------------	--	--------

**Additional information** For the wording of the listed hazard phrases refer to section 16.

### 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 or oxygen.

In case of unconsciousness bring patient into stable side position for transport.

Call a doctor immediately.

**After skin contact**

Wash with polyethylene glycol 400 and then rinse with copious amounts of water.

Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.

**After eye contact**

Rinse opened eye for several minutes (at least 15 min) under running water.

Call a doctor immediately.

**After swallowing**

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

Do not induce vomiting; instantly call for medical help.

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

strong caustic effect.

after inhalation:

damage to the affected mucous membranes

breathing difficulty

after swallowing:

sickness

vomiting

diarrhoea

pain

**Danger** Danger of gastric perforation.

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

If swallowed or in case of vomiting, danger of entering the lungs

Subsequent observation for pneumonia and pulmonary oedema

### SECTION 5: Firefighting measures

**5.1 Extinguishing media**

**Suitable extinguishing agents** CO<sub>2</sub>, sand, extinguishing powder.

**For safety reasons unsuitable extinguishing agents** Water.

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

The product is not combustible.

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

Can be released in case of fire:

Sulphur oxides (SO<sub>x</sub>)

**5.3 Advice for firefighters****Protective equipment:**

Wear self-contained breathing apparatus.

Wear full protective suit.

(Contd. on page 3)

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 20

Revision: 05.07.2018

**Product name: Vario Molybdate 3 Reagent Solution**

(Contd. of page 2)

**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.  
 Ambient fire may liberate hazardous vapours.

### 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.  
 Avoid substance contact.  
 Do not breathe vapors/spray.  
 Ensure adequate ventilation

**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.  
 Neutralize with diluted sodium hydroxide solution.  
 Absorb with liquid-binding material (sand, diatomite, universal binders).  
 Dispose of contaminated material as waste according to item 13.

**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 information on disposal.

### SECTION 7: Handling and storage

**7.1 Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.  
 Prevent formation of aerosols.

**Advice on safe handling:**

Open and handle container with care.  
 Ensure good ventilation/exhaustion at the workplace.  
 Prevent formation of aerosols.

**Hygiene measures:**

Do not inhale gases / fumes / aerosols.  
 Do not get in eyes, on skin, or on clothing.  
 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**
**Storage**
**Requirements to be met by storerooms and containers:** Store in cool location.

**Information about storage in one common storage facility:**

Store away from metals.  
 Do not store together with alkalis (caustic solutions).  
 Store away from flammable substances.

**Further information about storage conditions:**

Store in cool, dry conditions in well sealed containers.  
 Protect from heat and direct sunlight.  
 Protect from the effects of light.  
 Protect from humidity and keep away from water.  
 This product is hygroscopic.  
 Store under dry conditions.

**Recommended storage temperature:** 20°C +/- 5°C

**7.3 Specific end use(s)** No further relevant information available.

 GB  
 (Contd. on page 4)

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 20

Revision: 05.07.2018

**Product name: Vario Molybdate 3 Reagent Solution**

(Contd. of page 3)

### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

##### Components with limit values that require monitoring at the workplace:

##### CAS: 7664-93-9 sulphuric acid (20-30%)

WEL (Great Britain)	Long-term value: 0.05* mg/m <sup>3</sup> *mist: is defined as fraction
IOELV (European Union)	Long-term value: 0.05 mg/m <sup>3</sup>
OEL (Sweden)	Short-term value: 0.2 mg/m <sup>3</sup> Long-term value: 0.1 mg/m <sup>3</sup> C

Additional information: IOELV = Indicative Occupational Exposure Limit

#### DNELs

Derived No Effect Level (DNEL)

##### CAS: 7664-93-9 sulphuric acid

Inhalative	DNEL	0.1 mg/m <sup>3</sup> (Worker / acute / local effects)
		0.05 mg/m <sup>3</sup> (Worker / acute / systemic effects)

#### 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.

#### PNECs

Predicted No Effect Concentration (PNEC)

##### CAS: 7664-93-9 sulphuric acid

PNEC	8.8 mg/l (Sewage treatment plant)
	0.00025 mg/l (Marine water)
	0.0025 mg/l (Fresh water)
PNEC	0.002 mg/kg (Marine sediment)
	0.002 mg/kg (Fresh water sediment)

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. See item 7.

##### Personal protective equipment

**Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.

**Recommended filter device for short term use:** Filter P2

##### Protection of hands:

Acid resistant gloves

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:  $\geq 0.7$  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:** Tightly sealed safety glasses.

**Body protection:** Acid resistant protective clothing

**Limitation and supervision of exposure into the environment:** No further relevant information available.

### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

##### Appearance:

Form / Physical state: Fluid

(Contd. on page 5)

GB

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 20

Revision: 05.07.2018

**Product name: Vario Molybdate 3 Reagent Solution**

(Contd. of page 4)

<b>Colour:</b>	Colourless
· <b>Odour:</b>	Odourless
· <b>Odour threshold:</b>	Not applicable
· <b>pH-value at 20°C:</b>	1.2 Strongly acidic
· <b>Melting point/Freezing point:</b>	Not determined
· <b>Initial boiling point and boiling range:</b>	Not determined
· <b>Flash point:</b>	Not applicable
· <b>Flammability (solid, gas):</b>	Not applicable.
· <b>Ignition temperature:</b>	Not determined.
· <b>Decomposition temperature:</b>	Not determined.
· <b>Auto-ignition temperature:</b>	Product is not self-igniting.
· <b>Explosive properties:</b>	Product is not explosive.
· <b>Flammability or explosive limits:</b>	
Lower:	Not applicable
Upper:	Not applicable
· <b>Oxidising properties:</b>	none
· <b>Vapour pressure:</b>	Not determined.
· <b>Density at 20°C:</b>	1.23 g/cm <sup>3</sup>
· <b>Relative density:</b>	Not determined.
· <b>Vapour density:</b>	Not determined.
· <b>Evaporation rate:</b>	Not determined.
· <b>Solubility(ies):</b>	
Water:	Fully miscible
· <b>Partition coefficient: n-octanol/water:</b>	Not determined.
· <b>Viscosity:</b>	Not determined.
· <b>dynamic:</b>	Not determined.
· <b>kinematic:</b>	Not determined.
· <b>Solvent content:</b>	
Organic solvents:	0.0 %
Water:	> 70 %
Solids content:	< 12 %
· <b>9.2 Other information</b>	No further relevant information available.

## SECTION 10: Stability and reactivity

- **10.1 Reactivity** see section 10.3
- **10.2 Chemical stability** Stable at ambient temperature (room temperature).
- **10.3 Possibility of hazardous reactions**
  - Corrosive action on metals
  - Reacts with metals forming hydrogen (--> Explosive!)
  - When diluting, always add acid to water, never vice versa
  - Diluting or dissolving in water always causes rapid heating
  - Reacts with reducing agents
  - Reacts with acids and alkali (lyes).
  - Reacts with ammonia (NH<sub>3</sub>).
- **10.4 Conditions to avoid** strong heating
- **10.5 Incompatible materials:**
  - metals
  - halogen compounds
  - combustible substances
  - organic solvents
  - nitriles
  - peroxides
  - oxidizing agents

(Contd. on page 6)

GB

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 20

Revision: 05.07.2018

**Product name: Vario Molybdate 3 Reagent Solution**

(Contd. of page 5)

**10.6 Hazardous decomposition products:**

Sulphur oxides (SO<sub>x</sub>)  
 Hydrogen  
 (with water)  
 see section 5

## SECTION 11: Toxicological information

**11.1 Information on toxicological effects**

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

**LD/LC50 values that are relevant for classification:**
**CAS: 7664-93-9 sulphuric acid**

Oral	LD50	2140 mg/kg (rat) (IUCLID)
	LC 50	510 mg/m <sup>3</sup> /2h (rat) IUCLID

**Primary irritant effect:**
**Skin corrosion/irritation**

Causes severe skin burns and eye damage.

**Serious eye damage/irritation**

Causes serious eye damage.

Risk of blindness!

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

**CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**

CAS-No. 7664-93-9:

carcinogenic: Category 4

The following statements refer to the mixture:

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

**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.

**Additional toxicological information:**

In case of an acute molybdenum(VI) intoxication: diarrhoea, anaemia, fatigue, loss of appetite

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

The aerosol is corrosive to the eyes, the skin and the respiratory tract. Inhalation of aerosols may cause lung oedema.

Sulfuric acid: erosion of the teeth, cancer

**Experience with humans:** Mo(VI): Can cause liver, kidney damages.

## SECTION 12: Ecological information

**12.1 Toxicity**
**Aquatic toxicity:**
**CAS: 7664-93-9 sulphuric acid**

EC50	>100 mg/l/48h (Daphnia magna) (OECD 202) (ECHA)
LC50	16–29 mg/l/96h (bluegill) (Merck)

**Bacterial toxicity:** sulphates toxic > 2.5 g/l

**Other information:**

Toxic for fish:

sulphates > 7 g/l

molybdenum compounds in general: > 25 mg/l

**12.2 Persistence and degradability .**
**Other information:**

Mixture of inorganic compounds.

Methods for the determination of biodegradability are not applicable to inorganic substances.

(Contd. on page 7)

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 20

Revision: 05.07.2018

**Product name: Vario Molybdate 3 Reagent Solution**

(Contd. of page 6)

- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Remark:** neutralization possible
- **12.5 Results of PBT and vPvB assessment**  
This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.
- **12.6 Other adverse effects**  
Harmful effect due to pH shift.  
Forms corrosive mixtures with water even if diluted.  
Avoid transfer into the environment.
- **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**  
Hand over to disposers of hazardous waste.  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

<b>European waste catalogue</b>	
16 05 07*	discarded inorganic chemicals consisting of or containing dangerous substances

- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

### SECTION 14: Transport information

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>· <b>14.1 UN-Number</b></li> <li>· <b>ADR, IMDG, IATA</b></li> </ul>  | UN2796   |
| <ul style="list-style-type: none"> <li>· <b>14.2 UN proper shipping name</b></li> <li>· <b>ADR</b></li> <li>· <b>IMDG, IATA</b></li> </ul>   | 2796 SULPHURIC ACID, solution<br>SULPHURIC ACID solution |
| <ul style="list-style-type: none"> <li>· <b>14.3 Transport hazard class(es)</b></li> <li>· <b>ADR</b></li> </ul> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul> | 8 (C1) Corrosive substances.<br>8                        |
| <ul style="list-style-type: none"> <li>· <b>IMDG, IATA</b></li> </ul> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>  | 8 Corrosive substances.<br>8                             |
| <ul style="list-style-type: none"> <li>· <b>14.4 Packing group</b></li> <li>· <b>ADR, IMDG, IATA</b></li> </ul>  | II   |
| <ul style="list-style-type: none"> <li>· <b>14.5 Environmental hazards:</b></li> <li>· <b>Marine pollutant:</b></li> </ul>   | No   |
| <ul style="list-style-type: none"> <li>· <b>14.6 Special precautions for user</b></li> <li>· <b>Kemler Number:</b></li> <li>· <b>EMS Number:</b></li> </ul>  | Warning: Corrosive substances.<br>80<br>F-A,S-B          |

(Contd. on page 8)



# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 20

Revision: 05.07.2018

**Product name: Vario Molybdate 3 Reagent Solution**

(Contd. of page 7)

· Segregation groups	Acids
· Stowage Category	B
· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· Transport category	2
· Tunnel restriction code	E
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

### SECTION 15: Regulatory information

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

##### · Regulation (EC) No 1005/2009 on substances that deplete the ozone layer:

None of the ingredients is listed.

##### · REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3

· Information about limitation of use: Employment restrictions concerning young persons must be observed.

##### · 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

### \* 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.

#### · Relevant phrases

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

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

#### · Department issuing data specification sheet:

Technical Department

e-mail: technik@tintometer.de

#### · Abbreviations and acronyms:

EC50: effective concentration, 50 percent (in vivo)

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 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

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified 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 &amp; Health

Met. Corr.1: Corrosive to metals – Category 1

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

(Contd. on page 9)

GB

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 05.07.2018

Version number 20

Revision: 05.07.2018

---

**Product name: Vario Molybdate 3 Reagent Solution**

---

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

(Contd. of page 8)

**· Sources**

Data arise from safety data sheets, reference works and literature.  
International Chemical Safety Cards (ICSCs)  
GESTIS- Stoffdatenbank (Substance Database, Germany)

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

---

GB

---