

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

Printing date 02/24/2022

Reviewed on 02/24/2022

1 Identification

- **Product identifier**
- **Trade name: Vario Sulfide Reagent 2**
- **Catalogue number:** 424187, 531320
- **Application of the substance / the mixture:** Reagent for water analysis
- **Manufacturer/Supplier:**
Tintometer Inc.
6456 Parkland Drive
Sarasota, FL 34243
USA
phone: (941) 756-6410
fax: (941) 727-9654
www.lovibond.us
Made in Germany
- **Emergency telephone number:** + 1 866 928 0789 (English, French, Spanish)

2 Hazard(s) identification

- **Classification of the substance or mixture** The product is not classified as hazardous.
- **Label elements**
- **GHS label elements** none
- **Hazard pictograms** none
- **Signal word** none
- **Hazard statements** none
- **Other hazards** No further relevant information available.

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** aqueous solution
- **Composition and Information on Ingredients:**
The percent content of the chromium compound mentioned below refers to the amount of the chromate ions dissolved in water. Percent ranges are used due to the confidential product information.

CAS: 7778-50-9 EINECS: 231-906-6 Index number: 024-002-00-6 RTECS: HX 7680000	potassium dichromate ⚠ Ox. Sol. 2, H272; ⚠ Acute Tox. 3, H301; Acute Tox. 2, H330; ⚠ Resp. Sens. 1, H334; Muta. 1B, H340; Carc. 1B, H350; Repr. 1B, H360FD; STOT RE 1, H372; ⚠ Skin Corr. 1B, H314; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Acute Tox. 4, H312; Skin Sens. 1, H317	0.05–<0.1%
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- **Additional information:** For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** Supply fresh air.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes (at least 15 min) under running water. If symptoms persist, consult a doctor.
- **After swallowing:**
Rinse out mouth and then drink 1-2 glasses of water.
If symptoms persist consult doctor.
- **Most important symptoms and effects, both acute and delayed**
resorption

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after absorption of large amounts:

cramps

methaemoglobinaemia

asthma attacks

diarrhoea

· **Danger:** Danger of circulatory collapse.· **Indication of any immediate medical attention and special treatment needed:** No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.· **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.

In case of fire, the following can be released:

chromium oxides

Potassium oxide

· **Advice for firefighters**· **Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

· **Additional information**

Collect contaminated fire fighting water separately. It must not enter the sewage system.

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

Ambient fire may liberate hazardous vapours.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**· **Advice for non-emergency personnel:** No special measures required.· **Advice for emergency responders:** Protective equipment: see section 8· **Environmental precautions:**

Do not allow product to reach sewage system or any water course.

Dilute with plenty of water.

· **Methods and material for containment and cleaning up:**

Ensure adequate ventilation.

Absorb with liquid-binding material (sand, diatomite, universal binders).

Dispose contaminated material as waste according to item 13.

· **Reference to other sections**

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage

· **Precautions for safe handling**· **Advice on safe handling:** No special precautions are necessary if used correctly.· **Hygiene measures:**

The usual precautionary measures for handling chemicals should be followed.

Wash hands before breaks and at the end of work.

Do not eat, drink or smoke when using this product.

· **Conditions for safe storage, including any incompatibilities**· **Requirements to be met by storerooms and receptacles:** Store in a cool location.· **Information about storage in one common storage facility:** Not required.· **Further information about storage conditions:**

Protect from heat and direct sunlight.

Protect from exposure to the light.

Protect from humidity and water.

· **Recommended storage temperature:** 20°C +/- 5°C (approx. 68°F)

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

8 Exposure controls/personal protection

· **Control parameters**

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

CAS: 7778-50-9 potassium dichromate

PEL (USA)	Long-term value: 0.005* mg/m ³ Ceiling limit value: 0.1** mg/m ³ *as Cr(VI) **as CrO ₃ ; see 29 CFR 1910.1026
REL (USA)	Long-term value: 0.0002 mg/m ³ as Cr; See Pocket Guide Apps. A and C
TLV (USA)	Short-term value: 0.0005 mg/m ³ Long-term value: 0.0002 mg/m ³ as Cr(VI); inhalable, Skin; BEI, DSEN, RSEN
EL (Canada)	Long-term value: 0.025 mg/m ³ Ceiling limit value: 0.1 mg/m ³ as Cr; ACGIH A1, IARC 1; Skin; S(D), S(R)

· **Ingredients with biological limit values:**

CAS: 7778-50-9 potassium dichromate

BEI (USA)	25 µg/L Medium: urine Time: end of shift at end of workweek Parameter: Total chromium (fume)
	10 µg/L Medium: urine Time: increase during shift Parameter: Total chromium (fume)

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Engineering measures:**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. See item 7.

· **Personal protective equipment:**

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.

· **Breathing equipment:**

Under normal use conditions according to the instruction manual no personal protective equipment is needed.

If exposure limits are exceeded or health impacts are experienced use respiratory protective device against the effects of fume/dust/aerosol.

Use respiratory protective device against the effects of fume/dust/aerosol.

Under normal use conditions according to the instruction manual no personal protective equipment is needed.

If exposure limits are exceeded or health impacts are experienced use respiratory protective device against the effects of fume/dust/aerosol.

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

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

· **Protection of hands:**

Preventive skin protection by use of skin-protecting agents is recommended.

After use of gloves apply skin-cleaning agents and skin cosmetics.

· **Material of gloves**

Nitrile rubber, NBR

Recommended thickness of the material: ≥ 0.11 mm

· **Penetration time of glove material**

Value for the permeation: Level ≤ 1 (10 min)

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**

Safety glasses

use against the effects of fumes / dust

Use protective goggles that have been tested and approved in accordance with government standards (like NIOSH).

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- **Body protection:** Protective work clothing
- **Limitation and supervision of exposure into the environment:**
Do not allow product to reach sewage system or any water course.

9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **Appearance:**
- **Form / Physical state:** Solution
- **Color:** Orange
- **Odor:** Odorless
- **Odor threshold:** Not applicable.
- **pH-value at 20°C (68°F):** 4.3
- **Melting point/freezing point:** 0°C (32°F)
- **Initial boiling point and boiling range:** 100°C (212°F) (CAS: 7732-18-5 water)
- **Flash point:** Not applicable.
- **Flammability (solid, gas):** The product is not combustible.
- **Ignition temperature:** Not applicable.
- **Decomposition temperature:** Not applicable.
- **Auto-ignition temperature:** Product is not self-igniting.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Flammability or explosive limits:**
- **Lower:** Not applicable.
- **Upper:** Not applicable.
- **Oxidizing properties:** none
- **Vapor Pressure at 20°C (68°F):** 23 hPa (17.3 mm Hg)
- **Density at 20°C (68°F):** ~1 g/cm³ (~8.35 lbs/gal)
- **Relative density:** Not determined.
- **Vapor density:** Not determined.
- **Evaporation rate:** Not determined.
- **Solubility(ies)**
- **Water:** Fully miscible.
- **Partition coefficient (n-octanol/water):** Not applicable (mixture).
- **Viscosity:**
- **Kinematic:** Not determined.
- **Other information**
- **Solids content:** <0.25 %
- **Solvent content:**
- **Water:** >99 %

10 Stability and reactivity

- **Reactivity** see section "Possibility of hazardous reactions"
- **Chemical stability** Stable at ambient temperature (room temperature).
- **Possibility of hazardous reactions**
Violent reactions possible with:
The generally known reaction partners of water.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** organic substances
- **Hazardous decomposition products:** see section 5

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.

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· LD/LC50 values that are relevant for classification:		
CAS: 7778-50-9 potassium dichromate		
Oral	LD50	90.5 mg/kg (rat) (OECD 401) (ECHA, registrant: LD50 = 90.5 mg/kg female to 168.0 mg/kg male)
	LDLo	26 mg/kg (child) 143 mg/kg (man)
Dermal	LD50	1170 mg/kg (rat) (IUCLID)
Inhalative	LC50/4h	0.094 mg/l (rat) (OECD 403, Aerosol)
	LD50 IPR	28 mg/kg (rat)

· **Primary irritant effect:**

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

· Information on components:		
CAS: 7778-50-9 potassium dichromate		
Irritation of skin	OECD 404	(rabbit: irritation)

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

· Information on components:		
CAS: 7778-50-9 potassium dichromate		
Sensitization	Patch test (human)	(positive) (IUCLID)

· **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)		
CAS: 7778-50-9	potassium dichromate	1
· NTP (National Toxicology Program)		
CAS: 7778-50-9	potassium dichromate	K
· OSHA-Ca (Occupational Safety & Health Administration)		
None of the ingredients is listed.		

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

· **Synergistic Products:** None

- **CMR effects (carcinogenity, 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.

· **Additional toxicological information:**

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

Inhalable chromium (VI) compounds have clearly shown themselves to be carcinogenic in animal experiments.

Poor tendency for ulcers to heal following penetration of substance into the wound.

Lethal dose (man): 0.5 g

Antidotes: chelating agents such as EDTA, DMPS

12 Ecological information

· **Toxicity**

· Aquatic toxicity:		
CAS: 7778-50-9 potassium dichromate		
EC50	0.62 mg/l/48h (Daphnia magna) (OECD 202) (Merck)	

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NOEC	0.016–0.064 mg/l (Daphnia magna) (7d) 6 mg/l (fathhead minnow) (7d)
IC50	0.16–0.59 mg/l/96 h (Chlorella vulgaris) (IUCLID)
EC50	0.31 mg/l/72h (Desmodesmus subspicatus)
LC50	58.5 mg/l/96h (byr) 0.131 mg/l/96h (bluegill) 160 mg/l/96h (guppy) 26.13 mg/l/96h (fathhead minnow) (Merck/IUCLID)

- **Bacterial toxicity:**

CAS: 7778-50-9 potassium dichromate

EC50 | 58 mg/l (Photobacterium phosphoreum) (30 min; Microtox-Test)

- **Persistence and degradability .**

- **Other information:**

Mixture of inorganic compounds.

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

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

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

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

13 Disposal considerations

- **Waste treatment methods**

- **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Disposal recommendation: as waste containing heavy metals (contains very small amounts of heavy metals)

- **Uncleaned packagings:**

- **Recommendation:** Disposal must be made according to official regulations.

- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· UN-Number	
· DOT, IMDG, IATA	none
· UN proper shipping name	
· DOT, IMDG, IATA	none
· Transport hazard class(es)	
· DOT, IMDG, IATA	
· Class	none
· Packing group	
· DOT, IMDG, IATA	none
· Environmental hazards:	Not applicable.
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	Not dangerous according to the above specifications.

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15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
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· Section 355 (Extremely hazardous substances):
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None of the ingredients is listed.

· Section 313 (Specific toxic chemical listings):
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CAS: 7778-50-9 potassium dichromate

· TSCA (Toxic Substances Control Act):

All components have the value ACTIVE.

· Hazardous Air Pollutants

CAS: 7778-50-9 potassium dichromate

· Proposition 65

· Chemicals known to cause cancer:

CAS: 7778-50-9 potassium dichromate

· Chemicals known to cause reproductive toxicity for females:
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CAS: 7778-50-9 potassium dichromate

· Chemicals known to cause reproductive toxicity for males:
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CAS: 7778-50-9 potassium dichromate

· Chemicals known to cause developmental toxicity:

CAS: 7778-50-9 potassium dichromate

· New Jersey Right-to-Know List:

CAS: 7778-50-9 potassium dichromate

· New Jersey Special Hazardous Substance List:

CAS: 7778-50-9 potassium dichromate

CA, MU

· Pennsylvania Right-to-Know List:

CAS: 7778-50-9 potassium dichromate

· Pennsylvania Special Hazardous Substance List:

CAS: 7778-50-9 potassium dichromate

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· EPA (Environmental Protection Agency)
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CAS: 7778-50-9 potassium dichromate

A(inh), D(oral), K/L(inh), CBD(oral)

· NIOSH-Ca (National Institute for Occupational Safety and Health)

CAS: 7778-50-9 potassium dichromate

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

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

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant phrases

H272	May intensify fire; oxidizer.
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H301	Toxic if swallowed.
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H312	Harmful in contact with skin.
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H314	Causes severe skin burns and eye damage.
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H317	May cause an allergic skin reaction.
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H330	Fatal if inhaled.
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H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
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H340	May cause genetic defects.
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H350	May cause cancer.
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H360FD	May damage fertility. May damage the unborn child.
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H372	Causes damage to organs through prolonged or repeated exposure.
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H400	Very toxic to aquatic life.
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H410	Very toxic to aquatic life with long lasting effects.
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· **Date of preparation / last revision** 02/24/2022 / -

· **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
 ACGIH® - American Conference of Governmental Industrial Hygienists
 •A1 - Confirmed human carcinogen
 •A2 - Suspected human carcinogen
 •A3 - Confirmed animal carcinogen with unknown relevance to humans
 •A4 - Not classifiable as a human carcinogen
 •A5 - Not suspected as a human carcinogen
 IARC - International Agency for Research on Cancer
 •Group 1 - Carcinogenic to humans
 •Group 2A - Probably carcinogenic to humans
 •Group 2B - Possibly carcinogenic to humans
 •Group 3 - Not classifiable as to carcinogenicity to humans
 •Group 4 - Probably not carcinogenic to humans
 NTP - National Toxicology Program, U.S. Department of Health and Human Services
 •Group K - Known to be Human Carcinogens
 •Group R - Reasonably Anticipated to be Human Carcinogens
 IMDG: International Maritime Code for Dangerous Goods
 DOT: US Department of Transportation
 IATA: International Air Transport Association
 EINECS: European Inventory of Existing Commercial Chemical Substances
 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 & Health
 TLV: Threshold Limit Value
 PEL: Permissible Exposure Limit
 REL: Recommended Exposure Limit
 BEI: Biological Exposure Limit
 Ox. Sol. 2: Oxidizing solids – Category 2
 Acute Tox. 3: Acute toxicity – Category 3
 Acute Tox. 4: Acute toxicity – Category 4
 Acute Tox. 2: Acute toxicity – Category 2
 Skin Corr. 1B: Skin corrosion/irritation – Category 1B
 Resp. Sens. 1: Respiratory sensitisation – Category 1
 Skin Sens. 1: Skin sensitisation – Category 1
 Muta. 1B: Germ cell mutagenicity – Category 1B
 Carc. 1B: Carcinogenicity – Category 1B
 Repr. 1B: Reproductive toxicity – Category 1B
 STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
 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.

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