

Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 91317

Printing date: 15.05.2024

QUANTOFIX Chlorine

Date of issue: 06.11.2023

Page: 1/13

Version: 3.3.2.4

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

1.1 Product identifier

REF 91317
Product name QUANTOFIX Chlorine

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 100 test strips

1 x 7 g Cl₂-1

1 x 25 mL Cl₂-2

UFI: UVAV-C33A-Q20N-DFQ5

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.

If CE labelling: Product for in-vitro-diagnostic use (IVD) or Accessory for medical use

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 (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



GHS02



GHS07

Signal word

WARNING

Hazard identification

H226
H302
H312
H332
EUH031

Hazard classes/categories

Flam. Liq. 3
Acute Tox. 4 oral
Acute Tox. 4 derm.
Acute Tox. 4 inh.

-

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

25 mL Cl₂-2



GHS02



GHS07

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Signal word

WARNING

Hazard identification

Hazard classes/categories

EUH031

-

H226

Flam. Liq. 3

H302

Acute Tox. 4 oral

H312

Acute Tox. 4 derm.

H332

Acute Tox. 4 inh.

100 test strips

Signal word

Do not need labelling as hazardous

No hazard class

-

7 g Cl₂ -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** and highly flammable chemicals/mixtures must not be labelled with H and P phrases **until 125 mL** (EU 1272/2008 Annex I - 1.5.2).

25 mL Cl₂ -2



GHS02



GHS07

Signal word: WARNING

100 test strips

Do not need labelling as hazardous

Signal word: -

7 g Cl₂ -1

Do not need labelling as hazardous

Signal word: -

Label elements of the complete product



GHS02



GHS07

Signal word: WARNING

2.3 Other hazards

Possible hazards from physicochemical properties

Flammable properties.

Information pertaining to particular risks to human and possible symptoms

Cause after oral intake, inhalation of vapours/dust, impairments of health when ingested in small quantities.

Information pertaining to particular risks to the environment

PBT: not applicable

vPvB: not applicable

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Possible endocrine disrupting effects

no data available

Other hazards

Contains an odor intensive reagent.

SECTION 3: Composition / information on ingredients

3.1 Substances or 3.2 Mixtures

25 mL Cl₂-2

Substance name: *pyridine*
CAS No.: 110-86-1

Substance rating: H225, Flam. Liq. 2, H302, Acute Tox. 4 oral, H312, Acute Tox. 4 derm., H332, Acute Tox. 4 inh.
Formula: C₅H₅N
Pseudonym (de): Azin, Azabenzol
REACH Reg. No.: 01-2119493105-40-xxxx
EC No.: 203-809-9
Concentration: 32 - <44 %
acc. CLP (GHS): H226, Flam. Liq. 3, H332, Acute Tox. 4 inh.

Indice No.: 613-002-00-7

Substance name: *potassium cyanide*
CAS No.: 151-50-8

Substance rating: H300, Acute Tox. 1 oral, H310, Acute Tox. 1 derm., H330, Acute Tox. 1 inh., H410, Aquatic Chronic 1, EUH032, not defined
Formula: KCN
Pseudonym (de): Cyankali
REACH Reg. No.: 01-2119486407-29-xxxx
EC No.: 205-792-3
Concentration: 0,1 - <1 %
The classification refers to the weight percentage of the metal (according to CLP regulation 2008/1272/EG Annex VI, 1.1.3.2 Note 1)
acc. CLP (GHS): H302, Acute Tox. 4 oral, H312, Acute Tox. 4 derm., H332, Acute Tox. 4 inh., EUH031,

Indice No.: 006-007-00-5

Correlation factor: x 0.40 (= %CN⁻)

100 test strips

Substance name: *cellulose paper*
CAS No.: 9004-34-6

Substance rating: No criteria for classification or naming of chemical not required.
Formula: (C₆H₁₀O₅)_n
REACH Reg. No.: exempt, Annex IV
EC No.: 232-674-9
Concentration: 1 - <10 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

Substance name: *chemicals/mixture until 1%*
CAS No.: -

Substance rating: No criteria for classification or naming of chemical not required.
Concentration: 0,1 - <1 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

Substance name: *PVC foil (CAS 9002-86-2)*
CAS No.: -

Substance rating: No criteria for classification or naming of chemical not required.
Concentration: 95 - <100 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

7 g Cl₂-1



MACHEREY-NAGEL GmbH & Co. KG
Valencienner Str. 11
52355 Düren · Germany
www.mn-net.com

DE Tel.: +49 24 21 969-0 info@mn-net.com
CH Tel.: +41 62 388 55 00 sales-ch@mn-net.com
FR Tel.: +33 388 68 22 68 sales-fr@mn-net.com
US Tel.: +1 888 321 62 24 sales-us@mn-net.com

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Substance name: *phosphates (buffer salts)*
CAS No.: -

Substance rating: No criteria for classification or naming of chemical not required.
Formula: $K/Na\ 1-3\ H\ 2-0\ PO\ 4$
Concentration: 75 - <100 %
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 dust with wetted tissue. Remove contaminated clothing. Rinse the affected skin or mucous membrane thoroughly under running water. (If possible) use soap.

4.1.2 After EYE Contact

Rub dust with teardrops from eyes or: 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. After inhalation of dust fresh air should be inhaled.

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

There are no known delayed symptoms or effects for this product.

4.3 Indication of any immediate medical attention and special treatment needed

No additionally recommendations. ---

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. 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

WARNING: Flammable (GHS regulation). May form explosive vapour-air mixtures. 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

no data available

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Regular staff training is necessary.

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.

Collect small amounts of leaked liquid and flush with water into drains.

6.4 Reference to other sections

no data available

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): 3

Water hazard class (DE): 3

7.2.1 Requirements for stock rooms and containers

Keep original product packages tightly closed during handling and storage.

7.3 Specific end use(s)

Product for analytical use.

If CE labelling: Product for in-vitro-diagnostic use (IVD) or Accessory for medical use

SECTION 8: Exposure controls /personal protection

8.1 Control parameters

25 mL Cl₂-2

Chemical: *potassium cyanide*

CAS No.: 151-50-8

EU value: CN: [TWA] 1 / [STEL] 5 mg/m³

TRGS 900 (DE): [CN 8h] 1 / [15min] 5 mg/m³

E/e respirable

Short-term exposure factor: (4), H

skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 5 CN e mg/m³

NIOSH: not listed

NIOSH STEL: skin, HCN 4.7 ppm / 5 mg/m³

[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: EPCRA/SARA Section 302 Extremely Hazardous Substances Yes (TPQ = 100 lbs) n/a; TWA skin, HCN

10 ppm / 11 mg/m³

Chemical: *pyridine*

CAS No.: 110-86-1

PNEC (fresh water): 300 µg/L

PNEC = Predicted No Effect Concentration

EU value: [TWA] 5 ppm / 15 mg/m³

TRGS 900 (DE): [8h] 5 ppm / 15 mg/m³

E/e respirable

Short-term exposure factor: 2 (II)

skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 5 ppm / 15 mg/m³

NIOSH: [TWA] 5 ppm / 15 mg/m³

[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: [TWA] 5 ppm / 15 mg/m³

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100 test strips

Chemical: PVC foil (CAS 9002-86-2)

CAS No.: -

Chemical: cellulose paper

CAS No.: 9004-34-6

TRGS 900 (DE): Staub 1.25 A / 4 E mg/m³
E/e respirable

SUVA(CH) MAK value: 3 a ppm

NIOSH: TWA 10 (total) / 5 (resp) mg/m³

[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: TWA 15 (total) / 5 (resp) mg/m³

Chemical: chemicals/mixture until 1%

CAS No.: -

7 g Cl₂ -1

Chemical: phosphates (buffer salts)

CAS No.: -

8.2 Exposure controls

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

Not necessary.

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 Cl₂ -2

a) State of aggregation:	liquid
b) Colour:	colourless
c) Odor:	like pyridine
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:	ca. 35 °C
i) Flashing temperature:	no data available
j) Decomposition temperature:	no data available
k) pH value:	8-9
l) Kinematic viscosity:	no data available
m) Solubility in water:	0-100 %
n) Dispersion coefficient (K _{ow}):	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	0,99 g/mL
q) Relative vapour density (air=1):	no data available
r) Particle size:	no data available

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100 test strips

a) State of aggregation:	solid
b) Colour:	colored
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:	no data available
l) Kinematic viscosity:	no data available
m) Solubility in water:	no data available
n) Dispersion coefficient ($K_{o/w}$):	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	no data available
q) Relative vapour density ($\rho_{air=1}$):	no data available
r) Particle size:	no data available

7 g Cl₂-1

a) State of aggregation:	powder (solid)
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:	8-9
l) Kinematic viscosity:	no data available
m) Solubility in water:	0-40 %
n) Dispersion coefficient ($K_{o/w}$):	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	no data available
q) Relative vapour density ($\rho_{air=1}$):	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.

□ □

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

Possible: &H:EUH031& No further data available.



MACHEREY-NAGEL GmbH & Co. KG
Valenciennner Str. 11
52355 Düren · Germany
www.mn-net.com

DE Tel.: +49 24 21 969-0 info@mn-net.com
CH Tel.: +41 62 388 55 00 sales-ch@mn-net.com
FR Tel.: +33 388 68 22 68 sales-fr@mn-net.com
US Tel.: +1 888 321 62 24 sales-us@mn-net.com

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10.4 Conditions to avoid

no data available

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 Cl₂-2

Chemical: *potassium cyanide* CAS No.: 151-50-8
TSCA Inventory: listed California Proposition 65 List: not listed
Target Organs: act on blood or hemato-poietic system: decrease hemoglobin function; deprive body tissues of oxygen
Symptoms: cyanosis; loss of consciousness
Australia NICNAS: not listed Canada CEPA 1999: DSL Yes
Japan CSCL/PRTR: Poisonous substance, PRTR: ≥1,0% CN class I, Japan PDSCL: Poisonous Substance
Japan ISHL: listed ≥1,0%/≥1,0%, Article 57-1+2 (Labelling&SDS required)
South Korea TCCA: not listed
Korea Exist.Chem.Inventory: KE-29092, >1% Toxic 97-1-90
LD50 orl rat : 5 mg/kg
LC_{Low} orl hmn : 2,86 mg/kg
LD50 orl mus : 8,5 mg/kg
LD50 scu rat : 7,8 mg/kg
Acute Effects: Cause after oral intake, inhalation of vapours/dust, skin contact, impairments of health when ingested in small quantities.
TRGS 905 (DE): R F C

Chemical: *pyridine* CAS No.: 110-86-1
TSCA Inventory: listed California Proposition 65 List: listed cancer
Exposure Routes: inhalation, skin absorption, ingestion, skin and/or eye contact
Target Organs: Eyes, skin, central nervous system, liver, kidneys, gastrointestinal tract,
Symptoms: irritation eyes; headache, anxiety, dizziness, insomnia; nausea, anorexia; dermatitis; liver, kidney damage
Japan CSCL/PRTR: PRTR: ≥1,0% class I
Japan ISHL: listed ≥1,0%/≥0,1%,
Korea Exist.Chem.Inventory: KE-29929
LD50 orl rat : 800-1600 mg/kg
LC_{Low} ihl rat : 4900 ppm/4H
LC_{Low} orl gpg : 4000 mg/kg
LC_{Low} orl hmn : 500 mg/kg
LC50 ihl rat : 15,852 mg/L/4H
Acute Effects: Cause after skin contact, impairments of health when ingested in small quantities.
TRGS 905 (DE): [DFG] carc. 3B

100 test strips

Chemical: *PVC foil (CAS 9002-86-2)* CAS No.: -
TSCA Inventory: listed

Chemical: *cellulose paper* CAS No.: 9004-34-6
TSCA Inventory: listed California Proposition 65 List: not listed
Exposure Routes: inhalation, skin and/or eye contact
Target Organs: Eyes, skin, respiratory system
Symptoms: irritation eyes, skin, mucous membrane
Australia NICNAS: not listed Canada CEPA 1999: DSL yes
Japan CSCL/PRTR: not listed, Japan PDSCL: not listed
Japan ISHL: not listed
South Korea TCCA: not listed
Korea Exist.Chem.Inventory: KE-05339
LD50 orl rat : > 5000 mg/kg
LC50 ihl rat : > 5,800 mg/L/4H

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Chemical: *chemicals/mixture until 1%*
TSCA Inventory: all listed, <1%
Korea Exist.Chem.Inventory: listed

CAS No.: -

7 g Cl₂-1

Chemical: *phosphates (buffer salts)*
TSCA Inventory: all listed
Korea Exist.Chem.Inventory: listed
LD50 orl rat : > 2000 mg/kg

CAS No.: -

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 Cl₂-2

Substance name: *potassium cyanide*
LC50 daphnia magna/48h : 2.48h ; 0.53 24h mg/L
LC50 fish/96h : 0.45 mg/L
EC50 daphnia/48h : 0.041 mg/L
IC50 scenedesmus quadricauda/72h : 0.03 8d mg/L
EC10 pseudomonas putida/16h : EC10/16h: 0.001 mg/L
Water hazard class (DE): 3 WGK No.: 338
Storage class (VCI): 6.1 B

CAS-Nr.: 151-50-8

Substance name: *pyridine*

CAS-Nr.: 110-86-1

PNEC (fresh water) : 300 µg/L
PNEC = Predicted No Effect Concentration = concentration at which no effect on the environment is expected
LC50 fish/96h : [EC50 4h] 560-1000 mg/L
EC50 daphnia/48h : 320 mg/L
IC50 scenedesmus quadricauda/72h : IC50/7d: 120 mg/L
EC10 pseudomonas putida/16h : [EC50 72h] 320 mg/L mg/L
Water hazard class (DE): 2 WGK No.: 0179
Storage class (VCI): 3

100 test strips

Substance name: *PVC foil (CAS 9002-86-2)*

CAS-Nr.: -

Substance name: *cellulose paper*
Water hazard class (DE): nwg
Storage class (VCI): 11

CAS-Nr.: 9004-34-6

Substance name: *chemicals/mixture until 1%*
Water hazard class (DE): 1
Storage class (VCI): 12-13

CAS-Nr.: -

7 g Cl₂-1

Substance name: *phosphates (buffer salts)*
Water hazard class (DE): 1
Storage class (VCI): 13

CAS-Nr.: -

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12.2 Persistence and degradability

12.3 Bioaccumulative potential

Substance name:

pyridine

CAS-Nr.: 110-86-1

Dispersion coefficient (K_{ow}):

0,64

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

Do not collect in acidic waste. May form toxic gases.

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

SECTION 14: Transport information

14.1 UN number: 1993

14.2 UN proper shipping name: Flammable liquid, n.o.s. (pyridine mixture)

14.3 Class: 3

14.4 Packing group: III

Road transport ADR

Classification code:

F1

Limited Quantity:

5 L

Tunnel restriction code:

D/E

Excepted Quantity:

E 1

Special instructions:

640E

Air transport IATA DGR

Limited Quantity:

PAX: 355

max. quantity PAX: 60 L

CAO: 366

max. quantity CAO: 220 L

Excepted Quantity:

E 1

Maritime transport IMDG

EmS:

F-E, S-E

Staukategorie: A

Special instructions:

223, 274, 955

14.5 Environmental hazards

none

14.6 Special precautions for user

not necessary

14.7 Carriage in bulk by sea in accordance with IMO instruments

Not applicable.

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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
BekGS 408, Application of the GefStoffV and the TRGS with the entry into force of the CLP regulation, December 2009, status: Jan 2012
MN leaflet/instructions for use, also at 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 3.3.2.4 and 2.2.2.2 following changes were applied: -0 product data corrected - 1 product component data corrected - 2 substance data corrected

16.2 List of H and P phrases

16.2.1 List of relevant H phrases

H Between versions 3.3.2.4 and 2.2.2.2 following changes were applied: -0 product data corrected - 1 product component data corrected - 2 substance data corrected
H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H332 Harmful if inhaled.
EUH031 Contact with acids liberates toxic gas.

16.2.2 List of relevant P phrases

16.3 Recommended restriction on use

Only for professional user.
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



MACHEREY-NAGEL GmbH & Co. KG
Valenciennr Str. 11
52355 Düren · Germany
www.mn-net.com

DE Tel.: +49 24 21 969-0 info@mn-net.com
CH Tel.: +41 62 388 55 00 sales-ch@mn-net.com
FR Tel.: +33 388 68 22 68 sales-fr@mn-net.com
US Tel.: +1 888 321 62 24 sales-us@mn-net.com

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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:	fish, 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

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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.