

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

Printing date 18.07.2018

Version number 34

Revision: 12.07.2018

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

1.1 Product identifier

Product name: Vario Sulfa 4 F10,F25 ml

Catalog number: 00532159, 00532169, 532150, 532153, 532160, 532162

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: +49 231 94510-0
e-mail: sales@tintometer.de

Tintometer GmbH
Division AQUALYTIC®
Schleefstr. 12
44287 Dortmund
Made in Germany
www.aqualytic.de

phone: +49 231 94510-755
e-mail: sales@aqualytic.de

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

phone : +44 1980 664800
e-mail: SDS@tintometer.com

Informing department:

e-mail: sds@tintometer.de
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



GHS06 skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.



GHS07

Acute Tox. 4 H332 Harmful if inhaled.

Eye Irrit. 2 H319 Causes serious eye irritation.

2.2 Label elements

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

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Product name: Vario Sulfa 4 F10,F25 ml

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Hazard pictograms


GHS06

Signal word Danger

Hazard-determining components of labelling:

barium chloride dihydrate

Hazard statements

H301 Toxic if swallowed.

H332 Harmful if inhaled.

H319 Causes serious eye irritation.

Precautionary statements

P261 Avoid breathing dust.

P280 Wear protective gloves/protective clothing/eye protection.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

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: 77-92-9 EINECS: 201-069-1	citric acid	⚠ Eye Irrit. 2, H319	50-60%
CAS: 10326-27-9 EINECS: 233-788-1 Index No: 056-004-00-8	barium chloride dihydrate	⚠ Acute Tox. 3, H301; ⚠ Acute Tox. 4, H332	40-50%

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; call for doctor.

After skin contact Instantly rinse with water.

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.

Call a doctor immediately.

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

irritations

absorption

after inhalation:

mucous membrane irritation

coughing

breathing difficulty

after swallowing:

sickness

vomiting

diarrhoea

pain

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dizziness

CNS disorders

after absorption:

respiratory paralysis

· Danger

Danger of system failure.

Danger of disturbed cardiac rhythm.

· 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 Use fire fighting measures that suit the environment.

· 5.2 Special hazards arising from the substance or mixture

Substance/product is auto-extinguishing, but can burn when combined with flammable material.

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

Hydrogen chloride (HCl)

Carbon monoxide (CO) and carbon dioxide (CO₂)
· 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

Use breathing protection against the effects of fumes/dust/aerosol.

· 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:

Open and handle container with care.

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of dust.

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

· Information about storage in one common storage facility: Not required.

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- **Further information about storage conditions:**
Store in a locked cabinet or with access restricted to technical experts or their assistants.
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: 10326-27-9 barium chloride dihydrate

WEL (Great Britain)	Long-term value: 0.5 mg/m ³ as Ba
IOELV (European Union)	Long-term value: 0.5 mg/m ³ as Ba
OEL (Sweden)	Long-term value: 0.5 mg/m ³ som Ba, totaldamm

- **Regulatory information**

WEL (Great Britain): EH40/2011
 IOELV (European Union): 91/322/EEC, 2000/39/EC, 2006/15/EC
 OEL (Sweden): AFS2011:18

- **Additional information:** IOELV = Indicative Occupational Exposure Limit

- **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 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: ≥ 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.

- **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

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· Odour threshold:	Not applicable
· pH-value (12 g/l) at 20°C:	2.3
· Melting point/Freezing point:	Not determined
· Initial boiling point and boiling range:	Not determined
· Flash point:	Not applicable
· Flammability (solid, gas):	The product is not combustible.
· Ignition temperature:	Not applicable
· Decomposition temperature:	> 100°C (CAS 20326-27-9)
· Auto-ignition temperature:	Product is not self-igniting.
· Explosive properties:	Product is not explosive.
· Flammability or explosive limits:	
Lower:	Not applicable
Upper:	Not applicable
· Oxidising properties:	none
· Vapour pressure:	Not applicable.
· Density at 20°C:	2.65 g/cm ³
· Relative density:	Not determined.
· Vapour density:	Not applicable.
· Evaporation rate:	Not applicable.
· Solubility(ies):	
Water:	Soluble
· Partition coefficient: n-octanol/water:	Not applicable.
· Viscosity:	Not applicable.
· Solvent content:	
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** see section 10.3
- **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.
 - Reacts with various metals
 - Citric acid: incompatible with bases, strong oxidizers, amines. Contact with metal nitrates may be explosive. Attacks aluminum, copper, zinc und their alloys, when wet.
 - Reacts with reducing agents
 - Reacts with acids
 - Reacts with strong oxidizing agents
 - furan-2-percarbonic acid
 - > Explosive
- **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:**
 - Chlorine compounds
 - see section 5

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Classification according to calculation procedure:

Toxic if swallowed.

Harmful if inhaled.

Acute toxicity estimate (ATE_(MIX)) - Calculation method:

Oral	CLP ATE _(MIX)	222 mg/kg (.)
Inhalative	CLP ATE _(MIX)	3.3 mg/l/4h (dust)

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)

CAS: 10326-27-9 barium chloride dihydrate

Oral	LD50	100 mg/kg (ATE) (for calculation) 118 mg/kg (rat) (anhydrous - IUCLID)
Inhalative	LC50	1.5 mg/l/4h (ATE)

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:

CAS 10326-27-9: chronic: dermatitis

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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• **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** 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 citric acid

OECD 471	(negative) (Bacterial Reverse Mutation Test - Ames test)
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Additional toxicological information:

CAS 10326-27-9: Absorption through gastro-intestinal tract, mucous membranes

Other dangerous properties can not be excluded.

• **Experience with humans:** CAS 10326-27-9: Can cause kidney damages.

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* 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)

CAS: 10326-27-9 barium chloride dihydrate

LC50	870 mg/l/48h (gold orfe) IUCLID
EC50	21.9 mg/l/48h (Daphnia magna) (IUCLID)

· Bacterial toxicity:

CAS: 77-92-9 citric acid

EC5	>10000 mg/l (Pseudomonas putida) (16h (Lit.))
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· Other information:

Toxic for fish:
Ba > 158 mg/l

· 12.2 Persistence and degradability

The organic portion of the product is biodegradable.

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)

· 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)
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CAS: 10326-27-9 barium chloride dihydrate

log Pow	0.85 (.)
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· 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

Harmful effect due to pH shift.
Reacts with water to harmful mixtures.
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 06*	laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals
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· Uncleaned packagings:

· Recommendation: Disposal must be made according to official regulations.

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

SECTION 14: Transport information

· 14.1 UN-Number · ADR, IMDG, IATA	UN1564
· 14.2 UN proper shipping name · ADR · IMDG, IATA	1564 BARIUM COMPOUND, N.O.S. (barium chloride dihydrate) BARIUM COMPOUND, N.O.S. (barium chloride dihydrate)
· 14.3 Transport hazard class(es) · ADR	
	
· Class · Label	6.1 (T5) Toxic substances. 6.1
· IMDG, IATA	
	
· Class · Label	6.1 Toxic substances. 6.1
· 14.4 Packing group · ADR, IMDG, IATA	III
· 14.5 Environmental hazards:	Not applicable.
· 14.6 Special precautions for user · Kemler Number: · EMS Number: · Stowage Category	Warning: Toxic substances. 60 F-A,S-A A
· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR · Limited quantities (LQ) · Excepted quantities (EQ)	5 kg Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· Transport category · Tunnel restriction code	2 E
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5 kg 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.

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- **Directive 2012/18/EU (SEVESO III):**
- **Named dangerous substances - ANNEX I** None of the ingredients is listed.

Regulation (EU) No 649/2012

None of the ingredients is 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.

- **Relevant phrases**

H301 Toxic if swallowed.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.

- **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
 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
 PBT: Persistent, Bioaccumulative and Toxic
 vPvB: very Persistent and very Bioaccumulative
 Acute Tox. 3: Acute toxicity – Category 3
 Acute Tox. 4: Acute toxicity – Category 4
 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)