

# Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 931220	VISOCOLOR ECO Chromium (VI), refill pack	Page: 1/11
Printing date: 15.04.2026	Date of issue: 18.10.2024	Version: 2.2.2.3

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

### 1.1 Product identifier

REF 931220  
 Product name VISOCOLOR ECO Chromium (VI), refill pack  
 REACH Registration number(s): see SECTION 3.1/3.2 or  
 A registration number for the substance(s) does not exist because the annual tonnage does not require registration or the substance or its use is excluded from registration.  
 1 x 30 mL Cr-1 UFI: FSPT-63E4-G206-TAYS  
 1 x 25 mL Cr-2

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

**Relevant identified uses**  
 Product for analytical use.  
 Exposure Scenario Classification according REACH, RIP 3.2 Codes: SU 0-2, PC 21, PROC 15, AC 0  
 The exposure scenario is integrated into sections 1-16.  
**Uses advised against**  
 not described

### 1.3 Details of the supplier of the safety data sheet

**Manufactured by:**  
 MACHEREY-NAGEL GmbH & Co. KG  
 Valencienner Str. 11, 52355 Düren, Germany  
 Phone: +49 2421 969 0 E-mail: [sds@mn-net.com](mailto:sds@mn-net.com) ([msds@mn-net.com](mailto:msds@mn-net.com))

### 1.4 Emergency telephone number

Outside Germany (DE): Call your regional Poisons Information Service or call local Life Saving Service.  
 DE: Gemeinsames Gif tinformationszentrum (GGIZ)  
 99089 Erfurt tel. +49 361 730 730, <<https://www.ggiz-erfurt.de>>

You find our current versions of SDS in Internet: <<http://www.mn-net.com/SDS>>

## SECTION 2: Hazard identification

### 2.0 Classification of the complete product according to Regulation (EC) 1272/2008



Signal word	DANGER
<b>Hazard identification</b>	<b>Hazard classes/categories</b>
H290	Met. Corr. 1
H302	Acute Tox. 4 oral
H314	Skin Corr. 1 B

### 2.1 Classification of the substance or mixture according to Regulation (EC) 1272/2008

**25 mL Cr-2**  
 Signal word Do not need labelling as hazardous  
 -  
 No hazard class  
**30 mL Cr-1**



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GHS05 GHS07

Signal word DANGER

Hazard identification	Hazard classes/categories
H290	Met. Corr. 1
H302	Acute Tox. 4 oral
H314	Skin Corr. 1 B

List of H phrases: see section 16.2

## 2.2 Label elements according regulation (EC) 1272/2008

According **CLP directive** inner packages must be only labelled with GHS symbol(s) and product identifier(s) (EU 1272/2008 Annex I - 1.5.1.2). Harmful chemicals/mixtures with signal word: **WARNING** must not be labelled with H and P phrases **until 125 mL** (EU 1272/2008 Annex I - 1.5.2). Metal corrosive solutions **do not have to** be labelled with GHS symbol, signal word, H and P phrases **until 125 mL** (EU 1272/2008 Annex I - 1.5.2.1.3).

**25 mL Cr-2**  
Do not need labelling as hazardous  
Signal word: -

**30 mL Cr-1**



GHS05 GHS07

Signal word: DANGER  
H314  
Causes severe skin burns and eye damage.  
P260sh, P264, P280sh, P303+361+353, P305+351+338, P310, P405, P501  
Do not breathe dust/vapours. Wash hands thoroughly after handling. Wear protective gloves/eye protection. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. Store locked up. Dispose of contents/container to regulated waste treatment.

## Label elements of the complete product



GHS05 GHS07

Signal word: DANGER  
H314  
Causes severe skin burns and eye damage.  
P260sh, P264, P280sh, P303+361+353, P305+351+338, P310, P405, P501  
Do not breathe dust/vapours. Wash hands thoroughly after handling. Wear protective gloves/eye protection. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. Store locked up. Dispose of contents/container to regulated waste treatment.

## 2.3 Other hazards

**Possible hazards from physicochemical properties**  
Generally in the case of pH values are less than 2 or higher than 11.5 then it is corrosive.

**Information pertaining to particular risks to human and possible symptoms**



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Causes varying degrees of acid burns on the skin, to the eyes and to the mucous membranes and wounds which do not heal quickly depending on the concentration, temperature and the exposure time. Vapours especially which steam from hot liquids and mist can have a severe irritant effect upon the eyes and the respiratory organs.  
Cause after oral intake, impairments of health when ingested in small quantities.

#### Information pertaining to particular risks to the environment

Should not be released into the environment.

**PBT:** not applicable

**vPvB:** not applicable

#### Possible endocrine disrupting effects

no data available

## SECTION 3: Composition / information on ingredients

### 3.1 Substances or 3.2 Mixtures

#### 25 mL Cr-2

Substance name: *dimethyl sulfoxide*  
CAS No.: 67-68-5

Substance rating: No criteria for classification or naming of chemical not required.  
Formula:  $C_2H_6OS$   
Pseudonym (de): DMSO  
REACH Reg. No.: 01-2119431362-50-xxxx  
EC No.: 200-664-3  
Concentration: 80 - <100 %  
acc. CLP (GHS): The criteria for classification are not fulfilled.

#### 30 mL Cr-1

Substance name: *o-phosphoric acid*  
CAS No.: 7664-38-2

Substance rating: H290, Met. Corr. 1, H302, Acute Tox. 4 oral, H314, Skin Corr. 1 B  
Formula:  $H_3PO_4 \cdot H_2O$   
Pseudonym (de): Orthophosphorsäure, E338  
REACH Reg. No.: 01-2119485924-24-xxxx  
EC No.: 231-633-2  
Concentration: 55 - <70 %  
acc. CLP (GHS): H290, Met. Corr. 1, H302, Acute Tox. 4 oral, H314, Skin Corr. 1 B  
Indice No.: 015-011-00-6

### 3.3 Remarks

When not listed, mixtures are added with water [CAS No. 7732-18-5] to 100%.

List of H and P phrases: see section 16.2.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

Place insured person out of danger zone to fresh air immediately. Ensure quiet, warmth, and provide resuscitation if necessary. If necessary contact medical advice. Remove contaminated clothing. Show product package, packing insert and this material safety data sheet to the doctor.

#### 4.1.1

#### After SKIN Contact

Remove contaminated clothing immediately. Rinse the affected skin or mucous membrane thoroughly for min. 15 minutes under running water. (If possible) use soap. Avoid neutralisation. Then apply a loose bandage.

#### 4.1.2

#### After EYE Contact

After contact with the eyes rinse thoroughly under running water with the eyelid wide open for min. 10 minutes with eye washing bottle, eye douche or running water (protect intact eye). Before (if possible) apply eye drops Proxymetacaine 0.5%, if the opening the eyelid convulsion is painful. Further treatment to be carried out by an eye specialist.

#### 4.1.3

#### After INHALATION of vapours



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After inhalation of foam or vapour fresh air should be inhaled. Keep airways free. If vomiting and if insensible place patient in recovery position and keep airways free. ---

- 4.1.4 After ORAL Intake**  
After oral intake lots of water with activated charcoal supplement should be drunk after it has been ingested. Do not induce vomiting under any circumstances. Do not make any efforts to neutralise it. Contact medical advice for possible consequences.
- 4.2 Most important symptoms and effects, both acute and delayed**  
Rapid penetration and destruction of the skin. Especially in the heated form.  
Causes severe skin burns and eye damage.
- 4.3 Indication of any immediate medical attention and special treatment needed**  
CORROSIVE DAMAGE: After SKIN CONTACT rinse with water for a long time. Efforts to neutralise the substance can frequently make matters worse. Apply glucocorticosteroides following inflammatory reactions. After EYE CONTACT rinse immediately with plenty of water for a long time. Eyelid convulsion measures. Name the corrosive chemical. Further treatment must be carried out by an eye specialist. After INTAKE administer aluminium oxide drug suspensions. Administer a prophylaxis to counter pulmonary oedema following the INGESTION of corrosive aerosols. In the event of RESPIRATORY DISTRESSES ensure that the patient inhales oxygen. ---

## SECTION 5: Firefighting measures

- 5.1 Extinguishing media**
  - 5.1.1 Suitable extinguishing media**  
Fire extinguishers appropriate to the fire classification, and, if applicable, a fire blanket must be available in a prominent location in the work area. All extinguishers like FOAM, WATER SPRAY, DRY POWDER, CARBON DIOXIDE can be used.
  - 5.1.2 Unsuitable extinguishing media**  
no data available
- 5.2 Special hazards arising from the substance or mixture**  
Formation of hazardous and caustic vapour-air mixtures possible.
- 5.3 Advice for firefighters**  
No, for listed product. Product package burns like paper or plastic. Spray any vapours released with water. Retent fire water. Use only acid-resistant safety equipment.  
For great amount - if necessary - protective breathing apparatus which is independent of the ambient air (isolated equipment), and sealed protective clothing is necessary in the event of a large-scale formation of toxic substances.
- 5.4 Additional information**  
Danger for environment **only in the event of a large-scale leakage** or formation of hazardous substances.

## SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures**  
Do not breathe vapours. Wear suitable protective gloves (see 8.2.2). Wear eye protection, respectively face protection. Regular staff training is necessary, indicating hazards and precautions on the basis of operating instructions. Restrictions on activity must be observed.
- 6.2 Environmental precautions**  
Should not be released into the environment.  
PBT: not applicable  
vPvB: not applicable
- 6.3 Methods and material for containment and cleaning up**  
Bind any escaping liquid with inert absorbent. And dispose in accordance to local regulations for the disposal of hazardous chemicals. Clean any contaminated equipment and floors with plenty of water.  
Collect small amounts of leaked liquid and flush with water into drains.
- 6.4 Reference to other sections**  
see information in section 5.4,7,8 and 13



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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Handling in accordance with the test instruction, that comes with the product.

### 7.2 Conditions for safe storage, including any incompatibilities

Safe storage is guaranteed in the original packaging from MACHEREY-NAGEL. Storage class (German chemical industry): see chapter 12.1

Storage class (VCI): 8B

Water hazard class (DE): 2

### 7.2.1 Requirements for stock rooms and containers

Keep original product packages tightly closed during handling and storage. Use inbreakable container for transport of glass bottles.

### 7.3 Specific end use(s)

Product for analytical use.

## SECTION 8: Exposure controls /personal protection

### 8.1 Control parameters

#### 25 mL Cr-2

Chemical: *dimethyl sulfoxide*

CAS No.: 67-68-5

DNEL: 394 inh mg/m<sup>3</sup>  
DNEL = Derived No-Effect Level (for workers)

PNEC (fresh water): 17 mg/L  
PNEC = Predicted No Effect Concentration

TRGS 900 (DE): 50 ppm / 160 mg/m<sup>3</sup>  
E/e respirable

Short-term exposure factor: 2 (I), H, Z  
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 50 ppm / 160 mg/m<sup>3</sup>

#### 30 mL Cr-1

Chemical: *o-phosphoric acid*

CAS No.: 7664-38-2

DNEL: 2.92 mg/m<sup>3</sup>  
DNEL = Derived No-Effect Level (for workers)

EU value: [TWA] 1 / [STEL] 2 mg/m<sup>3</sup>  
TRGS 900 (DE): [8h] 1 / [15min] 2 mg/m<sup>3</sup>  
E/e respirable

Short-term exposure factor: 2 (I), Y  
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 1 mg/m<sup>3</sup>  
NIOSH: TWA 1 / ST 3 mg/m<sup>3</sup>

NIOSH STEL: 3 mg/m<sup>3</sup>  
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: TWA 1 mg/m<sup>3</sup>

### 8.2 Exposure controls

Good ventilation and extraction system in the room, floor resistant to chemicals with floor drainage and washing facilities. The highest level of cleanliness must be maintained at the workplace.

#### 8.2.1 Respiratory protection

No additional recommendations.

#### 8.2.2 Skin protection / Hand protection

Yes, gloves according EN 374 (permeation time >30 min - level 2), consist of PVC, natural latex, Neopren, or Nitril (f.ex. from Ansell or KCL). Use for short times chemical resistant latex gloves with code EN 374-3 level 1.

#### 8.2.3 Eye / Face Protection

Yes, safety glasses according EN 166 with integrated side shields or wrap-around protection or face protection.

#### 8.2.4 Skin protection

Recommended to avoid clothing damage, and to avoid contamination with these hazards.

#### 8.2.5 Personal hygiene

Eating, drinking, smoking, taking snuff and storage of food in work areas and at outdoor workplaces is prohibited. Avoid contact with the skin, eyes and clothing. Rinse any clothing on which the substance has been spilled, and soak it in water. Wash hands thoroughly with soap and water when stopping work and before eating, and then apply protective skin cream.

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**8.2.6 Thermal hazards**  
no data available

**8.3 Limitation and monitoring of environmental exposure**  
Do not release product into environment.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

**25 mL Cr-2**

- |  |                       |
|--|-----------------------|
| a) State of aggregation:                       | liquid                |
| b) Colour:                                     | rose                  |
| c) Odor:                                       | organic               |
| d) Melting point:                              | no data available     |
| e) Boiling point:                              | no data available     |
| f) Flammability:                               | no data available     |
| g) Explosive limits (lower / upper):           | no data available     |
| h) Flash point:                                | 95 °C                 |
| i) Flashing temperature:                       | no data available     |
| j) Decomposition temperature:                  | no data available     |
| k) pH value:                                   | 7                     |
| l) Kinematic viscosity:                        | no data available     |
| m) Solubility in water:                        | 0-100 %               |
| n) Dispersion coefficient (K <sub>o/w</sub> ): | no data available     |
| o) Vapour pressure (20°C):                     | no data available     |
| p) Specific gravity:                           | 1,1 g/cm <sup>3</sup> |
| q) Relative vapour density (air=1):            | no data available     |
| r) Particle size:                              | no data available     |

**30 mL Cr-1**

- |  |                        |
|--|------------------------|
| a) State of aggregation:                       | liquid                 |
| b) Colour:                                     | colourless             |
| c) Odor:                                       | odorless               |
| d) Melting point:                              | no data available      |
| e) Boiling point:                              | no data available      |
| f) Flammability:                               | no data available      |
| g) Explosive limits (lower / upper):           | no data available      |
| h) Flash point:                                | no data available      |
| i) Flashing temperature:                       | no data available      |
| j) Decomposition temperature:                  | no data available      |
| k) pH value:                                   | 2                      |
| l) Kinematic viscosity:                        | no data available      |
| m) Solubility in water:                        | 0-100 %                |
| n) Dispersion coefficient (K <sub>o/w</sub> ): | no data available      |
| o) Vapour pressure (20°C):                     | no data available      |
| p) Specific gravity:                           | 1,50 g/cm <sup>3</sup> |
| q) Relative vapour density (air=1):            | no data available      |
| r) Particle size:                              | no data available      |

### 9.2 Other information

**9.2.1 Information on physical hazard classes**  
no data available

**9.2.2 Other safety-related parameters**  
No data is available for the other parameters for the mixtures, since no registration and no chemical safety report is required.  
   
Substances are highly corrosive.



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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

no further data available.

### 10.2 Chemical stability

no known instability.

### 10.3 Possibility of hazardous reactions

Can react violently with organic material. No further data available.

### 10.4 Conditions to avoid

No more required.

### 10.5 Incompatible materials

no additional data available

### 10.6 Hazardous decomposition products

In the original package all parts/all reagents are safety and separated stored. Decompositions are not observed during the expiration period under recommended conditions.

## SECTION 11: Toxicological information

### 11.1 Information on the hazard classes according regulation (EC) 1272/2008

Following information is valid for pure substances. Quantitative data on the toxicity of this product are not available.

#### 25 mL Cr-2

Chemical:	<i>dimethyl sulfoxide</i>	CAS No.: 67-68-5
TSCA Inventory:	listed	
Korea Exist.Chem.Inventory:	KE-32367	
LD50 orl rat :	14500 mg/kg	

#### 30 mL Cr-1

Chemical:	<i>o-phosphoric acid</i>	CAS No.: 7664-38-2
TSCA Inventory:	listed	California Proposition 65 List: not listed
ACGIH:	1 ppm	
Exposure Routes:	inhalation, ingestion, skin and/or eye contact	
Target Organs:	Eyes, skin, respiratory system	
Symptoms:	irritation eyes, skin, upper respiratory system; eye, skin, burns; dermatitis	
Australia NICNAS:	not listed	Canada CEPA 1999: DSL Yes
Japan CSCL/PRTR:	not listed, Japan PDSCL: not listed	
Japan ISHL:	listed $\geq 1,0\%$ / $\geq 1,0\%$ , Article 57-2 (SDS required)	
South Korea TCCA:	not listed	
Korea Exist.Chem.Inventory:	KE-27427	
LD50 orl rat :	1530 mg/kg	
LC50 ihl rbt :	1,689 mg/L	
Acute Effects:	Cause after oral intake, impairments of health when ingested in small quantities.	
TRGS 905 (DE):	R F C	

### 11.2 Other hazards

#### Possible endocrine disrupting effects

no data available

#### Other information

no additional data available

## SECTION 12: Ecological information

### 12.1 Toxicity

Following information is valid for pure substances.

#### 25 mL Cr-2

Substance name:	<i>dimethyl sulfoxide</i>	CAS-Nr.: 67-68-5
PNEC (fresh water) :	17 mg/L	
PNEC = Predicted No Effect Concentration = concentration at which no effect on the environment is expected		
LC50 fish/96h :	38.5 g/L	
EC50 daphnia/48h :	24.6 g/L	



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EC10 *pseudomonas putida*/16h : EC/16h: 7100 mg/L  
 Water hazard class (DE): 1 WGK No.: 5050  
 Storage class (VCI): 12

**30 mL Cr-1**  
 Substance name: *o-phosphoric acid* CAS-Nr.: 7664-38-2  
 Do not release into the environment.  
 LC50 *fish*/96h : 3-3.5 mg/L  
 Water hazard class (DE): 1 WGK No.: 0392  
 Storage class (VCI): 8 B

**12.2 Persistence and degradability**

**12.3 Bioaccumulative potential**

**25 mL Cr-2**  
 Substance name: *dimethyl sulfoxide* CAS-Nr.: 67-68-5  
 Dispersion coefficient (K<sub>ow</sub>): -1,35

**12.4 Mobility in soil**

**12.5 Results of PBT and vPvB assessment**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

**12.6 Endocrine disrupting properties**

no data available

**12.7 Other adverse effects**

no additional data available

## SECTION 13: Disposal considerations

Please observe local regulations for collection and disposal of hazardous waste and contact waste disposal company, where you will obtain information on laboratory waste disposal (waste code number 16 05 06).

**13.1 Waste treatment methods**

Normally it is possible to empty small amounts (diluted!) into drains. Empty containers of corrosive reagents prior to disposal, rinse with water.

## SECTION 14: Transport information

**14.1. UN number:** 3316  
**14.2. UN proper shipping name:** Chemical Kit  
**14.3. Class:** 9  
**14.4. Packing group:** II  
*Road transport ADR*  
 Classification code: M11 Tunnel restriction code: E  
 Limited Quantity: acc. ADR 3.3.1/251: see LQ in Alternative declaration for transportation  
*Air transport IATA DGR*  
 Limited Quantity: PAX: 960 max. quantity PAX: 10 KG  
 CAO: 960 max. quantity CAO: 10 KG  
*Maritime transport IMDG*  
 EmS: F-A, S-P Staukategorie: A

Or use **Alternative declaration for transportation:**  
 UN No.: (see below) class 8 III, **Excepted Quantities** (≤30 mL/Σ≤1 L) = ADR/ IATA E1  
 or

**14.1 UN number:** 3264  
**14.2 UN proper shipping name:** Corrosive liquid, acidic, inorganic, n.o.s. (*o-phosphoric acid solution*)  
**14.3 Class:** 8  
**14.4 Packing group:** III  
*Road transport ADR*



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Classification code: C1  
 Limited Quantity: 5 L  
 Excepted Quantity: E 1  
 Tunnel restriction code: E

*Air transport IATA DGR*  
 Limited Quantity: PAX: 852 max. quantity PAX: 5 L  
 CAO: 856 max. quantity CAO: 60 L  
 Excepted Quantity: E 1

*Maritime transport IMDG*  
 EmS: F-A, S-B Staukategorie: A  
 Special instructions: 223, 274

## 14.5 Environmental hazards

none, contains only small quantities of hazardous substances

## 14.6 Special precautions for user

not necessary

## 14.7 Carriage in bulk by sea in accordance with IMO instruments

Not applicable.

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Dangerous Substances Protection Act (DE: Chemikaliengesetz - ChemG), Aug 2013, Stand: Okt 2020  
 Ordinance on protection against dangerous substances (E: Gefahrstoffverordnung - GefStoffV), Nov 2010, Stand: Mrz 2017  
 TRGS 201, Classification and labeling of activities involving hazardous substances, Feb 2017  
 TRGS 220, National aspects when preparing safety data sheets, Jan 2017  
 TRGS 400, Risk assessment for activities involving hazardous substances, Jul 2017  
 TRGS 401, Skin contact hazard - identification, assessment, action, Jun 2008, status: Feb 2011  
 BekGS 408, Application of the GefStoffV and the TRGS with the entry into force of the CLP regulation, December 2009, status: Jan 2012  
 TRGS 500, Protective measures, Mai 2008  
 TRGS 510, Storage of hazardous substances in portable containers from March 2013, status: Oct 2015  
 Chapter 4, Measures when storing hazardous substances up to 50 kg (small quantity regulation)  
 Wasserhaushaltsgesetz - WHG, Section 3 Handling substances hazardous to water, Jul 2009, status: Aug 2016  
 MN leaflet/instructions for use, also at [www.mn-net.com](http://www.mn-net.com)  
 If necessary, observe other country-specific regulations.

### 15.2 Chemical safety assessment

no data available

## SECTION 16: Other information

### 16.1 Changes compared to the last version

Between versions 2.2.2.3 and 2.2.2.2 following changes were applied: - 1 substance data corrected

### 16.2 List of H and P phrases

#### 16.2.1 List of relevant H phrases

H Between versions 2.2.2.3 and 2.2.2.2 following changes were applied: - 1 substance data corrected  
 H290 May be corrosive to metals.  
 H302 Harmful if swallowed.  
 H314 Causes severe skin burns and eye damage.

#### 16.2.2 List of relevant P phrases

P260sh Do not breathe dust/vapours.  
 P264 Wash hands thoroughly after handling.  
 P280sh Wear protective gloves/eye protection.  
 P303+361+353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
 P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.



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# Safety Data Sheet

## according to Regulations REACH 1907/2006/EC

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P310	Immediately call a POISON CENTER/doctor.
P405	Store locked up.
P501	Dispose of contents/container to regulated waste treatment.

### 16.3 Recommended restriction on use

Only for professional user.  
 Look about employee restrictions for young people (f. ex. 94/33/EC or DE § 22 JArbSchG)!  
 Look about employee restrictions for pregnant women and nursing women (f.ex. 92/85/EEC or for DE §§ 11-13 MuSchG 2017)!  
 An individual package of this product or test kit has a moderate hazardous potential.

### 16.4 Sources of key data

KÜHN, BIRETT, Leaflets on hazardous materials, 2021  
 Directive 1999/92/EG Minimum requirements to improve the safety and health protection of workers at risk from potentially explosive atmospheres  
 SUVA .CH, limit values in the air at work 2009, revised on 01/2009  
 Regulation 790/2009/EU, adaptation of Regulation 1272/2008/EU to technical and scientific progress (1st ATP)  
 Regulation 453/2010/EU, adaptation of the REACH regulation 1907/2006/EG  
 Regulation 487/2013/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (4th ATP)  
 Regulation 1221/2015/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (7th ATP)  
 Regulation 776/2017/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (10th ATP)  
 Regulation 669/2018/EU, adaptation of Regulation 1272/2008/EC to technical and scientific progressText (11th ATP)  
 Regulation 1480/2018/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (13th ATP)  
 Regulation 521/2019/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (12th ATP)  
 TRGS 900, German rules of technology on limit values in the air at work, as of 03/2019  
 Regulation 217/2020/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (14th ATP)  
 Regulation 878/2020/EU, adaptation of Annex II of the REACH regulation 1907/2006/EG  
 Regulation 1182/2020/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (15th ATP)  
 Regulation 643/2021/EU, adaptation of Annex VI, Part 1, of Regulation 1272/2008/EC to technical and scientific progress (16th ATP)  
 Regulation 849/2021/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (17th ATP)  
 Regulation 692/2022/EU, adaptation of Annex VI, Part 1, of Regulation 1272/2008/EC to technical and scientific progress (18th ATP)

#### revisions/updates

Reason for revision: *2014-02 Corrected structure of the sections according to Regulation 453/2010/EU, if necessary*  
*2014-04 adjustment according Regulation 487/2013/EU*  
*2016-03 adjustment according Regulation 1221/2015/EU*  
  
*2017-11 adjustment according the ECHA registration dossier*  
*2022-11 adjustment according Regulation 878/2020/EU*

### 16.5 Further information

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### 16.6 Legend / Abbreviations

acc:	according
ADR:	Convention concerning the International Carriage of Dangerous Goods by Road
Act:	acute
BAT:	biological workplace tolerance value
CAO:	Cargo Aircraft Only
Carc:	carcinogen
CAS:	Chemical Abstracts Service
CLP:	Classification, Labelling and Packaging regulation
CMR:	carcinogen, mutagen, reproduction toxic
Corr:	corrosive
COD:	chemical oxigen demand
CSCL:	Chemical Substance Control Law (Jp)
Dam:	damage
DNEL:	Derived No-Effect Level (for workers)
derm:	dermal
dog:	dog
EC10:	Concentration causing a toxic effect in 10% of the test organisms
EC:	European Community



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EC-Nr:	Substance number of the EC substance inventory
EmS:	Guide to accident management measures on ships
EU:	European Union
fish:	fish (not specified)
GHS:	Global Harmonized System of Classification and Labeling of Chemicals
gpg:	guinea pig
ICAO:	International Civil Aviation Organization
ihl:	inhaled
IMDG:	International Maritime Dangerous Goods Code
intrav:	intravenous
ipt:	intraperitoneal
ISHL:	Industrial Safety and Health Law (Jp)
LC50:	letale concentration 50%
LD50:	letale dosis 50%
leuciscus idus:	fisch, ide, orfe
MAK:	maximum workplace concentration
Met:	Metall
mus:	mouse
Muta:	mutagen
NIOSH:	National Institute for Occupational Safety and Health (US)
NRD:	Non-rapidly degradable
onchorhynchus mykiss:	fish, rainbow trout
orl:	oral
OSHA:	Occupational Safety and Health Administration
PAX:	transport on passenger planes allowed
PBT:	persistent, bioaccumulating, toxic substance
pH:	pH value
pimephales promelas:	fish, fathead minnow
PNEC:	Predicted No Effect Concentration
PROC 15:	Process category 'for laboratory use'
PRTR:	Law for PRTR and Promotion of Chemical Management (Jp)
PVC:	polyvinyl chloride
quail:	bird, quail
rat:	rat
rbt:	rabbit
RD:	rapidly degradable
RE:	repeated
REACH:	Registration, Evaluation, Authorisation and Restriction of Chemicals
REF:	item number, reference number
Reg.No.:	rRegistration number
Repr:	harmful to reproduction
Resp:	respiratory
RIP:	REACH Implementations Projects
scu:	sub cutan
SDS:	safety data sheet
Sens:	sensitisation
STEL:	short term exposure limit
STOT:	Specific Target Organ Toxicity
SVHC:	Substance of Very High Concern
t/a:	tons per year
TCCA:	Toxic Chemicals Control Act (S. Korea)
Tox:	toxic
TSCA:	The Toxic Substances Control Act (US)
TWA:	time weighted average
TRGS:	technical regulations (DE)
vPvB:	very persistent, very bioaccumulating substance

### 16.7 Training advice

Regular safety training. Multiple safety training of staffs about danger and protection by using hazards in working area. Additionally training and introduction of staffs for using these products.



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