

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

Printing date 29.08.2020

Version number 1

Revision: 13.08.2020

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:** 251407

· 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
D 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

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

· 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:**

succinic acid

· **Hazard statements**

H315 Causes skin irritation.

H318 Causes serious eye damage.

· **Precautionary statements**

P280 Wear protective gloves / eye protection.

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.

· **2.3 Other hazards** No further relevant information available.

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Product name: Vario Molybdenum HR 1 F10 ml

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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	50–60%
CAS: 36679-96-6 EC No: 682-316-4	Glycine, N,N'-1,2-cyclohexanedibis(N-(carboxymethyl))-, trisodium salt ☞ Skin Irrit. 2, H315; Eye Irrit. 2, H319	10–20%

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.

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:

Irritation and corrosion

after inhalation:

mucosal irritations, Cough, Shortness of breath

after swallowing:

mucous membrane irritation

sickness

vomiting

diarrhoea

Danger Risk of serious damage to eyes.

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 (CO₂), 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

mixture with combustible ingredients

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

Can be released in case of fire:

Nitrogen oxides (NO_x)

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.

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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:** 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:** Prevent formation of dust.
- **Hygiene measures:**
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:** 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.

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)

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 ³ (Worker / acute / local effects) 10 mg/m ³ (Worker / long-term / systemic effects) 10 mg/m ³ (Consumer / acute / local effects) 10 mg/m ³ (Consumer / acute / systemic effects) 10 mg/m ³ (Consumer / long-term / local effects)

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Product name: Vario Molybdenum HR 1 F10 ml

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		10 mg/m ³ (Consumer / long-term / systemic effects)
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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)

• **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

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

• **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:** 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:

Form / Physical state:	Powder
Colour:	White

Odour:	Acidic
Odour threshold:	Not determined.

pH-value (11.6 g/l) at 20°C:	4.4
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Melting point/Freezing point:	Not determined
Initial boiling point and boiling range:	Not determined

Flash point:	206°C (CAS: 110-15-6 succinic acid)
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Flammability (solid, gas):	Not applicable.
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Decomposition temperature:	235°C (CAS 110-15-6)
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· Auto-ignition temperature:	Product is not self-igniting.
· Explosive properties:	Risk of dust explosion if enriched with fine dust in presence of air
· Flammability or explosive limits:	
Lower:	200 g/m ³ (CAS: 110-15-6 succinic acid)
Upper:	1000 g/m ³ (CAS: 110-15-6 succinic acid)
· Oxidising properties:	none
· Vapour pressure:	Not applicable.
· Density:	Not determined
· 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:	
Solids content:	100.0 %
· 9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity** Dust can combine with air to form an explosive mixture.
- **10.2 Chemical stability** Stable at ambient temperature (room temperature).
- **10.3 Possibility of hazardous reactions** Reacts with acids, alkalis and oxidizing agents
- **10.4 Conditions to avoid** Strong heating (decomposition)
- **10.5 Incompatible materials:** No further relevant information available.
- **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)

- **Primary irritant effect:**
- **Skin corrosion/irritation**
Causes skin irritation.
- **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) (Registrant, ECHA)
Irritation of eyes	OECD 405	(rabbit: severe irritations) (Registrant, ECHA)

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

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Information on components:		
CAS: 110-15-6 succinic acid		
Sensitisation	OECD 406	(guinea pig: negative) (Registrant, ECHA)
	OECD 429	(negative) (LLNA-Test) (Registrant, ECHA)

- **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) (Registrant, ECHA, Salmonella typhimurium)

SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**

CAS: 110-15-6 succinic acid	
EC50	>100 mg/l/48h (Daphnia magna) (OECD 202) (Registrant, ECHA)
EC50	>100 mg/l/72 h (Pseudokirchneriella subcapitata) (OECD 201) (Registrant, ECHA)
LC50	>100 mg/l/96h (zebrafish) (OECD 203)

· **Bacterial toxicity:**

CAS: 110-15-6 succinic acid	
EC50	>300 mg/l /3h (activated sludge) (OECD 209) (Registrant, ECHA)

· **12.2 Persistence and degradability**

CAS: 110-15-6 succinic acid	
OECD 301 C	78 % / 14 d (readily biodegradable) (Modified MITI Test)
OECD 301 E	96.55 % / 28 d, aerob (readily biodegradable) (Modified OECD Screening Test)

· **12.3 Bioaccumulative potential**

BCF = Bioconcentration factor
 Pow = n-octanol/wasser partition coefficient
 log Pow < 1 = Does not accumulate in organisms.

CAS: 110-15-6 succinic acid	
log Pow	-0.59 (.) (experimental) (Merck)
BCF	3 (.)

· **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 product to reach ground water, water bodies or sewage system, even in small quantities.

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Danger to drinking water if even extremely small quantities leak into soil.

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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

· 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.

· REGULATION (EU) 2019/1021 on persistent organic pollutants (POP)

None of the ingredients is listed.

· Regulation (EU) No 649/2012

None of the ingredients is listed.

· National regulations

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

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

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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**

H315 Causes skin irritation.

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

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)

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

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

· **Sources**

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

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

RTECS (Registry of Toxic Effects of Chemical Substances)

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

- **1.1 Product identifier**
- **Product name:** Vario Molybdenum HR 2 F10, 25 ml
- **Catalog number:** 251407
- **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

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2 H319 Causes serious eye irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.

- **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**



GHS07



GHS08

- **Signal word** Danger
- **Hazard-determining components of labelling:**
disodium peroxodisulphate
- **Hazard statements**
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.

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Precautionary statements

- P261 Avoid breathing dust.
 P280 Wear protective gloves/protective clothing/eye protection.
 P302+P352 IF ON SKIN: Wash with plenty of water.
 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.
 P308+P313 IF exposed or concerned: Get medical advice/attention.

• **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 inorganic compounds.

Dangerous components:

CAS: 7775-27-1	disodium peroxodisulphate	30-40%
EINECS: 231-892-1	Ox. Sol. 3, H272; Resp. Sens. 1, H334; Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335	

• **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.
 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. Then consult doctor.
 • **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:

allergic reactions
 after inhalation:
 irritations
 coughing
 breathing difficulty
 after swallowing:
 mucous membrane irritation
 sickness
 vomiting
 gastric or intestinal trouble
 cardiovascular disorders

Danger

Danger of impaired breathing.
 Danger of pulmonary oedema.
 risk of airways sensitization
 risk of skin sensitization

• **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

The product is not combustible.
 Has a fire-promoting effect due to release of oxygen.

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

Sulphur oxides (SO_x)

Oxygen (O₂)

Sodium oxide

· **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 causing 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.

· **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.

Thorough dedusting.

· **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:**

Store away from flammable substances.

Store away from reducing agents.

· **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.

Store under dry conditions.

Protect from humidity and keep away from water.

This product is hygroscopic.

· **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.

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

Odour threshold: Not applicable

pH-value (10.8 g/l) at 20°C: 5.6

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: Not determined.

Auto-ignition temperature: Product is not self-igniting.

Explosive properties: Product is not explosive.
The product is not capable of dust explosion in the form supplied; enrichment with fine dust causes risk of dust explosion

Flammability or explosive limits:

Lower: Not determined.

Upper: Not determined.

Oxidising properties: Oxidising potential
CAS 7775-27-1: is classified as oxidising.

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· Vapour pressure:	Not applicable.
· Density at 20°C:	2.32 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** Dust can combine with air to form an explosive mixture.
- **10.2 Chemical stability** Stable at ambient temperature (room temperature).
- **10.3 Possibility of hazardous reactions**
 - Reacts with reducing agents
 - Reacts with alcohols
 - Reacts with strong acids and alkali
 - Reacts with heavy metals
- **10.4 Conditions to avoid**
 - Exposure to moisture.
 - Strong heating (decomposition)
- **10.5 Incompatible materials:**
 - combustible substances
 - aluminium
- **10.6 Hazardous decomposition products:**
 - oxygen
 - 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: 7775-27-1 disodium peroxodisulphate

Oral	LD50	920 mg/kg (rat) (IUCLID)
Dermal	LD50	>10000 mg/kg (rabbit)
Inhalative	LC50.	>5.1 mg/l/4h (rat) (ECHA: no deaths at this concentration LC ₀ = >5.1)
	LD50 IPR	226 mg/kg (mouse)

- **Primary irritant effect:**
- **Skin corrosion/irritation**
 - Causes skin irritation.
- **Serious eye damage/irritation** Causes serious eye irritation.
- **Respiratory or skin sensitisation**
 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 - May cause an allergic skin reaction.

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Information on components:**CAS: 7775-27-1 disodium peroxodisulphate**

Sensitisation OECD 406 (guinea pig: positive)

- **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**
May cause respiratory irritation.
- **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.

SECTION 12: Ecological information**12.1 Toxicity****Aquatic toxicity:****CAS: 7775-27-1 disodium peroxodisulphate**

EC50 133 mg/l/48h (Daphnia magna)

NOEC 91.7 mg/l/96h (rainbow trout)
(ECHA)NOEC 67.6 mg/l/48 h (Daphnia magna)
(ECHA)LC50 771 mg/l/96h (bluegill)
163 mg/l/96h (rainbow trout)
(ECHA)

- **Bacterial toxicity:** sulphates toxic > 2.5 g/l
- **Other information:**
Toxic for fish:
sulphates > 7 g/l
- **12.2 Persistence and degradability .**
- **Other information:**
Mixture of inorganic compounds.
Methods for the determination of biodegradability are not applicable to inorganic substances.
- **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**
Reacts with water to form toxic decomposition products.
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 07* discarded inorganic chemicals consisting of or containing hazardous substances

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	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.
- **National regulations**
- **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**
H272 May intensify fire; oxidiser.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory 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
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)

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IMDG: International Maritime Code for Dangerous Goods
ATA: 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
Ox. Sol. 3: Oxidizing solids – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Resp. Sens. 1: Respiratory sensitisation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

· Sources

Data arise from safety data sheets, reference works and literature.
ECHA: European CHemicals Agency <http://echa.europa.eu>

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

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

- **1.1 Product identifier**
- **Product name:** Vario Molybdenum HR 3 F10, 25 ml
- **Catalog number:** 251407
- **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
D 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
- Acute Tox. 4 H302 Harmful if swallowed.
Eye Irrit. 2 H319 Causes serious eye irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.
- **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**



GHS07

- **Signal word** Warning
- **Hazard-determining components of labelling:**
calcium thioglycolate trihydrate
- **Hazard statements**
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.
- **Precautionary statements**
P261 Avoid breathing dust.
P280 Wear protective gloves/protective clothing/eye protection.
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.
P308+P311 IF exposed or concerned: Call a POISON CENTER/doctor.

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- **2.3 Other hazards** CAS 65208-41-5: Danger by skin resorption.
- **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: 65208-41-5	calcium thioglycolate trihydrate	20–30%
EINECS: 249-881-5	⚠ Met. Corr. 1, H290; ⚠ Acute Tox. 4, H302; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335	

- **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 continues, consult a doctor.
- **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.
Seek medical treatment.
- **4.2 Most important symptoms and effects, both acute and delayed:**
irritations
allergic reactions
after inhalation:
mucosal irritations, Cough, Shortness of breath
after swallowing:
sickness
vomiting
gastric or intestinal trouble
cramps
- **Danger** risk of skin sensitization
- **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**
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:
Hydrogen chloride (HCl)
Sulphur oxides (SOx)
hydrogen sulfide
- **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.

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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.
 - Avoid substance contact.
 - 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.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
- **Advice on safe handling:** 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.
 - Store only in the original container.
- **Information about storage in one common storage facility:** Store away from metals.
- **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.
- **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: 57-50-1 Sucrose

WEL (Great Britain)	Short-term value: 20 mg/m ³ Long-term value: 10 mg/m ³
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- **Regulatory information** WEL (Great Britain): EH40/2020
- **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.

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· 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

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

· **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:** Rotty

· **Odour threshold:** Not determined.

· **pH-value (8 g/l) at 20°C:** 10.8

· **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.

· **Decomposition temperature:** Not determined.

· **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:** Not determined

· **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.

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· Solvent content:	
· 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 alkaline.
Aqueous solution reacts with metals.
Reacts with acids, alkalis and oxidizing agents
--> forms heat
- **10.4 Conditions to avoid** Strong heating (decomposition)
- **10.5 Incompatible materials:** metals
- **10.6 Hazardous decomposition products:**
hydrogen sulphide
In case of fire: 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_(MX)) - Calculation method:		
Oral	CLP ATE _(MX)	1564 mg/kg (.)
· LD/LC50 values that are relevant for classification:		
CAS: 65208-41-5 calcium thioglycolate trihydrate		
Oral	LD50	352 mg/kg (rat) (Merck)

- **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: 65208-41-5 calcium thioglycolate trihydrate		
Irritation of skin	OECD 404	(rabbit: slight irritation)
Irritation of eyes	OECD 405	(rabbit: irritation)

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

· Information on components:		
CAS: 65208-41-5 calcium thioglycolate trihydrate		
Sensitisation	OECD 429	(positive) (mouse)

- **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**
May cause respiratory irritation.
- **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.

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· **Additional toxicological information:** Other dangerous properties can not be excluded.

SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:** No further relevant information available.

· **12.2 Persistence and degradability** No further relevant information available.

· **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.

· **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.

· **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.

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

· REGULATION (EU) 2019/1021 on persistent organic pollutants (POP)

None of the ingredients is listed.

· Regulation (EU) No 649/2012

None of the ingredients is listed.

- **National regulations**

- **Information about limitation of use:**

Employment restrictions concerning pregnant and lactating women must be observed (92/85/EEC).

Employment restrictions concerning young persons must be observed (94/33/EC).

- **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.

H302 Harmful if swallowed.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H335 May cause respiratory 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

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

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

Acute Tox. 4: Acute toxicity - oral – Category 4

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

Skin Sens. 1: Skin sensitisation – Category 1

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

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

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