

Material Safety Data Sheet According to 91/155 EEC

Reviewed on 23.02.2005

* 1 Identification of substance:

- **Product details:** Reagent for water analysis
- **Product name:** **Molybdenum HR Set (Vario Molybdenum HR1 F10)**
- **Catalog number:** 251 407 **Model:** Mo-1 TP
- **Supplier:**
 WTW Wissenschaftlich-Technische Werkstätten GmbH
 Dr.-Karl-Slevogt-Straße 1
 D-82362 Weilheim Tel.: +49(0)881 183-0 Internet: <http://www.WTW.com>
 Fax: +49(0)881 183-420 Tel.: +49(0)881 183-100 E-Mail: Info@WTW.com
- **Emergency information:**
 Poison Center Berlin, Germany
 Tel.: +49(0)30 19240

* 2 Composition/Data on components:

- **Description:** Mixture consisting of the following components.

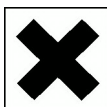
- **Dangerous components:**

CAS: 110-15-6 EINECS: 203-740-4	succinic acid	✘	Xi; R 36	45-50%
CAS: 124-04-9 EINECS: 204-673-3 EC Number: 607-144-00-9	adipic acid	✘	Xi; R 36	45-50%

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

* 3 Hazards identification

- **Hazard designation:**



Xi Irritant

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

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

R 36 Irritating to eyes.

- **Classification system**

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

* 4 First aid measures

- **After inhalation** Supply fresh air and call for doctor for safety reasons.
- **After skin contact** Instantly wash with water and soap and rinse thoroughly.
- **After eye contact**
 Rinse opened eye for several minutes under running water.

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Call a doctor immediately.

· After swallowing

Seek medical treatment.

Drink copious amounts of water, induce vomiting.

· The following symptoms may occur:

after inhalation:

irritation

after swallowing:

general feeling of sickness

mucous membrane irritation

* 5 Fire fighting measures

· Suitable extinguishing agents

Water

Foam

Use fire fighting measures that suit the environment.

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

combustible

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

· Protective equipment:

Wear self-contained breathing apparatus.

Wear full protective suit.

· Additional information

Ambient fire may liberate hazardous vapours.

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

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

* 6 Accidental release measures

· Person-related safety precautions:

Wear protective equipment. Keep unprotected persons away.

Avoid causing dust.

· Measures for environmental protection: Do not allow product to reach sewage system or water bodies.**· Measures for cleaning/collecting:**

Collect mechanically.

Ensure adequate ventilation.

* 7 Handling and storage

· Handling**· Information for safe handling:** No special measures required.**· Information about protection against explosions and fires:** Protect from heat.**· 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:**

Keep container tightly sealed.

Store under dry conditions.

Protect from humidity and keep away from water.

Protect from the effects of light.

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- **Storage class** Not required.

* 8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
 - **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
 - **Additional information:** The lists that were valid during the compilation were used as basis.
 - **Personal protective equipment**
 - **General protective and hygienic measures**
Keep away from foodstuffs, beverages and food.
Take off immediately all contaminated clothing
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.
Do not eat, drink or smoke while working.
 - **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
 - **Recommended filter device for short term use:** Filter P2
 - **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
After use of gloves apply skin-cleaning agents and skin cosmetics.
 - **Material of gloves**
Nitrile
Natural rubber, NR
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
Recommended thickness of the material: ≥ 0.11 mm
 - **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
Value for the permeation: Level ≥ 6 (480 min)
 - **Eye protection:** Tightly sealed safety glasses.
 - **Body protection:** Protective work clothing.
-

* 9 Physical and chemical properties:

· Form:	Powder
· Colour:	White
· Odour:	Odourless
· Melting point/Melting range:	Not determined
· Boiling point/Boiling range:	~ 235°C
· Flash point:	> 100°C
· Ignition temperature:	405°C
· Self-inflammability:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive.
· Density at 20°C	1.455 g/cm ³
· Solubility in / Miscibility with Water:	Soluble
· pH-value (10 g/l) at 20°C:	2.9
· Solvent content:	
· Organic solvents:	0.0 %

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· Solids content:	100.0 %
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* 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Materials to be avoided:**
 - oxidizing agents
 - alkalis
- **Dangerous reactions**
 - Reacts with reducing agents
 - Reacts with strong oxidizing agents
- **Dangerous products of decomposition:** No dangerous decomposition products known

* 11 Toxicological information

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

· LD/LC50 values that are relevant for classification:		
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110-15-6 succinic acid		
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Oral	LD50	2260 mg/kg (rat)
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124-04-9 adipic acid		
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Oral	LD50	5700 mg/kg (rat)
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- **Primary irritant effect:**
 - on the skin:** Irritant to skin and mucous membranes.
 - on the eye:** Irritant effect.
- **Sensitization:** No sensitizing effect known.
- **Additional toxicological information:**

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

Irritant

* 12 Ecological information:

- **Information about elimination (persistence and degradability):**
- **Other information:**
 - The product is biodegradable.
 - Quantitative data on the ecological effect of this product are not available.
 - CAS No. 124-04-9: 100% / 28 d
 - CAS No. 110-15-6: 78% / 14d

· Behaviour in environmental systems:		
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110-15-6 succinic acid		
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log P(o/w)	-0.59 (.)
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124-04-9 adipic acid		
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log P(o/w)	0.093 (25°C) (.)
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· Ecotoxicological effects:		
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· Aquatic toxicity:		
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110-15-6 succinic acid		
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EC50	374.2 mg/l/48h (Daphnia magna)
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124-04-9 adipic acid		
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EC50	86 mg/l/48h (Daphnia magna)
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LC50	511 mg/l/48h (Leuciscus idus)
	97 mg/l/96h (Pimephales promelas)

· **Additional ecological information:**

· **BSB5-value:**

124-04-9 adipic acid

BSB5 0.598 g/g (-)

· **General notes:**

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

Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

Must not reach sewage water or drainage ditch undiluted or unneutralized.

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

* 13 Disposal considerations

· **Product:**

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

· **European waste catalogue**

16 05 08 | discarded organic chemicals consisting of or containing dangerous substances

· **Uncleaned packagings:**

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

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

* 14 Transport information

· **ADR/GGVSE:**

IMDG/GGVSee:

· **EMS-Number:** -

· **ICAO/IATA:**

· **Transport/Additional information:** Not dangerous according to the above specifications.

* 15 Regulatory information

· **Designation according to EC guidelines:**

The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

· **Code letter and hazard designation of product:**

Xi Irritant

· **Risk phrases:**

36 Irritating to eyes.

· **Safety phrases:**

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

60 This material and its container must be disposed of as hazardous waste.

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* 16 Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant R-phrases**

36 Irritating to eyes.

· **Department issuing data specification sheet:** Department TSS, Dr. Manfred Kaul

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

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* **1 Identification of substance:**

- **Product details:** Reagent for water analysis
- **Product name:** Molybdenum HR Set (Vario Molybdenum HR2 F10)
- **Catalog number:** 251 407 **Model:** Mo-1 TP
- **Supplier:**
 WTW Wissenschaftlich-Technische Werkstätten GmbH
 Dr.-Karl-Slevogt-Straße 1
 D-82362 Weilheim Tel.: +49(0)881 183-0 Internet: <http://www.WTW.com>
 Fax: +49(0)881 183-420 Tel.: +49(0)881 183-100 E-Mail: Info@WTW.com
- **Emergency information:**
 Poison Center Berlin, Germany
 Tel.: +49(0)30 19240

* **2 Composition/Data on components:**

- **Description:**
 Mixture of anorganic compounds
 Mixture of the substances listed below with harmless additions.

· **Dangerous components:**

CAS: 7775-27-1	disodium peroxodisulphate	☒ Xn, 🔥 O; R 8-22-36/37/38-42/43	35-40%
EINECS: 231-892-1			

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

* **3 Hazards identification**

· **Hazard designation:**



Xn Harmful

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

- The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- R 22 Harmful if swallowed.
- R 36/37/38 Irritating to eyes, respiratory system and skin.
- R 42/43 May cause sensitisation by inhalation and skin contact.

· **Classification system**

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

* **4 First aid measures**

· **General information**

- Instantly remove any clothing soiled by the product.
- Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

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- **After inhalation** Supply fresh air or oxygen; call for doctor.
- **After skin contact**
Instantly wash with water and soap and rinse thoroughly.
Seek medical treatment.
- **After eye contact**
Rinse opened eye for several minutes under running water.
Call a doctor immediately.
- **After swallowing**
Rinse out mouth and then drink plenty of water.
Call a doctor immediately.
- **The following symptoms may occur:**
after inhalation:
breathing difficulty
coughing
allergic reactions
after swallowing:
sickness
vomiting
mucous membrane irritation
headache
- **Danger**
Danger of pulmonary oedema.
risk of airways sensitization
risk of skin sensitization

* 5 Fire fighting measures

- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
- **Special hazards caused by the material, its products of combustion or resulting gases:**
Development of hazardous combustion gases or vapours possible in the event of fire.
Sulphur oxides (SO_x)
Oxygen (O₂)
Sodium monoxide
- **Protective equipment:**
Wear self-contained breathing apparatus.
Wear full protective suit.
- **Additional information**
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Collect contaminated fire fighting water separately. It must not enter drains.

* 6 Accidental release measures

- **Person-related safety precautions:**
Wear protective equipment. Keep unprotected persons away.
Use breathing protection against the effects of fumes/dust/aerosol.
Avoid causing dust.
Ensure adequate ventilation
- **Measures for environmental protection:** Do not allow product to reach sewage system or water bodies.
- **Measures for cleaning/collecting:**
Dispose of contaminated material as waste according to item 13.
Collect mechanically.
Ensure adequate ventilation.

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Product name: Molybdenum HR Set (Vario Molybdenum HR2 F10)

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* 7 Handling and storage

- **Handling**
 - **Information for safe handling:**
 - Keep containers tightly sealed.
 - Prevent formation of dust.
 - Ensure good ventilation/exhaustion at the workplace.
 - **Information about protection against explosions and fires:** Protect from heat.
 - **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.
 - **Further information about storage conditions:**
 - Keep container tightly sealed.
 - Store under dry conditions.
 - Protect from humidity and keep away from water.
 - Protect from the effects of light.
 - **Storage class** Not required.
-

* 8 Exposure controls and personal protection

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

Components with limit values that require monitoring at the workplace:	
7775-27-1 disodium peroxodisulphate	
OES (Great Britain)	Long-term value: 1 mg/m ³ measured as [S2O8]

- **Additional information:** The lists that were valid during the compilation were used as basis.

- **Personal protective equipment**

- **General protective and hygienic measures**

- Keep away from foodstuffs, beverages and food.
- Take off immediately all contaminated clothing
- Wash hands during breaks and at the end of the work.
- Avoid contact with the eyes and skin.

- **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.

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

- **Protection of hands:**

- Only use chemical-protective gloves with CE-labelling of category III.
- The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
- After use of gloves apply skin-cleaning agents and skin cosmetics.

- **Material of gloves**

Nitrile

Recommended thickness of the material: ≥ 0.11 mm

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material**

Value for the permeation: Level ≥ 6 (480 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.
-

* 9 Physical and chemical properties:

- | | |
|------------------|--------|
| · Form: | Powder |
| · Colour: | White |

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Product name: Molybdenum HR Set (Vario Molybdenum HR2 F10)

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· Odour:	Odourless
· Melting point/Melting range:	Not determined
· Boiling point/Boiling range:	Not applicable
· Flash point:	Not applicable
· Inflammability (solid, gaseous)	Product is not inflammable.
· Self-inflammability:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive.
· Density at 20°C	2.14 g/cm ³
· Solubility in / Miscibility with Water:	Soluble
· pH-value (10.8 g/l) at 20°C:	5.6
· Solvent content:	
Organic solvents:	0.0 %
· Solids content:	100.0 %

* 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** To avoid thermal decomposition do not overheat.
 - **Materials to be avoided:**
 - combustible substances
 - alcohols
 - reducing agents
 - **Dangerous reactions**
 - Develops toxic gases / fumes
 - Develops corrosive gases / fumes
 - **Dangerous products of decomposition:**
 - Sulphur oxides (SO_x)
 - sodium monoxide
 - see chapter 5
-

* 11 Toxicological information

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

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

7757-82-6 sodium sulphate		
Oral	LD50	5989 mg/kg (mouse)
7775-27-1 disodium peroxodisulphate		
Oral	LD50	930 mg/kg (rat)

- **Primary irritant effect:**
 - **on the skin:** Irritant to skin and mucous membranes.
 - **on the eye:** Irritant effect.
- **Sensitization:**
 - Sensitization possible by inhalation.
 - Sensitization possible by skin contact.
- **Subacute to chronic toxicity:**
 - CAS 7775-27-1:
 - MERCK: Sensitization test (guinea pig): positiv (OECD 406)

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Product name: Molybdenum HR Set (Vario Molybdenum HR2 F10)

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· **Additional toxicological information:**

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

Harmful

Irritant

* 12 Ecological information:

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

· **Other information:**

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

Does not cause biological oxygen deficit.

· **Ecotoxic effects:**

· **Acquatic toxicity:**

7757-82-6 sodium sulphate

EC50 2564 mg/l/48h (Daphnia magna)

LC50 13500-14500 mg/l/96h (Pimephales promelas)

7775-27-1 disodium peroxodisulphate

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

LC50 771 mg/l/96h (Onchorhynchus mykiss)

· **Remark:**

Toxic for fish:

sulphates > 7 g/l

Reacts with water to form toxic decomposition products.

(CAS 7775-27-1)

· **Bacterial toxicity:** Sulphates toxic > 2.5 g/l

· **General notes:**

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

Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

Must not reach sewage water or drainage ditch undiluted or unneutralized.

* 13 Disposal considerations

· **Product:**

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

· **European waste catalogue**

16 05 07 | discarded inorganic chemicals consisting of or containing dangerous substances

· **Uncleaned packagings:**

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

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

* 14 Transport information

· **ADR/GGVSE:**

· **IMDG/GGVSee:**

· **EMS-Number:**

· **ICAO/IATA:**

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Product name: Molybdenum HR Set (Vario Molybdenum HR2 F10)

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· **Transport/Additional information:** Not dangerous according to the above specifications.

* 15 Regulatory information

· **Designation according to EC guidelines:**

The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

· **Code letter and hazard designation of product:**

Xn Harmful

· **Hazard-determining components of labelling:**

disodium peroxodisulphate

· **Risk phrases:**

22 Harmful if swallowed.
36/37/38 Irritating to eyes, respiratory system and skin.
42/43 May cause sensitisation by inhalation and skin contact.

· **Safety phrases:**

22 Do not breathe dust.
24 Avoid contact with skin.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
37 Wear suitable gloves.
45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
60 This material and its container must be disposed of as hazardous waste.

* 16 Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant R-phrases**

22 Harmful if swallowed.
36/37/38 Irritating to eyes, respiratory system and skin.
42/43 May cause sensitisation by inhalation and skin contact.
8 Contact with combustible material may cause fire.

· **Department issuing data specification sheet:** Department TSS, Dr. Manfred Kaul

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

Material Safety Data Sheet

According to 91/155 EEC

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* 1 Identification of substance:

- **Product details:** Reagent for water analysis
- **Product name:** Molybdenum HR Set (Vario Molybdenum HR3 F10)
- **Catalog number:** 251 407 **Model:** Mo-1 TP
- **Supplier:**
WTW Wissenschaftlich-Technische Werkstätten GmbH
Dr.-Karl-Slevogt-Straße 1
D-82362 Weilheim
Fax: +49(0)881 183-420
Tel.: +49(0)881 183-0
Tel.: +49(0)881 183-100
Internet: <http://www.WTW.com>
E-Mail: Info@WTW.com
- **Emergency information:**
Poison Center Berlin, Germany
Tel.: +49(0)30 19240

* 2 Composition/Data on components:

- **Description:** Mixture of the substances listed below with harmless additions.

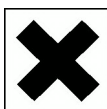
- **Dangerous components:**

CAS: 65208-41-5	calcium thioglycollate trihydrate	 Xn; R 22-43	20-25%
EINECS: 249-881-5			

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

* 3 Hazards identification

- **Hazard designation:**



Xi Irritant

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

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

R 43 May cause sensitisation by skin contact.

- **Classification system**

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

* 4 First aid measures

- **General information**

Instantly remove any clothing soiled by the product.

Take affected persons into the open air.

- **After inhalation** Supply fresh air and call for doctor for safety reasons.

- **After skin contact**

Instantly rinse with water.

Seek medical treatment.

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Product name: Molybdenum HR Set (Vario Molybdenum HR3 F10)

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- **After eye contact**
Rinse opened eye for several minutes under running water.
Call a doctor immediately.
 - **After swallowing** Drink copious amounts of water and provide fresh air. Instantly call for doctor.
 - **The following symptoms may occur:**
after inhalation:
irritation
after swallowing:
sickness
vomiting
mucous membrane irritation
gastric or intestinal trouble
cramps
 - **Danger** risk of skin sensitization
-

* 5 Fire fighting measures

- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
 - **Special hazards caused by the material, its products of combustion or resulting gases:**
Development of hazardous combustion gases or vapours possible in the event of fire.
Sulphur oxides (SO_x)
 - **Protective equipment:**
Wear self-contained breathing apparatus.
Wear full protective suit.
 - **Additional information**
Ambient fire may liberate hazardous vapours.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Collect contaminated fire fighting water separately. It must not enter drains.
-

* 6 Accidental release measures

- **Person-related safety precautions:**
Wear protective equipment. Keep unprotected persons away.
Avoid causing dust.
Use breathing protection against the effects of fumes/dust/aerosol.
 - **Measures for environmental protection:** Do not allow product to reach sewage system or water bodies.
 - **Measures for cleaning/collecting:**
Dispose of contaminated material as waste according to item 13.
Ensure adequate ventilation.
Collect mechanically.
-

* 7 Handling and storage

- **Handling**
- **Information for safe handling:**
Prevent formation of dust.
Ensure good ventilation/exhaustion at the workplace.
Keep containers tightly sealed.
- **Information about protection against explosions and fires:** The product is not flammable
- **Storage**
- **Requirements to be met by storerooms and containers:** Store in cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Store under dry conditions.
Protect from humidity and keep away from water.

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Product name: Molybdenum HR Set (Vario Molybdenum HR3 F10)

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Protect from the effects of light.

· **Storage class** Not required.

* 8 Exposure controls and personal protection

· **Additional information about design of technical systems:** No further data; see item 7.· **Components with limit values that require monitoring at the workplace:****1330-43-4 disodium tetraborate, anhydrous**OES (Great Britain) | Long-term value: 1 mg/m³· **Additional information:** The lists that were valid during the compilation were used as basis.· **Personal protective equipment**· **General protective and hygienic measures**

Keep away from foodstuffs, beverages and food.

Take off immediately all contaminated clothing

Wash hands during breaks and at the end of the work.

Avoid contact with the eyes and skin.

· **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.· **Recommended filter device for short term use:** Filter P2· **Protection of hands:**

Only use chemical-protective gloves with CE-labelling of category III.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

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

· **Material of gloves**

Nitrile

nitrile rubber, NBR

Recommended thickness of the material: ≥ 0.11 mm

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**Value for the permeation: Level ≥ 6 (480 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.

* 9 Physical and chemical properties:

· Form:	Powder
· Colour:	White
· Odour:	Characteristic
· Melting point/Melting range:	Not determined
· Boiling point/Boiling range:	> 890°C
· Flash point:	Not applicable
· Self-inflammability:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive.
· Density	Not determined
· Solubility in / Miscibility with Water:	Soluble
· pH-value (10 g/l) at 20°C:	11

(Contd. on page 4)

— GB —

Material Safety Data Sheet

According to 91/155 EEC

Reviewed on 18.02.2005

Product name: Molybdenum HR Set (Vario Molybdenum HR3 F10)

(Contd. of page 3)

· Solvent content:	
Organic solvents:	0.0 %
· Solids content:	100.0 %

* 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** To avoid thermal decomposition do not overheat.
- **Dangerous reactions** No dangerous reactions known
- **Dangerous products of decomposition:**
Hydrogen sulphide
sodium monoxide
see chapter 5

* 11 Toxicological information

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

· LD/LC50 values that are relevant for classification:		
7757-82-6 sodium sulphate		
Oral	LD50	5989 mg/kg (mouse)
1330-43-4 disodium tetraborate, anhydrous		
Oral	LD50	709 mg/kg (human)
		2660 mg/kg (rat)
65208-41-5 calcium thioglycollate trihydrate		
Oral	LD50	352 mg/kg (rat)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritant effect.
- **Sensitization:** Sensitization possible by skin contact.
- **Additional toxicological information:**
The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:
Irritant

* 12 Ecological information:

- **Information about elimination (persistence and degradability):**
- **Other information:** Quantitative data on the ecological effect of this product are not available.
- **Ecotoxic effects:**

· Aquatic toxicity:		
7757-82-6 sodium sulphate		
EC50	2564 mg/l/48h (Daphnia magna)	
LC50	13500-14500 mg/l/96h (Pimephales promelas)	
1330-43-4 disodium tetraborate, anhydrous		
LC 50	807 mg/l (fish)	

- **Remark:**
lethal for fish:
sulphates > 7 g/l
- **Bacterial toxicity:** Sulphates toxic > 2.5 g/l
- **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.

(Contd. on page 5)

Material Safety Data Sheet

According to 91/155 EEC

Reviewed on 18.02.2005

Product name: Molybdenum HR Set (Vario Molybdenum HR3 F10)

(Contd. of page 4)

Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.
Must not reach sewage water or drainage ditch undiluted or unneutralized.

* 13 Disposal considerations

- **Product:**
- **Recommendation** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· European waste catalogue

16 05 06	laboratory chemicals, consisting of or containing dangerous 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.

* 14 Transport information

· ADR/GGVSE:

· IMDG/GGVSee:

· EMS-Number:

· ICAO/ IATA:

- **Transport/Additional information:** Not dangerous according to the above specifications.

* 15 Regulatory information

· Designation according to EC guidelines:

The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

· Code letter and hazard designation of product:

Xi Irritant

· Hazard-determining components of labelling:

calcium thioglycollate trihydrate

· Risk phrases:

43 May cause sensitisation by skin contact.

· Safety phrases:

24/25 Avoid contact with skin and eyes.

37 Wear suitable gloves.

60 This material and its container must be disposed of as hazardous waste.

* 16 Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant R-phrases

22 Harmful if swallowed.

43 May cause sensitisation by skin contact.

· Department issuing data specification sheet: Department TSS, Dr. Manfred Kaul

· Data compared to the previous version altered.