

Safety Data Sheet according to 1907/2006/EC, Article 31

Printing date 05.01.2010 (DD.MM.YYYY)

Revision: 05.01.2010

1 Identification of substance:

- **Product name:** Vario Sulfa 4 F10, 25 ml
- **Catalog number:** 251423Y
- **Application of the substance / the preparation:** Reagent for water analysis
- **Supplier:**
YSI
1725 Brannum Lane
Yellow Springs, OH 45387
USA
tel: +1 937-767-7241
- **Informing department:**
MSDSinfo@ysi.com
- **Emergency information:**
Chemtrec toll free (USA and Canada): (800) 424-9300
Chemtrec International Telephone Number: 001 703-527-3887 (Collect Calls Accepted)

2 Hazards identification

- **Hazard designation:**



T Toxic

- **Information pertaining to particular dangers for man and environment**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" (1999/45/EC) in the latest valid version.

R 20 Harmful by inhalation.

R 25 Toxic if swallowed.

R 36 Irritating to eyes.



- **Classification system**

The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

3 Composition/information on ingredients

- **Description:** Mixture contains anorganic and organic compounds.

- **Dangerous components:**

CAS: 77-92-9 EINECS: 201-069-1	citric acid	 Xi; R 36	50-60%
CAS: 10326-27-9 EINECS: 233-788-1 Index number: 056-004-00-8	barium chloride dihydrate	 T; R 20-25	40-45%

- **REACH - Pre-registered substances** All components are REACH pre-registered.

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

4 First aid measures

· **General information**

Instantly remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation** Supply fresh air or oxygen; call for doctor.

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

· **After eye contact**

Rinse opened eye for several minutes (at least 10 min) under running water.

Seek immediate medical advice.

· **After swallowing**

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

Induce vomiting.

· **The following symptoms may occur:**

after inhalation:

breathing difficulty

coughing

mucous membrane irritation

absorption

after swallowing:

dizziness

sickness

vomiting

diarrhoea

headache

· **Danger**

Danger of system failure.

Danger of disturbed cardiac rhythm.

5 Fire fighting measures

· **Suitable extinguishing agents**

Water

Foam

Fire-extinguishing powder

· **Special hazards caused by the material, its products of combustion or resulting gases:**

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

carbon monoxide and carbon dioxide

Hydrogen chloride (HCl)

· **Protective equipment:**

Wear full protective suit.

Wear self-contained breathing apparatus.

· **Additional information**

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

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

Ambient fire may liberate hazardous vapours.

6 Accidental release measures

· **Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

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- Avoid causing dust.
- **Measures for environmental protection:** Do not allow product to reach sewage system or water bodies.
- **Measures for cleaning/collecting:**
 - Dispose of contaminated material as waste according to item 13.
 - Ensure adequate ventilation.
 - Collect mechanically.

7 Handling and storage

- **Handling**
- **Information for safe handling:**
 - Thorough dedusting.
 - Open and handle container with care.
- **Information about protection against explosions and fires:** The product is not flammable
- **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.
- **Further information about storage conditions:**
 - Keep container tightly sealed.
 - Protect from heat and direct sunlight.
 - Store under dry conditions.
 - Protect from humidity and keep away from water.
 - Protect from the effects of light.
- **Recommended storage temperature:** 20°C +/- 5°C

* 8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

- **Components with limit values that require monitoring at the workplace:**

10326-27-9 barium chloride dihydrate (40-45%)

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
PEL (US)	8 Hour TWA: 0.5 mg/m ³ as Ba

- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**
 - Keep away from foodstuffs, beverages and food.
 - Take off immediately all contaminated clothing
 - Wash hands during breaks and at the end of the work.
 - Avoid contact with the eyes and skin.
- **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
- **Recommended filter device for short term use:** Filter P3
- **Protection of hands:** 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:** Tightly sealed safety glasses.

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- **Body protection:** Protective work clothing.

9 Physical and chemical properties:

· Form:	Powder
· Colour:	White
· Odour:	Odourless
· Melting point/Melting range:	Not determined
· Boiling point/Boiling range:	345°C
· Flash point:	Not applicable
· Danger of explosion:	Product is not explosive.
· Density at 20°C	2.6 g/cm ³
· Solubility in / Miscibility with Water:	Soluble
· pH-value (12.2 g/l) at 20°C:	2.3
· Solvent content:	
Organic solvents:	0.0 %
· Solids content:	100.0 %

* 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** To avoid thermal decomposition do not overheat.
- **Materials to be avoided:**
 - alkalis
 - acids
 - metals
 - halogen compounds
 - nitrates
 - reducing agents
 - furan-2-percarbonic acid
 - oxidizing agents
- **Dangerous reactions**
 - The product is not capable of dust explosion in the form supplied; enrichment with fine dust causes risk of dust explosion
 - Reacts with certain metals
 - Risk of dust explosion if enriched with fine dust in presence of air
 - Aqueous solution reacts acidic.
- **Dangerous products of decomposition:** see chapter 5

11 Toxicological information

- **Acute toxicity:** Quantitative data on the toxicity of the preparation are not available.

- **LD/LC50 values that are relevant for classification:**

77-92-9 citric acid		
Oral	LD50	3000 mg/kg (rat) (IUCLID)

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10326-27-9 barium chloride dihydrate		
Oral	LD50	118 mg/kg (rat) anhydrous subst. - IUCLID

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritant effect.
- **Sensitization:** No sensitizing effect known.

- **Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:

Toxic

Irritant

chronic: dermatitis

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

CAS-No. 7647-14-5:

CAS-No. 139-05-9:

Bacterial mutagenicity: Ames test - negative (IUCLID)

CAS-No. 10326-27-9:

Mutagenicity (mammal cell test): negative (in vitro, IUCLID)

12 Ecological information:

- **Information about elimination (persistence and degradability):**

- **Other information:**

Quantitative data on the ecological effect of this product are not available.

The following statements refer to the individual components.

CAS: 77-92-9 Citric acid: 98% / 2 d

- **Behaviour in environmental systems:**

77-92-9 citric acid	
log P(o/w)	-1.72 (20°C) (.) (IUCLID)
10326-27-9 barium chloride dihydrate	
log P(o/w)	0.85 (.)

- **Ecotoxicological effects:**

- **Aquatic toxicity:**

77-92-9 citric acid	
EC50	~ 120 /72h/ mg/l (Daphnia magna) (IUCLID)
LC50	440-760 mg/l/96h (Leuciscus idus) (IUCLID)
10326-27-9 barium chloride dihydrate	
EC50	21.9 mg/l/48h (Daphnia magna) IUCLID
LC50	870 mg/l/48h (Leuciscus idus) IUCLID

- **Remark:**

Reacts with water to form toxic decomposition products.

Toxic for fish:

Ba > 158 mg/l

- **Algae toxicity:**

Ba: Sc. quadricauda > 34 mg/l

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Toxic for aquatic organisms

· Protozoa:	
77-92-9 citric acid	
EC5	485 mg/l/72h (Protozoa) (MERCK)

· Additional ecological information:

· COD-value:	
77-92-9 citric acid	
COD	0.728 g/g (.)
· BSB5-value:	
77-92-9 citric acid	
BSB5	0.526 g/g (.)

· General notes:

Water hazard class 1 (German Regulation) (Self-assessment acc. VwVwS Annex 4): slightly hazardous for water.

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 unneutralized.

Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

· PBT assessments: no data available

· vPvB assessments: no data available

13 Disposal considerations

· Product:

· 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 dangerous substances, including mixtures of laboratory chemicals

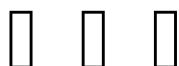
· Uncleaned packagings:

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

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

* 14 Transport information

· Land transport ADR/RID (cross-border)



· ADR/RID-GGVS/E Class: 6.1 (T5) Toxic substances.

· Kemler Number: 60



· UN-Number: 1564

· Packaging group: III

· Label 6.1

· Designation of goods: 1564 BARIUM COMPOUND, N.O.S. (barium chloride dihydrate)

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· Limited quantities (LQ) LQ9	
· Maritime transport IMDG:	
	
· IMDG Class:	6.1
· UN Number:	1564
· Label	6.1
· Packaging group:	III
· EMS Number:	F-A,S-A
· Marine pollutant:	No
· Correct technical name:	BARIUM COMPOUND, N.O.S.
· Air transport ICAO-TI and IATA-DGR:	
	
· ICAO/IATA Class:	6.1
· UN/ID Number:	1564
· Label	6.1
· Packaging group:	III
· Correct technical name:	BARIUM COMPOUND, N.O.S.

15 Regulatory information

- **Designation according to EC guidelines:**
The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)
- **Code letter and hazard designation of product:**
T Toxic
- **Hazard-determining components of labelling:**
barium chloride dihydrate
- **Risk phrases:**
20 Harmful by inhalation.
25 Toxic if swallowed.
36 Irritating to eyes.
- **Safety phrases:**
9 Keep container in a well-ventilated place.
20 When using do not eat or drink.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
36 Wear suitable protective clothing.
45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
60 This material and its container must be disposed of as hazardous waste.
- **National regulations**
- **Information about limitation of use:**
Employment restrictions concerning young persons must be observed.
Observe employment restrictions for pregnant and nursing mothers according to the 'mother protection guideline' (92/85/EEC).

* 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 R-phrases**

20 Harmful by inhalation.

25 Toxic if swallowed.

36 Irritating to eyes.

· **Recommended restriction of use:** professional/industrial use only

· **Sources**

International Chemical Safety Cards (ICSCs)

GESTIS-Stoffdatenbank

Data arise from reference works and literature.

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

