

Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 933200

VISOCOLOR School reagent case Refill set

Page: 1/31

Printing date: 04.04.2023

Date of issue: 26.01.2023

Version: 2.2.4.11

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

1.1 Product identifier

REF	933200	
Product name	VISOCOLOR School reagent case Refill set	
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 NH ₄ -1		UFI: AADU-73NS-C20E-U17Y
1 x 2,5 g NH ₄ -2		
1 x 10 mL NH ₄ -3		UFI: JKDU-R3QY-820W-T205
1 x 8 mL GH-1		UFI: XPDU-83EC-K20D-GDK7
1 x 30 mL GH-2		
1 x 30 mL NO ₃ -1		
1 x 5 g NO ₃ -2		UFI: D3EU-S3VC-320V-S3GJ
1 x 30 mL NO ₂ -1		UFI: J6EU-93JR-E20C-FF2M
1 x 5 g NO ₂ -2		
1 x 24 mL pH-1		UFI: DCEU-93XJ-120C-S47R
1 x 25 mL PO ₄ -1		UFI: QFEU-T3MX-A20U-EFTT
1 x 25 mL PO ₄ -2		UFI: NJEU-A3AA-N20A-3TDV

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
Valenciener 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



Signal word

DANGER

Hazard identification

H225
H290
H314
H411
EUH031

Hazard classes/categories

Flam. Liq. 2
Met. Corr. 1
Skin Corr. 1B
Aquatic Chronic 2
031 not defined



MACHEREY-NAGEL GmbH & Co. KG
Valenciener 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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2.1 Classification of the substance or mixture according to Regulation (EC) 1272/2008

8 mL GH-1



GHS02

GHS07

Signal word

WARNING

Hazard identification

Hazard classes/categories

H226

Flam. Liq. 3

H315

Skin Irrit. 2

H319

Eye Irrit. 2

25 mL PO 4 -1



GHS07

Signal word

WARNING

Hazard identification

Hazard classes/categories

H315

Skin Irrit. 2

H319

Eye Irrit. 2

30 mL NH 4 -1



GHS05

Signal word

DANGER

Hazard identification

Hazard classes/categories

H314

Skin Corr. 1B

30 mL GH-2

Signal word

Do not need labelling as hazardous

No hazard class

10 mL NH 4 -3



GHS02

GHS05

Signal word

DANGER

Hazard identification

Hazard classes/categories

H226

Flam. Liq. 3

H314

Skin Corr. 1B

H412

Aquatic Chronic 3

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5 g NO₂-2

Signal word Do not need labelling as hazardous
-

No hazard class

2,5 g NH₄-2

Signal word Do not need labelling as hazardous
-

No hazard class

24 mL pH-1



GHS02

Signal word DANGER

Hazard identification	Hazard classes/categories
H225	Flam. Liq. 2

30 mL NO₃-1

Signal word Do not need labelling as hazardous
-

No hazard class

30 mL NO₂-1



GHS05

Signal word DANGER

Hazard identification	Hazard classes/categories
H290	Met. Corr. 1

5 g NO₃-2



GHS09

Signal word NONE

Hazard identification	Hazard classes/categories
H411	Aquatic Chronic 2

25 mL PO₄-2



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GHS05

Signal word

DANGER

Hazard identification

Hazard classes/categories

EUH031
H318

031 not defined
Eye Dam. 1

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). 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).

8 mL GH-1



GHS02



GHS07

Signal word: WARNING

25 mL PO 4 -1



GHS07

Signal word: WARNING

30 mL NH 4 -1



GHS05

Signal word: DANGER

H314

Causes severe skin burns and eye damage.

P260sh, P280sh, P303+361+353, P305+351+338, P310

Do not breathe dust/vapours. 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.

30 mL GH-2

Do not need labelling as hazardous

Signal word: -

10 mL NH 4 -3



GHS02



GHS05

Signal word: DANGER

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H314

Causes severe skin burns and eye damage.

P260sh, P280sh, P303+361+353, P305+351+338, P310

Do not breathe dust/vapours. 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.

5 g NO₂-2

Do not need labelling as hazardous

Signal word: -

2,5 g NH₄-2

Do not need labelling as hazardous

Signal word: -

24 mL pH-1



GHS02

Signal word: DANGER

30 mL NO₃-1

Do not need labelling as hazardous

Signal word: -

30 mL NO₂-1



GHS05

Signal word: DANGER

5 g NO₃-2



GHS09

Signal word: NONE

25 mL PO₄-2



GHS05

Signal word: DANGER

H318

Causes serious eye damage.

P280sh, P305+351+338, P310

Wear protective gloves/eye protection. 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.

Label elements of the complete product



GHS02



GHS05



GHS09

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Signal word: DANGER

H314

Causes severe skin burns and eye damage.

P260sh, P280sh, P303+361+353, P305+351+338, P310

Do not breathe dust/vapours. 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.

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. Flammable properties. H290 "May be corrosive to metals." has only relevance for higher concentrations and larger amounts. The labelling GHS05 would be creating an "OVERLABELLING" (see GHS Directive 1272/2008/EC Annex I, chapter 1.5.2.1.3., until 125 mL no labelling necessary).

Information pertaining to particular risks to human and possible symptoms

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.

Information pertaining to particular risks to the environment

Avoid contact of substance/mixture to environment.

PBT: not applicable

vPvB: not applicable

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

8 mL GH-1

Substance name: *triethanolamine*
CAS No.: 102-71-6

Substance rating: H315, Skin Irrit. 2, H319, Eye Irrit. 2
Formula: $C_6H_{15}NO_3$
Pseudonym (de): 2,2',2"-Nitrilotriethanol, TEA, Tris(2-hydroxyethyl)amin
REACH Reg. No.: 01-2119486482-31-xxxx

Dual-use: The application of this chemical is exempt from the regulation 2017/2268/EU (see IC350 remark 4).

EC No.: 203-049-8
Concentration: 20 - <45 %
acc. CLP (GHS): H315, Skin Irrit. 2, H319, Eye Irrit. 2

Substance name: *ethanol*
CAS No.: 64-17-5
(denatured with 1% 2-butanone / 1% 2-propanol)

Substance rating: H225, Flam. Liq. 2
Formula: C_2H_6O ; C_2H_5OH
Pseudonym (de): Äthylalkohol, vergällter Spiritus
REACH Reg. No.: 01-2119457610-43-xxxx

EC No.: 200-578-6
Concentration: 20 - <35 %
acc. CLP (GHS): H226, Flam. Liq. 3

Indice No.: 603-002-00-5

Substance name: *indicator dye(s)*
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.



MACHEREY-NAGEL GmbH & Co. KG
Valenciener 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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2,5 g NH₄-2

Substance name: *sodium chloride*
CAS No.: 7647-14-5

Substance rating: No criteria for classification or naming of chemical not required.
Formula: NaCl
Pseudonym (de): Kochsalz
REACH Reg. No.: exempt, Annex V
EC No.: 231-598-3
Concentration: 80 - <100 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

Substance name: *dichloroisocyanuric acid, Na salt*
CAS No.: 2893-78-9

Substance rating: H272, Ox. Liq. 2, H302, Acute Tox. 4 oral, H319, Eye Irrit. 2, H335, STOT SE 3, H410, Aquatic Chronic 1, EUH031, 031 not defined
Formula: C₃Cl₂N₃NaO₃
Pseudonym (de): 1,3-Dichlor-5H-(1,3,5)-triazin-2,4,6-trion
REACH Reg. No.: 01-2119489371-33-xxxx
EC No.: 220-767-7
Concentration: 3 - <10 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

Indice No.: 613-030-01-7

25 mL PO₄-2

Substance name: *sodium disulfite*
CAS No.: 7681-57-4

Substance rating: H302, Acute Tox. 4 oral, H318, Eye Dam. 1, EUH031, 031 not defined
Formula: Na₂O₅S₂
Pseudonym (de): Disulfit
REACH Reg. No.: 01-2119531326-45-xxxx
EC No.: 231-673-0
Concentration: 10 - <25 %
acc. CLP (GHS): H318, Eye Dam. 1, EUH031, 031 not defined

Indice No.: 016-063-00-2

10 mL NH₄-3

Substance name: *thymol*
CAS No.: 89-83-8

Substance rating: H302, Acute Tox. 4 oral, H314, Skin Corr. 1B, H411, Aquatic Chronic 2
Formula: C₁₀H₁₄O
Pseudonym (de): 1-Methyl-3-hydroxy-4-isopropylbenzol
REACH Reg. No.: 01-2119511177-46-xxxx
EC No.: 201-944-8
Concentration: 5 - <10 %
acc. CLP (GHS): H314, Skin Corr. 1B, H412, Aquatic Chronic 3

Indice No.: 604-032-00-1

Substance name: *sodium nitroprusside*
CAS No.: 13755-38-9

Substance rating: H301, Acute Tox. 3 oral
Formula: Na₂[Fe(CN)₅NO]·2H₂O
Pseudonym (de): Natriumpentacyanonitrosylferrat(II)
EC No.: 238-373-9
Concentration: 1 - <5 %
acc. CLP (GHS): The criteria for classification are not fulfilled.



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Substance name: *ethanol*
 CAS No.: 64-17-5
 (denatured with 1% 2-butanone / 1% 2-propanol)
 Substance rating: H225, Flam. Liq. 2
 Formula: C₂H₆O; C₂H₅OH
 Pseudonym (de): Äthylalkohol, vergällter Spiritus
 REACH Reg. No.: 01-2119457610-43-xxxx
 EC No.: 200-578-6
 Concentration: 35 - <55 %
 acc. CLP (GHS): H226, Flam. Liq. 3

Indice No.: 603-002-00-5

5 g NO₃₋₂

Substance name: *zinc powder (stabilized)*
 CAS No.: 7440-66-6
 Substance rating: H410, Aquatic Chronic 1
 Formula: Zn
 REACH Reg. No.: 01-2119467174-37-xxxx
 EC No.: 231-175-3
 Concentration: 2,5 - <10 %
 acc. CLP (GHS): H411, Aquatic Chronic 2

Indice No.: 030-002-01-9

30 mL NO₃₋₁

Substance name: *citric acid*
 CAS No.: 77-92-9
 Substance rating: H319, Eye Irrit. 2, H335, STOT SE 3
 Formula: C₆H₈O₇
 Pseudonym (de): Zitronensäure
 REACH Reg. No.: 01-2119457026-42-xxxx
 EC No.: 201-069-1
 Concentration: 1 - <10 %
 acc. CLP (GHS): The criteria for classification are not fulfilled.

5 g NO₂₋₂

Substance name: *citric acid*
 CAS No.: 77-92-9
 Substance rating: H319, Eye Irrit. 2, H335, STOT SE 3
 Formula: C₆H₈O₇
 Pseudonym (de): Zitronensäure
 REACH Reg. No.: 01-2119457026-42-xxxx
 EC No.: 201-069-1
 Concentration: 1 - <10 %
 acc. CLP (GHS): The criteria for classification are not fulfilled.

Substance name: *N-(1-naphthyl)-ethylenediamine dihydrochloride*
 CAS No.: 1465-25-4
 Substance rating: H315, Skin Irrit. 2, H319, Eye Irrit. 2
 Formula: C₁₂H₁₆Cl₂N₂
 EC No.: 215-981-2
 Concentration: 1 - <10 %
 acc. CLP (GHS): The criteria for classification are not fulfilled.

24 mL pH-1



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Substance name: *indicator dye(s)*
CAS No.: -

Substance rating: No criteria for classification or naming of chemical not required.
Concentration: 0,01 - <0,1 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

Substance name: *ethanol*
CAS No.: 64-17-5
(denatured with 1% 2-butanone / 1% 2-propanol)
Substance rating: H225, Flam. Liq. 2
Formula: C₂H₆O; C₂H₅OH
Pseudonym (de): Äthylalkohol, vergällter Spiritus
REACH Reg. No.: 01-2119457610-43-xxxx
EC No.: 200-578-6
Concentration: 90 - <100 %
acc. CLP (GHS): H225, Flam. Liq. 2

Indice No.: 603-002-00-5

Substance name: *phenolphthalein (pH indicator)*
CAS No.: 77-09-8

Substance rating: H341, Muta. 2, H350, Carc. 1B, H361f, Repr. 2
Formula: C₂₀H₁₄O₄
Pseudonym (de): Indikator pH 8,2-9,8
REACH Reg. No.: 01-2119498295-24-0000
SVHC listed: listed (19/12/2011) Cand. Lst. REACH Art59(10)
EC No.: 201-004-7
Concentration: 0,01 - <0,1 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

Indice No.: 604-076-00-1

30 mL NO₂-1

Substance name: *sulfanilamide*
CAS No.: 63-74-1

Substance rating: No criteria for classification or naming of chemical not required.
Formula: C₆H₈N₂O₂S
Pseudonym (de): 4-Aminobenzolsulfonamid
EC No.: 200-563-4
Concentration: 1 - <10 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

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

Substance rating: H290, Met. Corr. 1, H302, Acute Tox. 4 oral, H314, Skin Corr. 1B
Formula: H₃PO₄•H₂O
Pseudonym (de): Orthophosphorsäure, E338
REACH Reg. No.: 01-2119485924-24-xxxx
EC No.: 231-633-2
Concentration: 1 - <10 %
acc. CLP (GHS): H290, Met. Corr. 1

Indice No.: 015-011-00-6

30 mL NH₄-1



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Substance name: *sodium hydroxide solution*
 CAS No.: 1310-73-2

Substance rating: H314, Skin Corr. 1B
 Formula: NaOH•H₂O
 Pseudonym (de): Natronlauge
 REACH Reg. No.: 01-2119457892-27-xxxx
 EC No.: 215-185-5
 Concentration: 5 - <10 %
 acc. CLP (GHS): H314, Skin Corr. 1B

Indice No.: 011-002-00-6

Substance name: *tri-sodium citrate*
 CAS No.: 6132-04-3

Substance rating: No criteria for classification or naming of chemical not required.
 Formula: C₆H₅Na₃O₇•2H₂O
 Pseudonym (de): Na-citrat, E331
 REACH Reg. No.: 01-2119457027-40-xxxx
 EC No.: 200-675-3
 Concentration: 10 - <20 %
 acc. CLP (GHS): The criteria for classification are not fulfilled.

25 mL PO₄-1

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

Substance rating: H315, Skin Irrit. 2, H319, Eye Irrit. 2
 Formula: H₂SO₄•H₂O
 REACH Reg. No.: 01-2119458838-20-xxxx
 EC No.: 231-639-5
 Concentration: 5 - <15 %
 acc. CLP (GHS): H315, Skin Irrit. 2, H319, Eye Irrit. 2

Indice No.: 016-020-00-8

Substance name: *ammonium heptamolybdate*
 CAS No.: 12054-85-2

Substance rating: No criteria for classification or naming of chemical not required.
 Formula: H₂₄Mo₇N₆O₂₄
 Pseudonym (de): Ammoniummolybdat
 REACH Reg. No.: 01-2119498057-28-xxxx
 EC No.: 234-722-4
 Concentration: 0,5 - <2 %
 Correlation factor: x 0.58 (= %Mo)
 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): The criteria for classification are not fulfilled.

30 mL GH-2

Substance name: *ethylendinitrilo tetraacetic acid, di Na-salt (EDTA-Na)*
 CAS No.: 6381-92-6

Substance rating: H332, Acute Tox. 4 inh., H373, STOT SE 3
 Formula: C₁₀H₁₄N₂Na₂O₈•2H₂O
 Pseudonym (de): Titriplex® III
 EC No.: 205-358-3
 Concentration: 0,1 - <1 %
 acc. CLP (GHS): The criteria for classification are not fulfilled.



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Substance name:	<i>ammonia solution</i>		
CAS No.:	1336-21-6		
Substance rating:	H314, Skin Corr. 1B, H335, STOT SE 3, H400, Aquatic Acute 1		
Formula:	NH ₃ •H ₂ O		
Pseudonym (de):	Salmiakgeist		
REACH Reg. No.:	01-2119488876-14-xxxx, 01-2119982985-14-XXXX		
EC No.:	215-647-6	Indice No.:	007-001-01-2
Concentration:	0,1 - <1 %		
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. 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

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 DISTRESS 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

DANGER: Highly flammable (GHS regulation). Forms explosive vapour-air mixtures. Formation of hazardous and caustic vapour-air mixtures possible.

5.3 Advice for firefighters



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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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

Avoid contact of substance/mixture to 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

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 . 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. 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

8 mL GH-1

Chemical: *triethanolamine*

CAS No.: 102-71-6

DNEL: [derm] 6.3; [inh] 5 mg/m³

DNEL = Derived No-Effect Level (for workers)

PNEC (fresh water): 0.32 mg/L

PNEC = Predicted No Effect Concentration

TRGS 900 (DE): - DFG: 5 E mg/m³
E/e respirable

Short-term exposure factor: 1, (2)

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

SUVA(CH) MAK value: [MAK] 5 e/[STEL] 10 e mg/m³

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

Chemical: *ethanol*

CAS No.: 64-17-5

DNEL: [derm] 343 mg/kg; [inh] 950 mg/m³

DNEL = Derived No-Effect Level (for workers)

PNEC (fresh water): 0.96 mg/L



MACHEREY-NAGEL GmbH & Co. KG
Valenciener 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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PNEC = Predicted No Effect Concentration

TRGS 900 (DE): 200 mL/m³ / 380 mg/m³
E/e respirable

Short-term exposure factor: 4 (II), Y
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 500 ppm / 960 mg/m³

NIOSH: [TWA] 1000 ppm / 1900 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] 1000 ppm / 1900 mg/m³

Chemical: *indicator dye(s)* CAS No.: -

2,5 g NH₄-2

Chemical: *sodium chloride* CAS No.: 7647-14-5

Chemical: *dichloroisocyanuric acid, Na salt* CAS No.: 2893-78-9

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

25 mL PO₄-2

Chemical: *sodium disulfite* CAS No.: 7681-57-4

DNEL: [inh] 225 mg/m³
DNEL = Derived No-Effect Level (for workers)

TRGS 900 (DE): -
E/e respirable

SUVA(CH) MAK value: 5 e mg/m³

NIOSH: [TWA] 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: none

10 mL NH₄-3

Chemical: *thymol* CAS No.: 89-83-8

Chemical: *sodium nitroprusside* CAS No.: 13755-38-9

Chemical: *ethanol* CAS No.: 64-17-5

DNEL: [derm] 343 mg/kg; [inh] 950 mg/m³
DNEL = Derived No-Effect Level (for workers)

PNEC (fresh water): 0.96 mg/L
PNEC = Predicted No Effect Concentration

TRGS 900 (DE): 200 mL/m³ / 380 mg/m³
E/e respirable

Short-term exposure factor: 4 (II), Y
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 500 ppm / 960 mg/m³

NIOSH: [TWA] 1000 ppm / 1900 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] 1000 ppm / 1900 mg/m³

5 g NO₃-2

Chemical: *zinc powder (stabilized)* CAS No.: 7440-66-6

DNEL: 1 inh mg/m³
DNEL = Derived No-Effect Level (for workers)

TRGS 900 (DE): 0.1A / 2E mg/m³
E/e respirable

30 mL NO₃-1

Chemical: *citric acid* CAS No.: 77-92-9

PNEC (fresh water): 440 mg/L
PNEC = Predicted No Effect Concentration

TRGS 900 (DE): 2 E mg/m³
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



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5 g NO 2 -2

Chemical: *citric acid* CAS No.: 77-92-9

PNEC (fresh water): 440 mg/L
PNEC = Predicted No Effect Concentration

TRGS 900 (DE): 2 E mg/m³
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

Chemical: *N-(1-naphthyl)-ethylenediamine dihydrochloride* CAS No.: 1465-25-4

24 mL pH-1

Chemical: *indicator dye(s)* CAS No.: -

Chemical: *ethanol* CAS No.: 64-17-5

DNEL: [derm] 343 mg/kg; [inh] 950 mg/m³
DNEL = Derived No-Effect Level (for workers)

PNEC (fresh water): 0.96 mg/L
PNEC = Predicted No Effect Concentration

TRGS 900 (DE): 200 mL/m³ / 380 mg/m³
E/e respirable

Short-term exposure factor: 4 (II), Y
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 500 ppm / 960 mg/m³

NIOSH: [TWA] 1000 ppm / 1900 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] 1000 ppm / 1900 mg/m³

Chemical: *phenolphthalein (pH indicator)* CAS No.: 77-09-8

NIOSH: not listed, NTP Report on Carcinogens (RoC) List Yes (Reasonably anticipated to be a human carcinogen)

[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 NO 2 -1

Chemical: *sulfanilamide* CAS No.: 63-74-1

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

DNEL: 2.92 mg/m³
DNEL = Derived No-Effect Level (for workers)

EU value: [TWA] 1 / [STEL] 2 mg/m³
[8h] 1 / [15min] 2 mg/m³

TRGS 900 (DE): 2 mg/m³
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/m³

NIOSH: TWA 1 / ST 3 mg/m³

NIOSH STEL: 3 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 1 mg/m³

30 mL NH 4 -1

Chemical: *sodium hydroxide solution* CAS No.: 1310-73-2

DNEL: [inh] 1 mg/m³
DNEL = Derived No-Effect Level (for workers)

TRGS 900 (DE): 2 mg/m³
E/e respirable

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

SUVA(CH) MAK value: 2 e mg/m³

NIOSH: 2 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] 2 mg/m³

Chemical: *tri-sodium citrate* CAS No.: 6132-04-3



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25 mL PO 4 -1

Chemical: *sulfuric acid* CAS No.: 7664-93-9

DNEL: 50 µg/m³
DNEL = Derived No-Effect Level (for workers)

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

TRGS 900 (DE): 0.1 E mg/m³
E/e respirable

Short-term exposure factor: 1 (I)
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/m³

NIOSH: NTP Report on Carcinogens (RoC) List Yes (Known to be a human carcinogen); TWA 1 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] 1 mg/m³

Chemical: *ammonium heptamolybdate* CAS No.: 12054-85-2

TRGS 900 (DE): [Mo] 5 E mg/m³
E/e respirable

SUVA(CH) MAK value: [Mo] 5 e mg/m³

30 mL GH-2

Chemical: *ethylendinitrilo tetraacetic acid, di Na-salt (EDTA-Na)* CAS No.: 6381-92-6

DNEL: [inh] 1.5 mg/m³
DNEL = Derived No-Effect Level (for workers)

PNEC (fresh water): 2.2 mg/L
PNEC = Predicted No Effect Concentration

Chemical: *ammonia solution* CAS No.: 1336-21-6

DNEL: [inh] 14 mg/m³
DNEL = Derived No-Effect Level (for workers)

PNEC (fresh water): 0.0011 mg/L
PNEC = Predicted No Effect Concentration

EU value: 20 ppm / 14 mg/m³
 TRGS 900 (DE): 20 ppm / 14 mg/m³
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: 20 ppm / 14 mg/m³

NIOSH: [TWA] 25 ppm / 18 mg/m³

NIOSH STEL: 35 ppm / 27 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: Yes (TQ = 15000 lbs) - n/a; [TWA] 50 ppm / 35 mg/m³

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.

8.2.6 Thermal hazards

no data available



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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

8 mL GH-1

a) State of aggregation:	liquid
b) Colour:	green
c) Odor:	alcoholic
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:	27 °C
i) Flashing temperature:	no data available
j) Decomposition temperature:	no data available
k) pH value:	10
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:	no data available
q) Relative vapour density (air=1) :	no data available
r) Particle size:	no data available

2,5 g NH₄-2

a) State of aggregation:	powder (solid)
b) Colour:	colourless
c) Odor:	chloric
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:	5-7
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:	no data available
q) Relative vapour density (air=1) :	no data available
r) Particle size:	no data available

25 mL PO₄-2

a) State of aggregation:	liquid
b) Colour:	colourless
c) Odor:	sulfuric
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:	6-7
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:	no data available
q) Relative vapour density (air=1) :	no data available
r) Particle size:	no data available



MACHEREY-NAGEL GmbH & Co. KG
 Valenciennes 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 mL NH₄ -3

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:	23 °C
i) Flashing temperature:	no data available
j) Decomposition temperature:	no data available
k) pH value:	6-8
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:	0,9 g/cm ³
q) Relative vapour density (air=1) :	no data available
r) Particle size:	no data available

5 g NO₃ -2

a) State of aggregation:	powder (solid)
b) Colour:	slightly grey
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:	6,5-7,5
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:	no data available
q) Relative vapour density (air=1) :	no data available
r) Particle size:	no data available

30 mL NO₃ -1

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:	2-3
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:	no data available
q) Relative vapour density (air=1) :	no data available
r) Particle size:	no data available



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5 g NO₂-2

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:	2-3
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:	no data available
q) Relative vapour density (air=1):	no data available
r) Particle size:	no data available

24 mL pH-1

a) State of aggregation:	liquid
b) Colour:	red
c) Odor:	alcoholic
d) Melting point:	-114 °C
e) Boiling point:	78 °C
f) Flammability:	no data available
g) Explosive limits (lower / upper):	3.5 ... 15 Vol%
h) Flash point:	> 12 °C
i) Flashing temperature:	425 °C
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 (o/w):	no data available
o) Vapour pressure (20°C):	59 hPa
p) Specific gravity:	0,79-0,86 g/cm ³
q) Relative vapour density (air=1):	1,59
r) Particle size:	no data available

30 mL NO₂-1

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:	2-3
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:	1,04 g/cm ³
q) Relative vapour density (air=1):	no data available
r) Particle size:	no data available

30 mL NH₄-1

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



MACHEREY-NAGEL GmbH & Co. KG
 Valenciener 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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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:	11,5-12,5
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:	no data available
q) Relative vapour density (air=1) :	no data available
r) Particle size:	no data available

25 mL PO₄-1

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:	1-2
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:	1,07 g/cm ³
q) Relative vapour density (air=1) :	no data available
r) Particle size:	no data available

30 mL GH-2

a) State of aggregation:	liquid
b) Colour:	colourless
c) Odor:	aminic
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:	10,5
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:	no data available
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

Substances are highly volatile and form flammable gas-air mixtures. Substances are highly corrosive.



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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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

Avoid contact with concentrated acids and oxidizing agents.

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.

8 mL GH-1

Chemical:	<i>triethanolamine</i>	CAS No.:	102-71-6
TSCA Inventory:	listed	California Proposition 65 List:	not listed
Australia NICNAS:	not listed	Canada CEPA 1999:	DSL Yes
Japan CSCL/PRTR:	PAC Yes, Japan PDSCL: not listed		
Japan ISHL:	listed ≥0,1%/≥0,1%, Article 57-2 (SDS required)		
South Korea TCCA:	not listed		
Korea Exist.Chem.Inventory:	KE-25940		
LD50 orl rat :	> 5000 mg/kg		

Chemical: *ethanol*

		CAS No.:	64-17-5
TSCA Inventory:	listed	California Proposition 65 List:	not listed
ACGIH:	1000 ppm		
Exposure Routes:	inhalation, ingestion, skin and/or eye contact		
Target Organs:	Eyes, skin, respiratory system, central nervous system, liver, blood, reproductive system		
Symptoms:	irritation eyes, skin, nose; headache, drowsiness, lassitude (weakness, exhaustion), narcosis; cough; liver damage; anemia; reproductive, teratogenic		
Australia NICNAS:	not listed	Canada CEPA 1999:	DSL yes
Japan CSCL/PRTR:	not listed, Japan PDSCL: not listed		
Japan ISHL:	listed ≥0,1%/≥0,1%, Article 57-2 (SDS required)		
South Korea TCCA:	not listed		
Korea Exist.Chem.Inventory:	KE-13217		
LD50 orl rat :	6200 mg/kg		
LC ₅₀ ihl gpg :	21,900 mg/L		
LC ₅₀ orl hmn :	1400 mg/kg		
LC50 ihl mus :	123,4 mg/L/4H		
LC50 ihl rat :	115,9-133,8 mg/L/4H		
LD50 orl mus :	3450 mg/kg		

TRGS 905 (DE): K5, M5, R F C

Chemical:	<i>indicator dye(s)</i>	CAS No.:	-
TSCA Inventory:	all listed, <1%		

2,5 g NH₄-2

Chemical:	<i>sodium chloride</i>	CAS No.:	7647-14-5
TSCA Inventory:	listed		
Korea Exist.Chem.Inventory:	KE-31387		
LD50 orl rat :	3000 mg/kg		



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Chemical: *dichloroisocyanuric acid, Na salt* CAS No.: 2893-78-9
TSCA Inventory: listed California Proposition 65 List: not listed
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-10215, >25% Toxic 2014-1-688
LD50 orl rat : 550-1600 mg/kg
LC_{LoW} orl hmn : 3570 mg/kg

25 mL PO 4 -2

Chemical: *sodium disulfite* CAS No.: 7681-57-4
TSCA Inventory: listed California Proposition 65 List: not listed
Exposure Routes: inhalation, ingestion, 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: listed ≥1,0%/≥1,0%, Article 57-2 (SDS required)
South Korea TCCA: not listed
Korea Exist.Chem.Inventory: KE-12701
LD50 orl rat : 1540 mg/kg

10 mL NH 4 -3

Chemical: *thymol* CAS No.: 89-83-8
TSCA Inventory: listed
Korea Exist.Chem.Inventory: KE-24420
LD50 orl rat : 980 mg/kg

Chemical: *sodium nitroprusside* CAS No.: 13755-38-9
TSCA Inventory: listed (CAS 14402-89-2)
Korea Exist.Chem.Inventory: not listed
LD50 orl rat : 99 mg/kg
LC_{LoW} orl rat : 20 mg/kg

Chemical: *ethanol* CAS No.: 64-17-5
TSCA Inventory: listed California Proposition 65 List: not listed
ACGIH: 1000 ppm
Exposure Routes: inhalation, ingestion, skin and/or eye contact
Target Organs: Eyes, skin, respiratory system, central nervous system, liver, blood, reproductive system
Symptoms: irritation eyes, skin, nose; headache, drowsiness, lassitude (weakness, exhaustion), narcosis; cough; liver damage; anemia; reproductive, teratogenic
Australia NICNAS: not listed Canada CEPA 1999: DSL yes
Japan CSCL/PRTR: not listed, Japan PDSCL: not listed
Japan ISHL: listed ≥0,1%/≥0,1%, Article 57-2 (SDS required)
South Korea TCCA: not listed
Korea Exist.Chem.Inventory: KE-13217
LD50 orl rat : 6200 mg/kg
LC_{LoW} ihl gpg : 21,900 mg/L
LC_{LoW} orl hmn : 1400 mg/kg
LC50 ihl mus : 123,4 mg/L/4H
LC50 ihl rat : 115,9-133,8 mg/L/4H
LD50 orl mus : 3450 mg/kg

TRGS 905 (DE): K5, M5, R F C

5 g NO 3 -2

Chemical: *zinc powder (stabilized)* CAS No.: 7440-66-6
TSCA Inventory: listed
Korea Exist.Chem.Inventory: KE-35518
LD50 orl rat : > 2000 mg/kg
LC_{LoW} ihl hmn : 0,124 mg/L/50M



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LC50 ihl rat : 5,41 mg/L/4H

30 mL NO₃-1

Chemical: *citric acid* CAS No.: 77-92-9
 TSCA Inventory: listed
 Korea Exist.Chem.Inventory: KE-20831
 LD50 orl rat : > 3000 mg/kg
 LC50 ihl rat : 5,800 mg/L
 LD50 orl mus : 5400 mg/kg
 LD50 scu rat : 5500 mg/kg

5 g NO₂-2

Chemical: *citric acid* CAS No.: 77-92-9
 TSCA Inventory: listed
 Korea Exist.Chem.Inventory: KE-20831
 LD50 orl rat : > 3000 mg/kg
 LC50 ihl rat : 5,800 mg/L
 LD50 orl mus : 5400 mg/kg
 LD50 scu rat : 5500 mg/kg

Chemical: *N-(1-naphthyl)-ethylendiamine dihydrochloride* CAS No.: 1465-25-4
 TSCA Inventory: listed
 Korea Exist.Chem.Inventory: not listed

24 mL pH-1

Chemical: *indicator dye(s)* CAS No.: -
 TSCA Inventory: all listed, <1%

Chemical: *ethanol* CAS No.: 64-17-5
 TSCA Inventory: listed California Proposition 65 List: not listed
 ACGIH: 1000 ppm
 Exposure Routes: inhalation, ingestion, skin and/or eye contact
 Target Organs: Eyes, skin, respiratory system, central nervous system, liver, blood, reproductive system
 Symptoms: irritation eyes, skin, nose; headache, drowsiness, lassitude (weakness, exhaustion), narcosis; cough; liver damage; anemia; reproductive, teratogenic
 Australia NICNAS: not listed Canada CEPA 1999: DSL yes
 Japan CSCL/PRTR: not listed, Japan PDSCL: not listed
 Japan ISHL: listed ≥0,1%/≥0,1%, Article 57-2 (SDS required)
 South Korea TCCA: not listed
 Korea Exist.Chem.Inventory: KE-13217
 LD50 orl rat : 6200 mg/kg
 LC_{Low} ihl gpg : 21,900 mg/L
 LC_{Low} orl hmn : 1400 mg/kg
 LC50 ihl mus : 123,4 mg/L/4H
 LC50 ihl rat : 115,9-133,8 mg/L/4H
 LD50 orl mus : 3450 mg/kg

TRGS 905 (DE): K5, M5, R F C

Chemical: *phenolphthalein (pH indicator)* CAS No.: 77-09-8
 TSCA Inventory: listed California Proposition 65 List: listed, cancer
 Australia NICNAS: not listed Canada CEPA 1999: DSL yes
 Japan CSCL/PRTR: PRTR - Class II Designated Chemical Substance, Japan PDSCL: not listed
 Japan ISHL: not listed
 South Korea TCCA: not listed
 Korea Exist.Chem.Inventory: KE-03234
 LD50 orl rat : > 1000 mg/kg

EU carcinogen: Carcinogenicity cat. 2, Germ Cell Mutagenicity cat. 3, >5% Reproductive Toxicity cat. 3
 TRGS 905 (DE): Karzinogenität Kat. 2



MACHEREY-NAGEL GmbH & Co. KG
 Valenciener 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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30 mL NO₂-1

Chemical: *sulfanilamide* CAS No.: 63-74-1
 TSCA Inventory: listed
 Korea Exist.Chem.Inventory: KE-01188
 LD50 orl rat : 3900 mg/kg

Chemical: *o-phosphoric acid* 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 ≥1,0%/≥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
 TRGS 905 (DE): R F C

30 mL NH₄-1

Chemical: *sodium hydroxide solution* CAS No.: 1310-73-2
 TSCA Inventory: listed California Proposition 65 List: not listed
 Exposure Routes: inhalation, ingestion, skin and/or eye contact
 Target Organs: Eyes, skin, respiratory system
 Symptoms: irritation eyes, skin, mucous membrane; pneumonitis; eye, skin burns; temporary loss of hair
 Australia NICNAS: not listed Canada CEPA 1999: DSL Yes
 Japan CSCL/PRTR: not listed, Japan PDSCL: not listed
 Japan ISHL: listed ≥1,0%/≥1,0%, Article 57-2 (SDS required)
 South Korea TCCA: not listed
 Korea Exist.Chem.Inventory: KE-31487
 LD50 orl rat : [40%] 1250 / [<25%] >2000 mg/kg
 LD50 orl mus : 40 mg/kg

Chemical: *tri-sodium citrate* CAS No.: 6132-04-3
 TSCA Inventory: listed (CAS 68-04-2)
 Korea Exist.Chem.Inventory: KE-20843
 LD50 orl rat : > 8000 mg/kg

25 mL PO₄-1

Chemical: *sulfuric acid* 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
 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
 LD50 orl rat : 2140 mg/kg
 LC50 ihl mus : 0,85 mg/L/4H
 TRGS 905 (DE): R F C

Chemical: *ammonium heptamolybdate* CAS No.: 12054-85-2
 TSCA Inventory: listed (CAS 11098-84-3)
 Japan ISHL: listed ≥1,0%/≥0,1%,
 Korea Exist.Chem.Inventory: not listed
 LD50 orl rat : 2000-5000 mg/kg
 LD50 ihl rat : 1,930-5,840 mg/L/4H



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30 mL GH-2

Chemical: *ethyldinitrilo tetraacetic acid, di Na-salt (EDTA-Na)* CAS No.: 6381-92-6
 TSCA Inventory: listed (CAS 139-33-3)
 LD50 orl rat : 2800 mg/kg

Chemical: *ammonia solution* CAS No.: 1336-21-6

TSCA Inventory: listed California Proposition 65 List: not listed
 Exposure Routes: inhalation, ingestion (solution), skin and/or eye contact (solution/liquid)
 Target Organs: Eyes, skin, respiratory system
 Symptoms: irritation eyes, nose, throat; dyspnea (breathing difficulty), wheezing, chest pain; pulmonary edema;
 pink frothy sputum; skin burns, vesiculation; I
 Australia NICNAS: not listed Canada CEPA 1999: DSL yes, Toxic Substances (Schedule 1) Yes
 (Item 53.)
 Japan CSCL/PRTR: not listed, Japan PDSC: Deleterious Substance
 Japan ISHL: listed ≥0,2%/≥0,1%, Article 57-2 (SDS required)
 South Korea TCCA: not listed
 Korea Exist.Chem.Inventory: KE-01688, >10% Toxic 97-1-184
 LD50 orl rat : 350 mg/kg
 LC Low ihl hmn : 5,000 mg/L
 LC50 ihl rat : 2000 ppm/4H

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.

8 mL GH-1

Chemical: *triethanolamine* CAS No.: 102-71-6
 PNEC (fresh water) : 0.32 mg/L
 PNEC = Predicted No Effect Concentration
 LC50 fish/96h : >1000 mg/L
 EC50 daphnia/48h : >1000^{24h} mg/L
 Water hazard class (DE): 1 WGK No.: 0201
 Dispersion coefficient (o/w) : -2,3
 Storage class (VCI): 12

Chemical: *ethanol* CAS No.: 64-17-5

PNEC (fresh water) : 0.96 mg/L
 PNEC = Predicted No Effect Concentration
 LC50 daphnia magna/48h : >100 mg/L
 LC50 pimephales promelas/96h : 13400 - 15100 mg/L
 LC50 leuciscus idus/96h : [48h] 8140 mg/L
 LC50 fish/96h : 13 g/L
 EC50 daphnia/48h : 9.3-14.2 g/L
 IC50 scenedesmus quadricauda/72h : [7d] 5000 mg/L
 EC10 pseudomonas putita/16h : [EC5] 6500 mg/L
 Water hazard class (DE): 1 WGK No.: 0096
 Dispersion coefficient (o/w) : -0,31
 Storage class (VCI): 3

Chemical: *indicator dye(s)* CAS No.: -

Storage class (VCI): 12-13

2,5 g NH₄-2

Chemical: *sodium chloride* CAS No.: 7647-14-5
 Water hazard class (DE): 1
 Storage class (VCI): 12-13



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Chemical: *dichloroisocyanuric acid, Na salt* CAS No.: 2893-78-9
 Water hazard class (DE): 3
 Storage class (VCI): 13

25 mL PO 4 -2

Chemical: *sodium disulfite* CAS No.: 7681-57-4
 LC50 fish/96h : 150-220 mg/L
 EC50 daphnia/48h : 89 mg/L
 IC50 scenedesmus quadricauda/72h : 48 mg/L
 Water hazard class (DE): 1 WGK No.: 1169
 Storage class (VCI): 8 B

10 mL NH 4 -3

Chemical: *thymol* CAS No.: 89-83-8
 Harmful to aquatic life with long lasting effects. Avoid contact of substance/mixture to environment.
 Environmental hazards must not be labelled with P phrases until 125 mL (EU 1272/2008 Annex I - 1.5.2).
 LC50 pimephales promelas/96h : 3.2 mg/L
 EC50 daphnia/48h : 3.2 mg/L
 Water hazard class (DE): 2 WGK No.: 1220
 Storage class (VCI): 8 A

Chemical: *sodium nitroprusside* CAS No.: 13755-38-9
 Water hazard class (DE): 3
 Storage class (VCI): 6.1 B

Chemical: *ethanol* CAS No.: 64-17-5
 PNEC (fresh water) : 0.96 mg/L
 PNEC = Predicted No Effect Concentration
 LC50 daphnia magna/48h : >100 mg/L
 LC50 pimephales promelas/96h : 13400 - 15100 mg/L
 LC50 leuciscus idus/96h : [48h] 8140 mg/L
 LC50 fish/96h : 13 g/L
 EC50 daphnia/48h : 9.3-14.2 g/L
 IC50 scenedesmus quadricauda/72h : [7d] 5000 mg/L
 EC10 pseudomonas putita/16h : [EC5] 6500 mg/L
 Water hazard class (DE): 1 WGK No.: 0096
 Dispersion coefficient (o/w) : -0,31
 Storage class (VCI): 3

5 g NO 3 -2

Chemical: *zinc powder (stabilized)* CAS No.: 7440-66-6
 Toxic to aquatic life with long lasting effects. Avoid contact of substance/mixture to environment.
 Environmental hazards must not be labelled with H and P phrases until 125 mL (EU 1272/2008 Annex I - 1.5.2).
 LC50 fish/96h : 2.01 mg/L
 EC50 daphnia/48h : 0.131 mg/L
 EC50 pseudokirchneriella subcapitata/72h : IC50: 0.713 mg/L
 Water hazard class (DE): 2 WGK No.: 7325
 Storage class (VCI): 13

30 mL NO 3 -1

Chemical: *citric acid* CAS No.: 77-92-9
 PNEC (fresh water) : 440 mg/L
 PNEC = Predicted No Effect Concentration
 LC50 leuciscus idus/96h : 440-760 mg/L
 EC50 daphnia/48h : 1535 24h mg/L
 IC50 scenedesmus quadricauda/72h : 7d: 425-640 mg/L
 EC10 pseudomonas putita/16h : EC0: >10 g/L
 Water hazard class (DE): 1 WGK No.: 0057
 Dispersion coefficient (o/w) : -1,72
 Storage class (VCI): 12-13

5 g NO 2 -2

Chemical: *citric acid* CAS No.: 77-92-9
 PNEC (fresh water) : 440 mg/L
 PNEC = Predicted No Effect Concentration
 LC50 leuciscus idus/96h : 440-760 mg/L
 EC50 daphnia/48h : 1535 24h mg/L



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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IC50 *scenedesmus quadricauda*/72h : 7d: 425-640 mg/L
 EC10 *pseudomonas putida*/16h : EC0: >10 g/L
 Water hazard class (DE): 1 WGK No.: 0057
 Dispersion coefficient (o/w) : -1,72
 Storage class (VCI): 12-13

Chemical: *N-(1-naphthyl)-ethylendiamine dihydrochloride* CAS No.: 1465-25-4
 Water hazard class (DE): 3
 Storage class (VCI): 13

24 mL pH-1

Chemical: *indicator dye(s)* CAS No.: -
 Storage class (VCI): 12-13

Chemical: *ethanol* CAS No.: 64-17-5
 PNEC (fresh water) : 0.96 mg/L
 PNEC = Predicted No Effect Concentration

LC50 *daphnia magna*/48h : >100 mg/L
 LC50 *pimephales promelas*/96h : 13400 - 15100 mg/L
 LC50 *leuciscus idus*/96h : [48h] 8140 mg/L
 LC50 fish/96h : 13 g/L
 EC50 *daphnia*/48h : 9.3-14.2 g/L
 IC50 *scenedesmus quadricauda*/72h : [7d] 5000 mg/L
 EC10 *pseudomonas putida*/16h : [EC5] 6500 mg/L
 Water hazard class (DE): 1 WGK No.: 0096
 Dispersion coefficient (o/w) : -0,31
 Storage class (VCI): 3

Chemical: *phenolphthalein (pH indicator)* CAS No.: 77-09-8
 Water hazard class (DE): 1
 Dispersion coefficient (o/w) : 0,9
 Storage class (VCI): 12-13

30 mL NO₂-1

Chemical: *sulfanilamide* CAS No.: 63-74-1
 Water hazard class (DE): 1 WGK No.: n.n.
 Storage class (VCI): 12-13

Chemical: *o-phosphoric acid* CAS No.: 7664-38-2
 LC50 fish/96h : 3-3.5 mg/L
 Water hazard class (DE): 1 WGK No.: 0392
 Storage class (VCI): 8 B

30 mL NH₄-1

Chemical: *sodium hydroxide solution* CAS No.: 1310-73-2
 Avoid contact of substance/mixture to environment.
 LC50 *leuciscus idus*/96h : 35-189 mg/L
 LC50 fish/96h : 45.4 mg/L
 EC50 *daphnia*/48h : >100 mg/L
 Water hazard class (DE): 1 WGK No.: 142
 Storage class (VCI): 8 B

Chemical: *tri-sodium citrate* CAS No.: 6132-04-3
 LC50 fish/96h : 18-32 g/L
 EC50 *daphnia*/48h : 5.6-10 g/L
 EC50 *chlorella vulgaris*/5d : >18-32 g/L
 EC10 *pseudomonas putida*/16h : EC50 *ps. fluorescens*/8h : >1.8-3.2 g/L
 Water hazard class (DE): 1
 Storage class (VCI): 12-13

25 mL PO₄-1

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



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Water hazard class (DE): 1 WGK No.: 0182
Storage class (VCI): 8 B

Chemical: *ammonium heptamolybdate* CAS No.: 12054-85-2
Water hazard class (DE): 1 WGK No.: 0637
Storage class (VCI): 12-13

30 mL GH-2
Chemical: *ethylendinitrilo tetraacetic acid, di Na-salt (EDTA-Na)* CAS No.: 6381-92-6
PNEC (fresh water): 2.2 mg/L
PNEC = Predicted No Effect Concentration
LC50 fish/96h: [4d] 41-1592 mg/L
EC50 daphnia/48h: 140 mg/L
IC50 scenedesmus quadricauda/72h: [72h] 2.77-1000 mg/L
EC10 pseudomonas putida/16h: [EC10, 30h] 500 mg/L
Water hazard class (DE): 2
Dispersion coefficient (o/w): -4,3
Storage class (VCI): 12-13

Chemical: *ammonia solution* CAS No.: 1336-21-6
PNEC (fresh water): 0.0011 mg/L
PNEC = Predicted No Effect Concentration
LC50 fish/96h: 0,89 mg/L
EC50 daphnia/48h: 101 mg/L
Water hazard class (DE): 2 WGK No.: 0211
Storage class (VCI): 8 B

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).

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 ICAO

PAX: 960 max. weight PAX: 10 KG

CAO: 960 max. weight CAO: 10 KG

Maritime transport IMDG



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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EmS: F-A, S-P Storage category: A

Or use **Alternative declaration for transportation:**

UN No.: (see below) UN 1993 class 3 II, class 8 II, **Excepted Quantities** (≤ 30 mL/ $\Sigma \leq 500$ mL) = ADR/ IATA E2
or

14.1 UN number: 1436 14.2 UN proper shipping name: Zinc powder / Zinc dust

14.3 Class: 4.2 14.4 Packing group: II Additionally class: 4.3

Road transport ADR

Classification code: WS

Limited Quantity: 0

Tunnel restriction code: E

Excepted Quantity: E 2

Air transport ICAO

Limited Quantity: LQ

Excepted Quantity: E 2

PAX: 483

max. weight PAX: 15 Kg

CAO: 490

max. weight CAO: 50 Kg

Maritime transport IMDG

EmS: F-G, S-O

Storage category: A

14.1 UN number: 1993 14.2 UN proper shipping name: Flammable liquid, n.o.s. (ethanol mixture)

14.3 Class: 3 14.4 Packing group: II

Road transport ADR

Classification code: F1

Limited Quantity: 1 L

Tunnel restriction code: E

Excepted Quantity: E 2

Special instructions: 640C

Air transport ICAO

Limited Quantity: LQ 4

Excepted Quantity: E 2

PAX: 353

max. weight PAX: 5 L

CAO: 364

max. weight CAO: 60 L

Maritime transport IMDG

EmS: F-E, S-E

Storage category: B

14.1 UN number: 3264

14.2 UN proper shipping name: Corrosive liquid, acidic, inorganic, n.o.s. (o-phosphoric acid, sodium disulfite solution)

14.3 Class: 8 14.4 Packing group: II

Road transport ADR

Classification code: C1

Limited Quantity: 1 L

Tunnel restriction code: E

Excepted Quantity: E 2

Air transport ICAO

Limited Quantity: LQ 22

Excepted Quantity: E 2

PAX: 851

max. weight PAX: 1 L

CAO: 855

max. weight CAO: 30 L

Maritime transport IMDG

EmS: F-A, S-B

Storage category: B

14.1 UN number: 3266 14.2 UN proper shipping name: Corrosive liquid, basic, inorganic, n.o.s. (sodium hydroxide solution)

14.3 Class: 8 14.4 Packing group: II

Road transport ADR

Classification code: C5

Limited Quantity: 1 L

Tunnel restriction code: E

Excepted Quantity: E 2

Air transport ICAO

Limited Quantity: LQ22

Excepted Quantity: E 2

PAX: 851

max. weight PAX: 1 L

CAO: 855

max. weight CAO: 30 L

Maritime transport IMDG

EmS: F-A, S-B

Storage category: B



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- 14.5 Environmental hazards**
none, contains only small quantities of hazardous substances, contains only small amounts of these 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
 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 2.2.4.11 and 2.2.2.2 following changes were applied: - 2 composition data corrected - 9 substance data corrected
- 16.2 List of H and P phrases**
 - 16.2.1 List of relevant H phrases**

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
EUH031	Contact with acids liberates toxic gas.
 - 16.2.2 List of relevant P phrases**

P260sh	Do not breathe dust/vapours.
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.
P310	Immediately call a POISON CENTER/doctor.
- 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**



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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)

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
 2017-08 adjustment according the Ordinance on Ethanol Denaturation 2016/1867/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
 EC-Nr: Substance number of the EC substance inventory
 EmS: Guide to accident management measures on ships
 EU: European Union
 fish: fish (not spezified)
 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)



MACHEREY-NAGEL GmbH & Co. KG
 Valenciener 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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- 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: fisch, 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: 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.: 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.

