

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

Printing date 18.07.2018

Version number 25

Revision: 27.06.2018

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

##### · 1.1 Product identifier

· Product name: **Vario Molybdenum HR 1 F10 ml**

· Catalog number: 00530759, 530750, 4530750

##### · 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



GHS05 corrosion

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

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**Product name: Vario Molybdenum HR 1 F10 ml**

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**Hazard-determining components of labelling:**

succinic acid

**Hazard statements**

H318 Causes serious eye damage.

**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.

P310 Immediately call a doctor.

**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 contains organic compounds.

**Dangerous components:**

CAS: 110-15-6 EINECS: 203-740-4 Reg.nr.: 01-2119896114-34-XXXX	succinic acid	☠ Eye Dam. 1, H318	40-50%
CAS: 124-04-9 EINECS: 204-673-3 Index No: 607-144-00-9 Reg.nr.: 01-2119457561-38-XXXX	adipic acid	⚠ Eye Irrit. 2, H319	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; consult doctor in case of symptoms.

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

**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.

In case of persistent symptoms consult doctor.

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

burns

irritations

after inhalation:

coughing

after swallowing:

mucous membrane irritation

sickness

vomiting

diarrhoea

**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

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

Can be released in case of fire:

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.

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### 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:** 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.

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### 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.

Unsuitable material for container: steel.

• **Information about storage in one common storage facility:** Not required.

• **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.

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### SECTION 8: Exposure controls/personal protection

• **8.1 Control parameters**

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

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

• **DNELs**

Derived No Effect Level (DNEL)

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CAS: 110-15-6 succinic acid		
Oral	DNEL	67 mg/kg (Consumer / acute / systemic effects) 43 mg/kg (Consumer / long-term / systemic effects)
Dermal	DNEL	67 mg/kg (Worker / long-term / systemic effects) 67 mg/kg (Consumer / acute / systemic effects) 43 mg/kg (Consumer / long-term / systemic effects)
Inhalative	DNEL	10 mg/m <sup>3</sup> (Worker / acute / local effects) 10 mg/m <sup>3</sup> (Worker / long-term / systemic effects) 10 mg/m <sup>3</sup> (Consumer / acute / local effects) 10 mg/m <sup>3</sup> (Consumer / acute / systemic effects) 10 mg/m <sup>3</sup> (Consumer / long-term / local effects) 10 mg/m <sup>3</sup> (Consumer / long-term / systemic effects)
CAS: 124-04-9 adipic acid		
Oral	DNEL	19 mg/kg (Consumer / acute / systemic effects) 19 mg/kg (Consumer / long-term / systemic effects)
Dermal	DNEL	38 mg/kg (Worker / acute / systemic effects) 38 mg/kg (Worker / long-term / systemic effects) 19 mg/kg (Consumer / acute / systemic effects) 19 mg/kg (Consumer / long-term / systemic effects)
Inhalative	DNEL	5 mg/m <sup>3</sup> (Worker / acute / local effects) 264 mg/m <sup>3</sup> (Worker / acute / systemic effects) 5 mg/m <sup>3</sup> (Worker / long-term / local effects) 264 mg/m <sup>3</sup> (Worker / long-term / systemic effects) 65 mg/m <sup>3</sup> (Consumer / acute / systemic effects) 65 mg/m <sup>3</sup> (Consumer / long-term / 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: 110-15-6 succinic acid	
PNEC	3 mg/l (Sewage treatment plant) 0.01 mg/l (Marine water) 1 mg/l (Aquatic intermittent release) 0.1 mg/l (Fresh water)
PNEC	0.0177 mg/kg (Soil) 0.0079 mg/kg (Marine sediment) 0.079 mg/kg (Fresh water sediment)
CAS: 124-04-9 adipic acid	
PNEC	59.1 mg/l (Sewage treatment plant) 0.0126 mg/l (Marine water) 0.46 mg/l (Aquatic intermittent release) 0.126 mg/l (Fresh water)
PNEC	0.0228 mg/kg (Soil) 0.0484 mg/kg (Marine sediment) 0.484 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.

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- **Recommended filter device for short term use:** Filter P3
- **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 trough 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

<b>· 9.1 Information on basic physical and chemical properties</b>	
<b>· Appearance:</b>	
<b>Form / Physical state:</b>	Powder
<b>Colour:</b>	White
<b>· Odour:</b> Odourless	
<b>· Odour threshold:</b> Not applicable	
<b>· pH-value (10 g/l) at 20°C:</b> 2.9	
<b>· Melting point/Freezing point:</b> >150°C (CAS 124-04-9)	
<b>· Initial boiling point and boiling range:</b> Not applicable	
<b>· Flash point:</b> >196°C (CAS 124-04-9)	
<b>· Flammability (solid, gas):</b> Not determined.	
<b>· Ignition temperature:</b> >405°C (CAS 124-04-9)	
<b>· Decomposition temperature:</b> > 235°C (CAS 110-15-6)	
<b>· Auto-ignition temperature:</b> Product is not self-igniting.	
<b>· Explosive properties:</b> Product is not explosive. However, formation of explosive air mixtures is possible. Risk of dust explosion if enriched with fine dust in presence of air	
<b>· Flammability or explosive limits:</b>	
<b>Lower:</b>	Not determined.
<b>Upper:</b>	Not determined.
<b>· Oxidising properties:</b> none	
<b>· Vapour pressure at 18.5°C:</b> 0.097 hPa (CAS 124-04-9)	
<b>· Density at 20°C:</b> 1.46 g/cm <sup>3</sup>	
<b>· Relative density:</b> Not determined.	
<b>· Vapour density:</b> Not applicable.	
<b>· Evaporation rate:</b> Not determined.	
<b>· Solubility(ies):</b>	
<b>Water:</b>	Soluble
<b>· Partition coefficient: n-octanol/water:</b> Not determined.	
<b>· Viscosity:</b> Not applicable.	
<b>· 9.2 Other information</b> No further relevant information available.	

### SECTION 10: Stability and reactivity

- **10.1 Reactivity** Risk of dust explosion if enriched with fine dust in presence of air
- **10.2 Chemical stability** Stable at ambient temperature (room temperature).
- **10.3 Possibility of hazardous reactions**  
Reacts with reducing agents

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- Reacts with alkali (lyes)
- Reacts with strong oxidizing agents
- **10.4 Conditions to avoid** Strong heating (decomposition)
- **10.5 Incompatible materials:** steel
- **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:**
**CAS: 110-15-6 succinic acid**

Oral	LD50	2260 mg/kg (rat) (RTECS)
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**CAS: 124-04-9 adipic acid**

Oral	LD50	5700 mg/kg (rat) (MERCK)
Dermal	LD50	>7940 mg/kg (rabbit) (Registrant, ECHA: no deaths occurred)
Inhalative	LC50.	>7.7 mg/l/4h (rat) (dust, aerosol) (Registrant, ECHA: no deaths occurred)

- **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: 110-15-6 succinic acid**

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

**CAS: 124-04-9 adipic 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: 110-15-6 succinic acid**

Sensitisation	OECD 406	(guinea pig: negative)
	OECD 429	(negative) (LLNA-Test)

**CAS: 124-04-9 adipic acid**

Sensitisation	OECD 406	(guinea pig: negative) (IUCLID)
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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:**

OECD 414: Teratogenicity testing  
 OECD 473: Mutagenicity testing  
 OECD 471, 474, 476, 487: Germ cell mutagenicity testing

**CAS: 110-15-6 succinic acid**

OECD 471	(negative) (Bacterial Reverse Mutation Test - Ames test) (Salmonella typhimurium)
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**CAS: 124-04-9 adipic acid**

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

OECD 474 (negative) (Mammalian Erythrocyte Micronucleus Test)

### SECTION 12: Ecological information

**12.1 Toxicity**
**Aquatic toxicity:**
**CAS: 110-15-6 succinic acid**

 EC50 374.2 mg/l/48h (Daphnia magna)  
(ECOTOX)

EC50 &gt;100 mg/l/72 h (Pseudokirchneriella subcapitata) (OECD 201)

LC50 &gt;100 mg/l/96h (zebrafish) (OECD 203)

**CAS: 124-04-9 adipic acid**

LC50 511 mg/l/48h (gold orfe)

EC50 86 mg/l/48h (Daphnia magna) (OECD 202)

 IC50 31 mg/l/72h (Desmodemus subspicatus)  
(IUCLID)

 LC50 97 mg/l/96h (fathhead minnow)  
(ECOTOX)

**Bacterial toxicity:**
**CAS: 124-04-9 adipic acid**

 EC50 92 mg/l (Pseudomonas putida) (DIN 38412)  
(IUCLID)

**12.2 Persistence and degradability**
**CAS: 110-15-6 succinic acid**

OECD 301 C 78 (.) (Modified MITI Test)

OECD 301 E 96.55 (.) (Modified OECD Screening Test)

**CAS: 124-04-9 adipic acid**

OECD 301 B 100 (.) (CO2 Evolution Test)

**Other information:** The product is easily biodegradable.

**12.3 Bioaccumulative potential**

BCF = Bioconcentration factor

Pow = n-octanol/wasser partition coefficient

log Pow &lt; 1 = Does not accumulate in organisms.

**CAS: 110-15-6 succinic acid**

 log Pow -0.59 (.) (experimental)  
(Merck)

BCF 3 (.)

**CAS: 124-04-9 adipic acid**

log Pow 0.081 (.) (25°C, OECD 107)

**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.

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.

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### 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
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- **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.

- **14.6 Special precautions for user**

Not applicable.

- **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**

Not applicable.

- **Transport/Additional information:**

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:**

None of the ingredients is listed.

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

- **Named dangerous substances - ANNEX I** 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**

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

- **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

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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

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

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

**• Sources**

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

ECHA: European CHemicals Agency <http://echa.europa.eu>

IUCLID (International Uniform Chemical Information Database)

ECOTOX Database

RTECS (Registry of Toxic Effects of Chemical Substances )

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