

# Safety Data Sheet

according to Regulations 1907/2006/EC (REACH) and 2015/830/EU

REF: 931015

VISOCOLOR ECO Chlorine 2, free and total

Page: 1/12

Printing date: 12.01.2023

Date of issue: 26.09.2022

Version: 2.2.2.16

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

### 1.1 Product identifier

REF

931015

Product name

VISOCOLOR ECO Chlorine 2, free and total

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 Cl<sub>2</sub>-3

1 x 25 mL Cl<sub>2</sub>-2

1 x 18 mL Cl<sub>2</sub>-1

UFI: CD8U-X3WH-820N-DAF0

### 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

Valenciennner Str. 11, 52355 Düren, Germany

Phone: +49 2421 969 0

E-mail: sds@mn-net.com (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 Giftinformationszentrum (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



GHS07



GHS08

Signal word

DANGER

**Hazard identification**

**Hazard classes/categories**

H315

Skin Irrit. 2

H319

Eye Irrit. 2

H360FD

Repr. 1B

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

25 mL Cl<sub>2</sub>-2



GHS07



GHS08

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VISOCOLOR ECO Chlorine 2, free and total

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Signal word

DANGER

## Hazard identification

## Hazard classes/categories

H315

Skin Irrit. 2

H319

Eye Irrit. 2

H360FD

Repr. 1B

### 30 mL Cl<sub>2</sub>-3

Signal word

Do not need labelling as hazardous

No hazard class

### 18 mL Cl<sub>2</sub>-1

Signal word

Do not need labelling as hazardous

No hazard class

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).

### 25 mL Cl<sub>2</sub>-2



GHS07



GHS08

Signal word: DANGER

H360FD

May damage fertility. May damage the unborn child.

P201, P280sh, P308+313, P405

Obtain special instructions before use. Wear protective gloves/eye protection. IF exposed or concerned: Get medical advice/attention. Store locked up.

### 30 mL Cl<sub>2</sub>-3

Do not need labelling as hazardous

Signal word: -

### 18 mL Cl<sub>2</sub>-1

Do not need labelling as hazardous

Signal word: -

## Label elements of the complete product



GHS07



GHS08

Signal word: DANGER

H360FD

May damage fertility. May damage the unborn child.

P201, P280sh, P308+313, P405

Obtain special instructions before use. Wear protective gloves/eye protection. IF exposed or concerned: Get medical advice/attention. Store locked up.

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## 2.3 Other hazards

### Possible hazards from physicochemical properties

In the case of pH values are less than 5 or higher than 9 then it is irritant.

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

May damage fertility. May damage the unborn child.

### Information pertaining to particular risks to 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 Cl<sub>2</sub>-2

Substance name: *sulfuric acid*  
CAS No.: 7664-93-9

Substance rating: H314, Skin Corr. 1B  
Formula: H<sub>2</sub>SO<sub>4</sub> (•H<sub>2</sub>O)  
REACH Reg. No.: 01-2119458838-20-xxxx  
EC No.: 231-639-5

Indice No.: 016-020-00-8

Specific concentration limit: Eye Irrit. 2; H319: 5 % ≤ C < 15 % - Skin Irrit. 2; H315: 5 % ≤ C < 15 % - Skin Corr 1A; H314 c ≥ 15%

Concentration: 5 - <15 %  
acc. CLP (GHS): H315, Skin Irrit. 2, H319, Eye Irrit. 2

Substance name: *boric acid*  
CAS No.: 10043-35-3

Substance rating: H360FD, Repr. 1B  
Formula: H<sub>3</sub>BO<sub>3</sub>  
Pseudonym (de): Orthoborsäure, E284  
REACH Reg. No.: 01-2119486683-25-0024  
**SVHC listed:** **listed (18/06/2010) Cand. Lst. REACH Art59(10)**  
EC No.: 233-139-2  
Concentration: 0,5 - <5,5 %  
acc. CLP (GHS): H360FD, Repr. 1B

Indice No.: 005-007-00-2

Substance name: *N,N-Diethyl-1,4-phenylene diammonium sulfate*  
CAS No.: 6283-63-2

Substance rating: H302, Acute Tox. 4 oral, H312, Acute Tox. 4 derm.  
Formula: C<sub>10</sub>H<sub>16</sub>N<sub>2</sub>•H<sub>2</sub>O  
Pseudonym (de): DPD, 4-Amino-N,N-diethylanilin  
EC No.: 228-500-6  
Concentration: 0,1 - <1 %  
acc. CLP (GHS): The criteria for classification are not fulfilled.

Indice No.: 612-080-00-X

#### 30 mL Cl<sub>2</sub>-3

Substance name: *water*  
CAS No.: 7732-18-5

Substance rating: No criteria for classification or naming of chemical not required.  
Formula: H<sub>2</sub>O  
REACH Reg. No.: exempt, Annex IV  
EC No.: 231-791-2  
Concentration: 90 - <100 %  
acc. CLP (GHS): The criteria for classification are not fulfilled.

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VISOCOLOR ECO Chlorine 2, free and total

Page: 4/12

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Substance name: *potassium iodide*  
CAS No.: 7681-11-0  
Substance rating: H319, Eye Irrit. 2  
Formula: KI  
Pseudonym (de): Iodkalium  
REACH Reg. No.: YES, confidential  
EC No.: 231-659-4  
Concentration: 1 - <10 %  
acc. CLP (GHS): The criteria for classification are not fulfilled.

## 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.

#### 4.1.1 After SKIN Contact

Remove contaminated clothing. Rinse the affected skin or mucous membrane thoroughly under running water. (If possible) use soap.

#### 4.1.2 After EYE Contact

After contact with the eyes rinse thoroughly under running water with the eyelid wide open with eye washing bottle, eye douche or running water (protect intact eye).

#### 4.1.3 After INHALATION of vapours

After inhalation of foam or vapour fresh air should be inhaled. Keep airways free. ---

#### 4.1.4 After ORAL Intake

After oral intake lots of water should be drunk after it has been ingested.

### 4.2 Most important symptoms and effects, both acute and delayed

CMR Effekte:

### 4.3 Indication of any immediate medical attention and special treatment needed

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## 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.

### 5.4 Additional information



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Page: 5/12

Version: 2.2.2.16

## 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). 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

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

## 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. Products which are also classified as toxic must be kept under lock and key. Storage class (German chemical industry): see chapter 12.1

Storage class (VCI): 8B  
Water hazard class (DE): 3

#### 7.2.1 Requirements for stock rooms and containers

Keep original product packages tightly closed during handling and storage, so that they are not immediately accessible to outside parties.

### 7.3 Specific end use(s)

Product for analytical use.

## SECTION 8: Exposure controls /personal protection

### 8.1 Control parameters

#### 25 mL Cl<sub>2</sub> -2

Chemical: *sulfuric acid*

CAS No.: 7664-93-9

DNEL: [inh] 50 µg/m<sup>3</sup>  
DNEL = Derived No-Effect Level (for workers)

PNEC (fresh water): 2.5 µg/L  
PNEC = Predicted No Effect Concentration

EU value: 0.1 e mg/m<sup>3</sup>  
TRGS 900 (DE): 0.1 E mg/m<sup>3</sup>  
E/e respirable

Short-term exposure factor: 1 (I), Y  
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 0.1 e mg/m<sup>3</sup>

NIOSH: NTP Report on Carcinogens (RoC) List Yes (Known to be a human carcinogen); [TWA] 1 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>

Chemical: *boric acid*

CAS No.: 10043-35-3

DNEL: [derm] 392 mg/kg bw/day; [inh] 8.3 mg/m<sup>3</sup>  
DNEL = Derived No-Effect Level (for workers)

PNEC (fresh water): 2.9 mg/L  
PNEC = Predicted No Effect Concentration

TRGS 900 (DE): 0.5 E 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: [Bor][MAK] 1,8e/[STEL] 1,8e mg/m<sup>3</sup>

NIOSH: not listed  
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: not listed



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Chemical: *N,N-Diethyl-1,4-phenylene diammonium sulfate* CAS No.: 6283-63-2  
 NIOSH: not listed  
 [TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period  
 OSHA: not listed

**30 mL Cl<sub>2</sub>-3**  
 Chemical: *water* CAS No.: 7732-18-5

Chemical: *potassium iodide* CAS No.: 7681-11-0

## 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.

### 8.2.4 Skin protection

Recommended 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.

### 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 Cl<sub>2</sub>-2

a) State of aggregation:	liquid
b) Colour:	rose
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:	0-1
l) Kinematic viscosity:	no data available
m) Solubility in water:	no data available
n) Dispersion coefficient (o/w):	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 Cl<sub>2</sub>-3

a) State of aggregation:	liquid
b) Colour:	colourless
c) Odor:	odorless
d) Melting point:	no data available



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e) Boiling point:	no data available
f) Flammability:	no data available
g) Explosive limits (lower / upper):	no data available
h) Flash point:	N/A
i) Flashing temperature:	no data available
j) Decomposition temperature:	no data available
k) pH value:	no data available
l) Kinematic viscosity:	no data available
m) Solubility in water:	no data available
n) Dispersion coefficient (o/w):	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	1.0 g/cm³
q) Relative vapour density (air=1):	no data available
r) Particle size:	no data available

## 9.2 Other information

No data is available for the other parameters for the mixtures, since no registration and no chemical safety report is required.

**Properties relevant to substance groups**

## 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

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 Cl<sub>2</sub>-2

Chemical:	<i>sulfuric acid</i>	CAS No.: 7664-93-9
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, teeth	
Symptoms:	irritation eyes, skin, nose, throat; pulmonary edema, bronchitis; emphysema; conjunctivitis; stomatis;	
dental erosion; eye, skin burns; dermatitis		
Australia NICNAS:	not listed	Canada CEPA 1999: DSL Yes
Japan CSCL/PRTR:	not listed, Japan PDSCL: Deleterious Substance	
Japan ISHL:	listed ≥1,0%/≥1,0%, Article 57-2 (SDS required)	
South Korea TCCA:	Accident Precaution Chemical Yes	
Korea Exist.Chem.Inventory:	KE-32570, >10% Toxic 97-1-405, Acc. Precaution Chem.	
LD50 orl rat:	2140 mg/kg	
LC50 ihl mus:	0,85 mg/L/4H	
TRGS 905 (DE):	Kat 4	



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Chemical: *boric acid* CAS No.: 10043-35-3  
TSCA Inventory: listed California Proposition 65 List: not listed  
Australia NICNAS: not listed Canada CEPA 1999: DSL yes  
Japan CSCL/PRTR: PRTR: ≥1,0%B class I, Japan PDSCL: not listed  
Japan ISHL: not listed  
South Korea TCCA: not listed  
Korea Exist.Chem.Inventory: KE-03499  
LD50 orl rat : > 3765 mg/kg  
LC50 ihl rat : 2,12 mg/L/4H

Carcinogenic Effects: May damage fertility. May damage the unborn child.

EU carcinogen: R<sub>D</sub> 1B, R<sub>F</sub> 1B

TRGS 905 (DE): R<sub>E</sub> 2, R<sub>F</sub> 2

Chemical: *N,N-Diethyl-1,4-phenylene diammonium sulfate* CAS No.: 6283-63-2  
TSCA Inventory: listed (CAS 6065-27-6) California Proposition 65 List: not listed  
Australia NICNAS: not listed Canada CEPA 1999: not listed  
Japan CSCL/PRTR: not listed, Japan PDSCL: not listed  
Japan ISHL: not listed  
South Korea TCCA: not listed  
LD50 orl rat : 497 mg/kg

## 30 mL Cl<sub>2</sub>-3

Chemical: *water* CAS No.: 7732-18-5  
TSCA Inventory: listed  
Korea Exist.Chem.Inventory: KE-35400  
LD50 orl rat : > 90000 mg/kg

Chemical: *potassium iodide* CAS No.: 7681-11-0  
TSCA Inventory: listed  
Korea Exist.Chem.Inventory: not listed  
LD50 orl rat : 2779 mg/kg

## 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 Cl<sub>2</sub>-2

Chemical: *sulfuric acid* CAS No.: 7664-93-9  
PNEC (fresh water) : 2.5 µg/L  
PNEC = Predicted No Effect Concentration  
LC50 fish/96h : [NOEC, 65d] 25 µg/L  
EC50 daphnia/48h : 100 mg/L  
EC10 pseudomonas putida/16h : [72h] 100 mg/L  
Water hazard class (DE): 1 WGK No.: 0182  
Storage class (VCI): 8 B

Chemical: *boric acid* CAS No.: 10043-35-3  
PNEC (fresh water) : 2.9 mg/L  
PNEC = Predicted No Effect Concentration  
LC50 fish/96h : [4d] 79.7 mg/L  
EC50 daphnia/48h : 91-165 mg/L  
IC50 scenedesmus quadricauda/72h : [72h] 52.4 mg/L  
EC10 pseudomonas putida/16h : [EC10] 10 mg/L  
Water hazard class (DE): 1 WGK No.: 0315  
Dispersion coefficient (o/w) : -1,09  
Storage class (VCI): 6.1 D



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Chemical: *N,N-Diethyl-1,4-phenylene diammonium sulfate*  
Water hazard class (DE): 3  
Storage class (VCI): 12-13

CAS No.: 6283-63-2

## 30 mL Cl<sub>2</sub> -3

Chemical: *water*

CAS No.: 7732-18-5

Chemical: *potassium iodide*  
LC50<sub>fish/96h</sub>: 2190 mg/L  
Water hazard class (DE): 1  
Dispersion coefficient (o/w): 0,04  
Storage class (VCI): 12-13

CAS No.: 7681-11-0

## 12.2 Persistence and degradability

not necessary

## 12.3 Bioaccumulative potential

not necessary

## 12.4 Mobility in soil

not necessary

## 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). Close container tightly.

### 13.1 Waste treatment methods

Normally it is possible to empty small amounts (diluted!) into drains.  
Dispose of contents/container to regulated waste treatment.

## SECTION 14: Transport information

14.1 - 14.4: No dangerous goods according to the transport regulations

### 14.5 Environmental hazards

none, contains only small quantities of hazardous substances

### 14.6 Special precautions for user

not necessary

### 14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable.

## SECTION 15: Regulatory information

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

Chemicals Prohibition Ordinance - (DE: ChemVerbotsV), aktualisiert Jan 2017  
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  
BekGS 408, Application of the GefStoffV and the TRGS with the entry into force of the CLP regulation, December 2009, status: Jan 2012



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# Safety Data Sheet

according to Regulations 1907/2006/EC (REACH) and 2015/830/EU

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VISOCOLOR ECO Chlorine 2, free and total

Page: 10/12

Printing date: 12.01.2023

Date of issue: 26.09.2022

Version: 2.2.2.16

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

not necessary for these small amounts

## SECTION 16: Other information

### 16.1 Changes compared to the last version

Between versions 2.2.2.16 and 2.2.2.2 following changes were applied: - 14 substance data corrected

### 16.2 List of H and P phrases

#### 16.2.1 List of relevant H phrases

H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H360FD May damage fertility. May damage the unborn child.

#### 16.2.2 List of relevant P phrases

P201 Obtain special instructions before use.  
P280sh Wear protective gloves/eye protection.  
P308+313 IF exposed or concerned: Get medical advice/attention.  
P405 Store locked up.

### 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  
Directive 2004/37/EC on the protection of workers from the risk of carcinogens or mutagens at workSUVA .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)  
TRGS 905, German rules of technology for carcinogenic and mutagenic substances, as of March 18, 2016  
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)

#### 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 oxygen 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
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:	lethal concentration 50%
LD50:	lethal dose 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:	fisch, rainbow trout
ori:	oral
OSHA:	Occupational Safety and Health Administration
PAX:	transport on passenger planes allowed
PBT:	persistent, bioaccumulating, toxic substance
pH:	pH value
pimephales promelas:	fisch, 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.:	Registration number
Repr:	harmful to reproduction
Resp:	respiratory
RIP:	REACH Implementations Projects
scu:	sub cutan
SDS:	safety data sheet

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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.