

Material Safety Data Sheet

according to Directive 1907/2006/EC (REACH) and 453/2010/EU

Printing date: 06.02.2015

Date of issue: 28.01.2015

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1 Identification of the Substance/Mixture and of the Company

1.1 Product identifier

REF	914353
Product name	VISOCOLOR case Environm. analyses w.PF-12 Plus
	1 x 17 mL Fe-1
	1 x 5 g Fe-2
	1 x 15 mL Indicator H 20 F
	1 x 10 mL Indicator m
	1 x 10 mL Indicator p
	2 x 24 mL pH-1
	1 x 100 mL TL C 20
	1 x 100 mL TL H 20
	1 x 30 mL NH ₄ -1
	1 x 2,5 g NH ₄ -2
	1 x 6 mL NH ₄ -3
	1 x 30 mL NO ₃ -1
	1 x 5 g NO ₃ -2
	1 x 30 mL NO ₂ -1
	1 x 5 g NO ₂ -2
	1 x 25 mL PO ₄ -1
	1 x 25 mL PO ₄ -2

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

Relevant identified uses

Product for analytical use.

Exposure Scenario Classification according REACH, RIP 3.2 Codes: SU 0-2, PC 21, PROC 15, AC 0

The exposure scenario is integrated into sections 1-16.

Uses advised against

not described

1.3 Details of the supplier of the safety data sheet

Manufactured by:

MACHEREY-NAGEL GmbH & Co. KG
Neumann-Neander-Str. 6-8, 52355 Dueren, GERMANY
Tel.: +49 2421 969 0

E-mail: 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

Missing subsections are not relevant for the risk assessment of the product and may be omitted programmatically.

2 Hazard Identification

2.0 Classification of the complete product

Directive 1999/45/EC

Symbols



C

R

R 35

CLP Directive 1272/2008/EC

GHS pictograms



GHS02



GHS05



GHS07

Signal word

DANGER

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Hazard identification	Hazard classes/categories
EUH031	031 not defined
H225	Flammable Liquid cat. 2
H226	Flammable Liquid cat. 3
H314	Skin Corrosion 1A. Serious Damage to Eyes 1
H315	Skin Irritation cat. 2
H318	Serious damage to eyes cat. 1
H319	Eye Irritation cat. 2
H411	Hazardous to the aquatic environment - chronic cat. 2
H412	Hazardous to the aquatic environment - chronic cat. 3

2.1 Classification of the substance(s) or mixture(s)

17 mL Fe-1

Directive 1999/45/EC

Symbols - do not need labelling as hazardous

CLP Directive 1272/2008/EC

GHS pictograms - do not need labelling as hazardous
Signal word -

No hazard class

5 g Fe-2

Directive 1999/45/EC

Symbols - do not need labelling as hazardous

CLP Directive 1272/2008/EC

GHS pictograms - do not need labelling as hazardous
Signal word -

No hazard class

15 mL Indicator H 20 F

Directive 1999/45/EC

Symbols - do not need labelling as hazardous

CLP Directive 1272/2008/EC

GHS pictograms



GHS02 GHS07

Signal word WARNING

Hazard identification	Hazard classes/categories
H226	Flammable Liquid cat. 3
H315	Skin Irritation cat. 2
H319	Eye Irritation cat. 2

10 mL Indicator m

Directive 1999/45/EC

Symbols - do not need labelling as hazardous

CLP Directive 1272/2008/EC

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GHS pictograms



GHS02

Signal word

DANGER

Hazard identification

H225

Hazard classes/categories

Flammable Liquid cat. 2

10 mL Indicator p

Directive 1999/45/EC

Symbols

- do not need labelling as hazardous

CLP Directive 1272/2008/EC

GHS pictograms



GHS02

Signal word

DANGER

Hazard identification

H225

Hazard classes/categories

Flammable Liquid cat. 2

24 mL pH-1

Directive 1999/45/EC

Symbols

- do not need labelling as hazardous

CLP Directive 1272/2008/EC

GHS pictograms



GHS02

Signal word

DANGER

Hazard identification

H225

Hazard classes/categories

Flammable Liquid cat. 2

100 mL TL C 20

Directive 1999/45/EC

Symbols

- do not need labelling as hazardous

CLP Directive 1272/2008/EC

GHS pictograms

do not need labelling as hazardous

Signal word

-

No hazard class

100 mL TL H 20

Directive 1999/45/EC

Symbols

- do not need labelling as hazardous

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CLP Directive 1272/2008/EC

GHS pictograms do not need labelling as hazardous
Signal word -

No hazard class

30 mL NH₄ -1

Directive 1999/45/EC

Symbols R 35



C

CLP Directive 1272/2008/EC

GHS pictograms



GHS05

Signal word DANGER

Hazard identification

Hazard classes/categories

H314 Skin Corrosion 1A. Serious Damage to Eyes 1

2,5 g NH₄ -2

Directive 1999/45/EC

Symbols - do not need labelling as hazardous

CLP Directive 1272/2008/EC

GHS pictograms do not need labelling as hazardous
Signal word -

No hazard class

6 mL NH₄ -3

Directive 1999/45/EC

Symbols - do not need labelling as hazardous

CLP Directive 1272/2008/EC

GHS pictograms



GHS02

GHS05

Signal word DANGER

Hazard identification

Hazard classes/categories

H226 Flammable Liquid cat. 3
H314 Skin Corrosion 1B. Serious Damage to Eyes 1
H412 Hazardous to the aquatic environment - chronic cat. 3

30 mL NO₃ -1

Directive 1999/45/EC

Symbols - do not need labelling as hazardous

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CLP Directive 1272/2008/EC

GHS pictograms do not need labelling as hazardous
Signal word -

No hazard class

5 g NO₃ -2

Directive 1999/45/EC

Symbols - do not need labelling as hazardous

CLP Directive 1272/2008/EC

GHS pictograms do not need labelling as hazardous
Signal word -

Hazard identification

Hazard classes/categories

H411 Hazardous to the aquatic environment - chronic cat. 2

30 mL NO₂ -1

Directive 1999/45/EC

Symbols - do not need labelling as hazardous

CLP Directive 1272/2008/EC

GHS pictograms do not need labelling as hazardous
Signal word -

No hazard class

5 g NO₂ -2

Directive 1999/45/EC

Symbols - do not need labelling as hazardous

CLP Directive 1272/2008/EC

GHS pictograms do not need labelling as hazardous
Signal word -

No hazard class

25 mL PO₄ -1

Directive 1999/45/EC

Symbols - do not need labelling as hazardous

CLP Directive 1272/2008/EC

GHS pictograms



GHS07

Signal word WARNING

Hazard identification

Hazard classes/categories

H315 Skin Irritation cat. 2
H319 Eye Irritation cat. 2

25 mL PO₄ -2



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Directive 1999/45/EC

Symbols

R 41



Xi

CLP Directive 1272/2008/EC

GHS pictograms



GHS05

Signal word

DANGER

Hazard identification

Hazard classes/categories

EUH031

031 not defined

H318

Serious damage to eyes cat. 1

2.2 Label elements

According 1999/45/EC small amounts of harmful and highly flammable preparations/mixtures have partly/completely exemption from labelling (no symbols F, O, Xn, Xi, N and no R and S phrases are necessary) until **25-125 mL/g**.

According **CLP (GHS)** inner packages must be only labelled with symbol(s) and product identifier.

Harmful chemicals/mixtures with signal word: **WARNING** and highly flammable chemicals/mixtures must not be labelled with H and P phrases until **125 mL** or **125 g** (EU 1272/2008 Annex I - 1.5.2).

17 mL Fe-1

Directive 1999/45/EC

Symbols:

-

CLP Directive 1272/2008/EC

GHS pictograms:

do not need labelling as hazardous

Signal word: -

5 g Fe-2

Directive 1999/45/EC

Symbols:

-

CLP Directive 1272/2008/EC

GHS pictograms:

do not need labelling as hazardous

Signal word: -

15 mL Indicator H 20 F

Directive 1999/45/EC

Symbols:

-

S 37/39

Wear suitable gloves and eye/face protection.

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CLP Directive 1272/2008/EC
GHS pictograms:



GHS02 GHS07

Signal word: WARNING

10 mL Indicator m

Directive 1999/45/EC

Symbols:

-
-

CLP Directive 1272/2008/EC
GHS pictograms:



GHS02

Signal word: DANGER

10 mL Indicator p

Directive 1999/45/EC

Symbols:

-
-

CLP Directive 1272/2008/EC
GHS pictograms:



GHS02

Signal word: DANGER

24 mL pH-1

Directive 1999/45/EC

Symbols:

-
-

CLP Directive 1272/2008/EC
GHS pictograms:



GHS02

Signal word: DANGER

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100 mL TL C 20

Directive 1999/45/EC

Symbols:

-
-

CLP Directive 1272/2008/EC

GHS pictograms:

do not need labelling as hazardous

Signal word: -

100 mL TL H 20

Directive 1999/45/EC

Symbols:

-
-

CLP Directive 1272/2008/EC

GHS pictograms:

do not need labelling as hazardous

Signal word: -

30 mL NH₄ -1

Directive 1999/45/EC

Symbols:



C

R 35

Causes severe burns.

S 26-37/39-45

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

CLP Directive 1272/2008/EC

GHS pictograms:



GHS05

Signal word: DANGER

H314

Causes severe skin burns and eye damage.

P260D, P280sh, P301+330+331, P303+361+353, P304+340, P305+351+338, P501

Do not breathe vapours. Wear protective gloves/eye protection. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Dispose of contents/container to regulated waste treatment.

2,5 g NH₄ -2

Directive 1999/45/EC

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Symbols:

-
-

CLP Directive 1272/2008/EC

GHS pictograms:
do not need labelling as hazardous
Signal word: -

6 mL NH₄ -3

Directive 1999/45/EC

Symbols:
-
-

S 26-37/39

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable gloves and eye/face protection.

CLP Directive 1272/2008/EC

GHS pictograms:



GHS02 GHS05

Signal word: DANGER

H314

Causes severe skin burns and eye damage.

P260D, P280sh, P301+330+331, P303+361+353, P304+340, P305+351+338, P501

Do not breathe vapours. Wear protective gloves/eye protection. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Dispose of contents/container to regulated waste treatment.

30 mL NO₃ -1

Directive 1999/45/EC

Symbols:
-
-

CLP Directive 1272/2008/EC

GHS pictograms:
do not need labelling as hazardous
Signal word: -

5 g NO₃ -2

Directive 1999/45/EC

Symbols:
-
-

CLP Directive 1272/2008/EC

GHS pictograms:
do not need labelling as hazardous

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Signal word: -

30 mL NO₂ -1

Directive 1999/45/EC

Symbols:

-

-

S 24/25

Avoid contact with skin and eyes.

CLP Directive 1272/2008/EC

GHS pictograms:

do not need labelling as hazardous

Signal word: -

5 g NO₂ -2

Directive 1999/45/EC

Symbols:

-

-

CLP Directive 1272/2008/EC

GHS pictograms:

do not need labelling as hazardous

Signal word: -

25 mL PO₄ -1

Directive 1999/45/EC

Symbols:

-

-

S 26

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

CLP Directive 1272/2008/EC

GHS pictograms:



GHS07

Signal word: WARNING

25 mL PO₄ -2

Directive 1999/45/EC

Symbols:



Xi

R 41

Risk of serious damage to eyes.

S 26-39

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In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear eye/face protection.

CLP Directive 1272/2008/EC
GHS pictograms:



GHS05

Signal word: DANGER

H318

Causes serious eye damage.

P280sh, P305+351+338

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.

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

Information pertaining to particular Risks to Human and possible Symptoms

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. ---

Other Hazards

--- Contains an odor intensive reagent. Flammable properties. Vapour forms explosive mixtures with air.

3 Composition/Information on Ingredients

3.1 Substances or 3.2 Mixtures

17 mL Fe-1

Chemical:	<i>triazine derivat</i>	CAS No.:	-
Concentration:	< 1,00 %		
acc. 1999/45/EC:	-	acc. CLP (GHS):	not necessary

Chemical:	<i>acetate buffer solution</i>	CAS No.:	-
Concentration:	25 - 60 %		
Formula:	CH ₃ COOH/Me•H ₂ O		
TSCA Inventory:	all listed		
KE No.:	listed		
acc. 1999/45/EC:	-	acc. CLP (GHS):	not necessary

5 g Fe-2

Chemical:	<i>L(+)-ascorbic acid</i>	CAS No.:	50-81-7
Concentration:	10 - 90 %		
Formula:	C ₆ H ₈ O ₆		
Pseudonym:	vitamin C		
REACH Reg. No.:	exempt, Annex IV		
EC No.:	200-066-2		
RTECS:	C17650000	MFCD:	00064328
TSCA Inventory:	listed		
KE No.:	KE-01947		
acc. 1999/45/EC:	-	acc. CLP (GHS):	not necessary

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Chemical: *sodium chloride* CAS No.: 7647-14-5
 Concentration: 35 - 100 %
 Formula: NaCl
 Pseudonym: salt
 REACH Reg. No.: exempt, Annex V
 EC No.: 231-598-3
 RTECS: VZ4725000
 TSCA Inventory: listed
 KE No.: KE-31387
 acc. 1999/45/EC: - acc. CLP (GHS): not necessary

15 mL Indicator H 20 F

Chemical: *triethanolamine* CAS No.: 102-71-6
 Concentration: 20 - 45 %
 Formula: C₆H₁₅NO₃
 Pseudonym: 2,2',2"-nitrilotriethanol; tris(2-hydroxyethyl)amine
 REACH Reg. No.: 01-2119486482-31-xxxx
Dual-use: The application of this chemical is exempt from the regulation 2006/394/EC (see IC350 remark 4).
 EC No.: 203-049-8
 RTECS: KL9275000
 TSCA Inventory: listed
 KE No.: KE-25940
 acc. 1999/45/EC: R 36/38 acc. CLP (GHS): H315, H319

Chemical: *ethanol* (denatured with MEK) CAS No.: 64-17-5
 Concentration: 20 - 35 %
 Formula: C₂H₆O
 Pseudonym: ethyl alcohol, methylated spirit
 REACH Reg. No.: 01-2119457610-43-xxxx
 EC No.: 200-578-6 Indice No.: 603-002-00-5
 RTECS: KQ6300000 MFCD: 00003568
 TSCA Inventory: listed
 KE No.: KE-13217
 acc. 1999/45/EC: R 10 acc. CLP (GHS): H226

Chemical: *indicator dye(s)* CAS No.: -
 Concentration: 0,1 - 1 %
 acc. 1999/45/EC: - acc. CLP (GHS): not necessary

10 mL Indicator m

Chemical: *methyl red (pH indicator)* CAS No.: 493-52-7
 Concentration: < 1,00 %
 Formula: C₁₅H₁₅N₃O₂
 Pseudonym: 4-(dimethylamino)-azobenzene-1,2'-carboxylic acid
 EC No.: 207-776-1
 RTECS: DG8960000 MFCD: 00002425
 TSCA Inventory: listed
 KE No.: KE-06693
 acc. 1999/45/EC: - acc. CLP (GHS): not necessary

Chemical: *ethanol* (denatured with MEK) CAS No.: 64-17-5
 Concentration: 55 - 75 %
 Formula: C₂H₆O
 Pseudonym: ethyl alcohol, methylated spirit
 REACH Reg. No.: 01-2119457610-43-xxxx
 EC No.: 200-578-6 Indice No.: 603-002-00-5
 RTECS: KQ6300000 MFCD: 00003568
 TSCA Inventory: listed
 KE No.: KE-13217
 acc. 1999/45/EC: R 11 acc. CLP (GHS): H225

Chemical: *indicator dye(s)* CAS No.: -
 Concentration: 0,1 - 1 %
 acc. 1999/45/EC: - acc. CLP (GHS): not necessary

10 mL Indicator p



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Chemical: *ethanol* (denatured with MEK) CAS No.: 64-17-5
 Concentration: 55 - 75 %
 Formula: C₂H₆O
 Pseudonym: ethyl alcohol, methylated spirit
 REACH Reg. No.: 01-2119457610-43-xxxx
 EC No.: 200-578-6
 RTECS: KQ6300000
 TSCA Inventory: listed
 KE No.: KE-13217
 acc. 1999/45/EC: R 11

Indice No.: 603-002-00-5
 MFCD: 00003568

acc. CLP (GHS): H225

Chemical: *phenolphthaleine* (pH indicator) CAS No.: 77-09-8
 Concentration: 0,1 - 1 %
 Formula: C₂₀H₁₄O₄
 Pseudonym: 3,3-bis(4-hydroxyphenyl)-1(3H)-isobenzofuranone
 REACH Reg. No.: 01-2119498295-24-0000
SVHC listed: YES
 EC No.: 201-004-7
 RTECS: SM8380000
 TSCA Inventory: listed
 KE No.: KE-03234
 acc. 1999/45/EC: -

Indice No.: 604-076-00-1
 MFCD: 00005913

acc. CLP (GHS): not necessary

24 mL pH-1

Chemical: *methyl red* (pH indicator) CAS No.: 493-52-7
 Concentration: < 1,00 %
 Formula: C₁₅H₁₅N₃O₂
 Pseudonym: 4-(dimethylamino)-azobenzene-1,2'-carboxylic acid
 EC No.: 207-776-1
 RTECS: DG8960000
 TSCA Inventory: listed
 KE No.: KE-06693
 acc. 1999/45/EC: -

MFCD: 00002425

acc. CLP (GHS): not necessary

Chemical: *ethanol* (denatured with MEK) CAS No.: 64-17-5
 Concentration: 90 - 98 %
 Formula: C₂H₆O
 Pseudonym: ethyl alcohol, methylated spirit
 REACH Reg. No.: 01-2119457610-43-xxxx
 EC No.: 200-578-6
 RTECS: KQ6300000
 TSCA Inventory: listed
 KE No.: KE-13217
 acc. 1999/45/EC: R 11

Indice No.: 603-002-00-5
 MFCD: 00003568

acc. CLP (GHS): H225

Chemical: *phenolphthaleine* (pH indicator) CAS No.: 77-09-8
 Concentration: < 0,10 %
 Formula: C₂₀H₁₄O₄
 Pseudonym: 3,3-bis(4-hydroxyphenyl)-1(3H)-isobenzofuranone
 REACH Reg. No.: 01-2119498295-24-0000
SVHC listed: YES
 EC No.: 201-004-7
 RTECS: SM8380000
 TSCA Inventory: listed
 KE No.: KE-03234
 acc. 1999/45/EC: -

Indice No.: 604-076-00-1
 MFCD: 00005913

acc. CLP (GHS): not necessary

Chemical: *indicator dye(s)* CAS No.: -
 Concentration: 0,01 - 0,1 %
 acc. 1999/45/EC: -

acc. CLP (GHS): not necessary

100 mL TL C 20



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Chemical: *hydrochloric acid* CAS No.: 7647-01-0
 Concentration: 0,1 - 1 %
 Formula: HCl•H₂O
 REACH Reg. No.: 01-2119484862-27-xxxx
 EC No.: 231-595-7 Indice No.: 017-002-01-X
 TSCA Inventory: listed
 KE No.: KE-20189, >10% Toxic 97-1-203, Acc. Precaution Chem.
 acc. 1999/45/EC: - acc. CLP (GHS): not necessary

100 mL TL H 20

Chemical: *ethylendinitrilo tetraacetic acid, di Na-salt (EDTA-Na)* CAS No.: 6381-92-6
 Concentration: < 1,00 %
 Formula: C₁₀ H₁₄ N₂ Na₂ O₈ •2 H₂O
 EC No.: 205-358-3
 RTECS: AH4410000; AH4375000 MFCD: 00150037
 TSCA Inventory: not listed
 acc. 1999/45/EC: - acc. CLP (GHS): not necessary

30 mL NH₄ -1

Chemical: *sodium hydroxide solution* CAS No.: 1310-73-2
 Concentration: 5 - 20 %
 Formula: NaOH•H₂O
 Pseudonym: soda lye
 REACH Reg. No.: 01-2119457892-27-xxxx
 EC No.: 215-185-5 Indice No.: 011-002-00-6
 RTECS: WB4900000
 TSCA Inventory: listed
 KE No.: KE-31487
 acc. 1999/45/EC: R 35 acc. CLP (GHS): H314

Chemical: *tri-sodium citrate* CAS No.: 6132-04-3
 Concentration: 10 - 30 %
 Formula: C₆ H₅ Na₃ O₇ •2H₂O
 REACH Reg. No.: 01-2119457027-40-xxxx
 EC No.: 200-675-3
 RTECS: GE8300000
 TSCA Inventory: not listed
 KE No.: KE-20843
 acc. 1999/45/EC: - acc. CLP (GHS): not necessary

2,5 g NH₄ -2

Chemical: *dichloroisocyanuric acid, Na salt* CAS No.: 2893-78-9
 Concentration: 1 - 10 %
 Formula: C₃ Cl₂ N₃ NaO₃
 Pseudonym: troclosene sodium, sodium 3,5-dichloro-2,4,6-trioxo-1,3,5-triazinan-1-ide
 REACH Reg. No.: 01-2119489371-33-xxxx
 EC No.: 220-767-7 Indice No.: 613-030-01-7
 RTECS: XZ1900000 MFCD: 00006036
 TSCA Inventory: listed
 KE No.: KE-10215, >25% Toxic 2014-1-688
 acc. 1999/45/EC: - acc. CLP (GHS): not necessary

Chemical: *sodium chloride* CAS No.: 7647-14-5
 Concentration: 35 - 100 %
 Formula: NaCl
 Pseudonym: salt
 REACH Reg. No.: exempt, Annex V
 EC No.: 231-598-3
 RTECS: VZ4725000
 TSCA Inventory: listed
 KE No.: KE-31387
 acc. 1999/45/EC: - acc. CLP (GHS): not necessary

6 mL NH₄ -3



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Chemical: *sodium nitroprusside* CAS No.: 13755-38-9
 Concentration: 1 - 5 %
 Formula: $\text{Na}_2 [\text{Fe}(\text{CN})_5 \text{NO}]_2 \cdot 2 \text{H}_2 \text{O}$
 EC No.: 238-373-9
 RTECS: LJ89250000
 TSCA Inventory: not listed
 KE No.: not listed
 acc. 1999/45/EC: - acc. CLP (GHS): not necessary

Chemical: *ethanol* (denatured with MEK) CAS No.: 64-17-5
 Concentration: 35 - 55 %
 Formula: $\text{C}_2 \text{H}_6 \text{O}$
 Pseudonym: ethyl alcohol, methylated spirit
 REACH Reg. No.: 01-2119457610-43-xxxx
 EC No.: 200-578-6
 RTECS: KQ6300000
 TSCA Inventory: listed
 KE No.: KE-13217
 acc. 1999/45/EC: R 10
 Indice No.: 603-002-00-5
 MFCD: 00003568
 acc. CLP (GHS): H226

Chemical: *thymol* CAS No.: 89-83-8
 Concentration: 5 - 10 %
 Formula: $\text{C}_{10} \text{H}_{14} \text{O}$
 Pseudonym: 5-methyl-2-(1-methylethyl)-phenol
 REACH Reg. No.: 01-2119511177-46-xxxx
 EC No.: 201-944-8
 RTECS: XP2275000
 TSCA Inventory: listed
 KE No.: KE-24420
 acc. 1999/45/EC: R 36/38-52/53
 Indice No.: 604-032-00-1
 MFCD: 00002309
 acc. CLP (GHS): H314, H412

30 mL NO₃-1

Chemical: *m-phenylenediammonium dichloride* CAS No.: 541-69-5
 Concentration: < 1,00 %
 Formula: $\text{C}_6 \text{H}_{10} \text{Cl}_2 \text{N}_2$
 Pseudonym: 1,3-benzenediamine, dihydrochloride
 EC No.: 208-790-0
 RTECS: SS9800000
 TSCA Inventory: listed
 KE No.: KE-05-1004, >25% Toxic 97-1-334
 acc. 1999/45/EC: -
 Indice No.: 612-148-00-9
 MFCD: 00012975
 acc. CLP (GHS): not necessary

Chemical: *citric acid* CAS No.: 77-92-9
 Concentration: 1 - 10 %
 Formula: $\text{C}_6 \text{H}_8 \text{O}_7$
 Pseudonym: 2-hydroxy-1,2,3-propanetricarboxylic acid
 REACH Reg. No.: 01-2119457026-42-xxxx
 EC No.: 201-069-1
 RTECS: GE7350000/GE7810000
 TSCA Inventory: listed
 KE No.: KE-20831
 acc. 1999/45/EC: -
 acc. CLP (GHS): not necessary

5 g NO₃-2

Chemical: *zinc powder (stabilized)* CAS No.: 7440-66-6
 Concentration: 2,5 - 25 %
 Formula: Zn
 REACH Reg. No.: 01-2119467174-37-xxxx
 EC No.: 231-175-3
 RTECS: ZG8600000
 TSCA Inventory: listed
 KE No.: KE-35518
 acc. 1999/45/EC: R 51/53
 Indice No.: 030-002-01-9
 acc. CLP (GHS): H411

30 mL NO₂-1



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Chemical: <i>sulfanilamide</i>	CAS No.:	63-74-1
Concentration: 1 - 10 %		
Formula: C ₆ H ₈ N ₂ O ₂ S		
Pseudonym: 4-aminobenzene sulfonamide		
EC No.: 200-563-4		
RTECS: WO8400000	MFCD:	00007939
TSCA Inventory: listed		
KE No.: KE-01188		
acc. 1999/45/EC: -	acc. CLP (GHS):	not necessary
Chemical: <i>o-phosphoric acid</i>	CAS No.:	7664-38-2
Concentration: 1 - 10 %		
Formula: H ₃ PO ₄ •H ₂ O		
Pseudonym: orthophosphoric acid		
REACH Reg. No.: 01-2119485924-24-xxxx		
EC No.: 231-633-2	Indice No.:	015-011-00-6
RTECS: TB6300000		
TSCA Inventory: listed		
KE No.: KE-27427		
acc. 1999/45/EC: -	acc. CLP (GHS):	not necessary

5 g NO₂-2

Chemical: <i>N-(1-naphthyl)-ethylendiamine dihydrochloride</i>	CAS No.:	1465-25-4
Concentration: 1 - 10 %		
Formula: C ₁₂ H ₁₆ Cl ₂ N ₂		
Pseudonym: N1-1-naphthalenyl-1,2-ethanediamine, dihydrochloride		
EC No.: 215-981-2		
RTECS: KV5330000	MFCD:	00012556
TSCA Inventory: listed		
KE No.: not listed		
acc. 1999/45/EC: -	acc. CLP (GHS):	not necessary

Chemical: <i>citric acid</i>	CAS No.:	77-92-9
Concentration: 1 - 10 %		
Formula: C ₆ H ₈ O ₇		
Pseudonym: 2-hydroxy-1,2,3-propanetricarboxylic acid		
REACH Reg. No.: 01-2119457026-42-xxxx		
EC No.: 201-069-1		
RTECS: GE7350000/GE7810000		
TSCA Inventory: listed		
KE No.: KE-20831		
acc. 1999/45/EC: -	acc. CLP (GHS):	not necessary

25 mL PO₄-1

Chemical: <i>ammonium heptamolybdate</i>	CAS No.:	12054-85-2
Concentration: 1 - 5 %		
Formula: H ₂₄ Mo ₇ N ₆ O ₂₄		
Pseudonym: ammonium molybdate		
EC No.: 234-722-4		
RTECS: QA5076000 / QA4900000	MFCD:	00167059
TSCA Inventory: not listed		
KE No.: not listed		
acc. 1999/45/EC: -	acc. CLP (GHS):	not necessary

Chemical: <i>sulphuric acid</i>	CAS No.:	7664-93-9
Concentration: 5 - 15 %		
Formula: H ₂ SO ₄		
REACH Reg. No.: 01-2119458838-20-xxxx		
EC No.: 231-639-5	Indice No.:	016-020-00-8
RTECS: WS5600000		
TSCA Inventory: listed		
KE No.: KE-32570, >10% Toxic 97-1-405, Acc. Precaution Chem.		
acc. 1999/45/EC: R 36/38	acc. CLP (GHS):	H315, H319

25 mL PO₄-2



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Chemical:	sodium disulfite	CAS No.:	7681-57-4
Concentration:	10 - 25 %		
Formula:	Na ₂ O ₅ S ₂		
Pseudonym:	sodium pyrosulfite		
REACH Reg. No.:	01-2119531326-45-xxxx		
EC No.:	231-673-0	Indice No.:	016-063-00-2
RTECS:	UX8225000		
TSCA Inventory:	listed		
KE No.:	KE-12701		
acc. 1999/45/EC:	R 31-41	acc. CLP (GHS):	H318, EUH031

3.3 Remarks

List of R and H phrases: see chapter 16

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

4.3 Indication of any immediate medical attention and special treatment needed

CORROSIVE DAMAGE: After SKIN CONTACT rinse with water for a long time. Efforts to neutralise the substance can frequently make matters worse. Apply glucocorticosteroides following inflammatory reactions. After EYE CONTACT rinse immediately with plenty of water for a long time. Eyelid convulsion measures. Name the corrosive chemical. Further treatment must be carried out by an eye specialist. After INTAKE administer aluminium oxide drug suspensions. Administer a prophylaxis to counter pulmonary oedema following the INGESTION of corrosive aerosols. In the event of RESPIRATORY DISTRESSES ensure that the patient inhales oxygen.

5 Firefighting Measures

5.1 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.

5.2 Special hazards arising from the substance or mixture

Formation of hazardous and caustic vapour-air mixtures possible. Danger for environment **only in the event of a large-scale leakage** or formation of hazardous substances.

5.3 Advice for firefighters

No, for listed product. Product package burns like paper or plastic. Spray any vapours released with water. Retent fire water. Use only acid-resistant safety equipment.

For great amount - if necessary - protective breathing apparatus which is independent of the ambient air (isolated equipment), and sealed protective clothing is necessary in the event of a large-scale formation of toxic substances.

5.4 Additional Information

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6 Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

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

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

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

The original product package of MACHEREY-NAGEL allows a safe storage. Storage class (German chemical industry): see chapter 12.1

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)

8 Exposure Controls/Personal Protection

8.1 Control parameters

17 mL Fe-1

Chemical: *triazine derivate*

CAS No.: -

Chemical: *acetate buffer solution*

CAS No.: -

Korea Exist.Chem.Inventory: listed

TSCA Inventory: all listed

5 g Fe-2

Chemical: *L(+)-ascorbic acid*

CAS No.: 50-81-7

Korea Exist.Chem.Inventory: KE-01947

TSCA Inventory: listed

Chemical: *sodium chloride*

CAS No.: 7647-14-5

Korea Exist.Chem.Inventory: KE-31387

TSCA Inventory: listed

15 mL Indicator H 20 F

Chemical: *triethanolamine*

CAS No.: 102-71-6

DNEL: 5 mg/m³

DNEL = Derived No-Effect Level (for workers)

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

Australia NICNAS: not listed

Canada CEPA 1999: DSL Yes

Japan CSCL/PRTR: PAC Yes

Japan ISHL: Article 57-2 (SDS required)

Japan PDSCl: not listed

South Korea TCCA: not listed

Korea Exist.Chem.Inventory: KE-25940

TSCA Inventory: listed

California Proposition 65 List: not listed

NIOSH: not listed

OSHA: not listed

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Chemical: *ethanol* CAS No.: 64-17-5
 DNEL: 950_{inh-sys} mg/m³
 DNEL = Derived No-Effect Level (for workers)
 TRGS 900 (DE): 500 mL/m³ / 960 mg/m³
 E/e respirable
 Short-term exposure factor: 2 (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
 TRGS 905 (DE): K5, M5, R_F C
 Australia NICNAS: not listed Canada CEPA 1999: DSL yes
 Japan CSCL/PRTR: not listed Japan ISHL: Article 57-2 (SDS required)
 Japan PDSCL: not listed
 South Korea TCCA: not listed
 Korea Exist.Chem.Inventory: KE-13217
 TSCA Inventory: listed California Proposition 65 List: listed
 NIOSH: not listed
 OSHA: 1000 ppm / 1900 mg/m³

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

10 mL Indicator m

Chemical: *methyl red (pH indicator)* CAS No.: 493-52-7
 Korea Exist.Chem.Inventory: KE-06693
 TSCA Inventory: listed

Chemical: *ethanol* CAS No.: 64-17-5
 DNEL: 950_{inh-sys} mg/m³
 DNEL = Derived No-Effect Level (for workers)
 TRGS 900 (DE): 500 mL/m³ / 960 mg/m³
 E/e respirable
 Short-term exposure factor: 2 (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
 TRGS 905 (DE): K5, M5, R_F C
 Australia NICNAS: not listed Canada CEPA 1999: DSL yes
 Japan CSCL/PRTR: not listed Japan ISHL: Article 57-2 (SDS required)
 Japan PDSCL: not listed
 South Korea TCCA: not listed
 Korea Exist.Chem.Inventory: KE-13217
 TSCA Inventory: listed California Proposition 65 List: listed
 NIOSH: not listed
 OSHA: 1000 ppm / 1900 mg/m³

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

10 mL Indicator p

Chemical: *ethanol* CAS No.: 64-17-5
 DNEL: 950_{inh-sys} mg/m³
 DNEL = Derived No-Effect Level (for workers)
 TRGS 900 (DE): 500 mL/m³ / 960 mg/m³
 E/e respirable
 Short-term exposure factor: 2 (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
 TRGS 905 (DE): K5, M5, R_F C
 Australia NICNAS: not listed Canada CEPA 1999: DSL yes
 Japan CSCL/PRTR: not listed Japan ISHL: Article 57-2 (SDS required)
 Japan PDSCL: not listed
 South Korea TCCA: not listed
 Korea Exist.Chem.Inventory: KE-13217
 TSCA Inventory: listed California Proposition 65 List: listed
 NIOSH: not listed
 OSHA: 1000 ppm / 1900 mg/m³

Chemical: *phenolphthaleine (pH indicator)* CAS No.: 77-09-8
 EU carcinogen: Carcinogenicity cat. 2, Germ Cell Mutagenicity cat. 3, >5% Reproductive Toxicity cat. 3
 TRGS 905 (DE): Karzinogenität Kat. 2
 Australia NICNAS: not listed Canada CEPA 1999: DSL yes
 Japan CSCL/PRTR: PRTR - Class II Designated Chemical Substance Japan ISHL: not listed
 Japan PDSCL: not listed
 South Korea TCCA: not listed



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Korea Exist.Chem.Inventory: KE-03234
 TSCA Inventory: listed California Proposition 65 List: listed
 NIOSH: not listed, NTP Report on Carcinogens (RoC) List Yes (Reasonably anticipated to be a human carcinogen)
 OSHA: not listed

24 mL pH-1

Chemical: *methyl red (pH indicator)* CAS No.: 493-52-7
 Korea Exist.Chem.Inventory: KE-06693
 TSCA Inventory: listed

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

DNEL: 950_{inh-sys} mg/m³
 DNEL = Derived No-Effect Level (for workers)

TRGS 900 (DE): 500 mL/m³ / 960 mg/m³
 E/e respirable

Short-term exposure factor: 2 (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

TRGS 905 (DE): K5, M5, R_F C

Australia NICNAS: not listed Canada CEPA 1999: DSL yes

Japan CSCL/PRTR: not listed

Japan PDSCL: not listed Japan ISHL: Article 57-2 (SDS required)

South Korea TCCA: not listed

Korea Exist.Chem.Inventory: KE-13217

TSCA Inventory: listed California Proposition 65 List: listed

NIOSH: not listed

OSHA: 1000 ppm / 1900 mg/m³

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

EU carcinogen: Carcinogenicity cat. 2, Germ Cell Mutagenicity cat. 3, >5% Reproductive Toxicity cat. 3

TRGS 905 (DE): Karzinogenität Kat. 2

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

TSCA Inventory: listed California Proposition 65 List: listed

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

OSHA: not listed

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

100 mL TL C 20

Chemical: *hydrochloric acid* CAS No.: 7647-01-0

DNEL: 8_{inh} mg/m³
 DNEL = Derived No-Effect Level (for workers)

EU value: 5 ppm / 8 mg/m³
 TRGS 900 (DE): 2 mg/m³ / 3 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: 2 ppm / 3* mg/m³

Australia NICNAS: not listed Canada CEPA 1999: DSL Yes

Japan CSCL/PRTR: not listed

Japan PDSCL: Deleterious Substance Yes Japan ISHL: Article 57-2 (SDS required)

South Korea TCCA: Accident Precaution Chemical Yes

Korea Exist.Chem.Inventory: KE-20189, >10% Toxic 97-1-203, Acc. Precaution Chem.

TSCA Inventory: listed California Proposition 65 List: not listed

NIOSH: 5 ppm / 7 mg/m³

OSHA: List of highly hazardous chemicals, toxics and reactives Yes (TQ = 5000 lbs) n/a; TWA 5 ppm / 7 mg/m³

100 mL TL H 20

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

TSCA Inventory: not listed



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30 mL NH₄ -1

Chemical: *sodium hydroxide solution* CAS No.: 1310-73-2
 TRGS 900 (DE): (2 E) mg/m³
 E/e respirable

Short-term exposure factor: =1=
 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
 Australia NICNAS: not listed Canada CEPA 1999: DSL Yes
 Japan CSCL/PRTR: not listed Japan ISHL: Article 57-2 (SDS required)
 Japan PDSCL: not listed
 South Korea TCCA: not listed
 Korea Exist.Chem.Inventory: KE-31487 California Proposition 65 List: not listed
 TSCA Inventory: listed
 NIOSH: 2 mg/m³
 OSHA: TWA 2 mg/m³

Chemical: *tri-sodium citrate* CAS No.: 6132-04-3
 Korea Exist.Chem.Inventory: KE-20843
 TSCA Inventory: not listed

2,5 g NH₄ -2

Chemical: *dichloroisocyanuric acid, Na salt* CAS No.: 2893-78-9
 Australia NICNAS: not listed Canada CEPA 1999: DSL Yes

Japan CSCL/PRTR: not listed Japan ISHL: not listed
 Japan PDSCL: not listed
 South Korea TCCA: not listed
 Korea Exist.Chem.Inventory: KE-10215, >25% Toxic 2014-1-688 California Proposition 65 List: not listed
 TSCA Inventory: listed
 NIOSH: not listed
 OSHA: not listed

Chemical: *sodium chloride* CAS No.: 7647-14-5
 Korea Exist.Chem.Inventory: KE-31387
 TSCA Inventory: listed

6 mL NH₄ -3

Chemical: *sodium nitroprusside* CAS No.: 13755-38-9
 Korea Exist.Chem.Inventory: not listed
 TSCA Inventory: not listed

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

DNEL: 950_{inh-sys} mg/m³
 DNEL = Derived No-Effect Level (for workers)
 TRGS 900 (DE): 500 mL/m³ / 960 mg/m³
 E/e respirable

Short-term exposure factor: 2 (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
 TRGS 905 (DE): K5, M5, R_F C
 Australia NICNAS: not listed Canada CEPA 1999: DSL yes
 Japan CSCL/PRTR: not listed Japan ISHL: Article 57-2 (SDS required)
 Japan PDSCL: not listed
 South Korea TCCA: not listed
 Korea Exist.Chem.Inventory: KE-13217 California Proposition 65 List: listed
 TSCA Inventory: listed
 NIOSH: not listed
 OSHA: 1000 ppm / 1900 mg/m³

Chemical: *thymol* CAS No.: 89-83-8
 Korea Exist.Chem.Inventory: KE-24420
 TSCA Inventory: listed

30 mL NO₃ -1

Chemical: *m-phenylenediammonium dichloride* CAS No.: 541-69-5
 TRGS 900 (DE): - (0.1E_{alt}) 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

EU carcinogen: mut. 3
 TRGS 905 (DE): K3B, M3



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TRGS 907 (DE): Sh
 Korea Exist.Chem.Inventory: KE-05-1004, >25% Toxic 97-1-334
 TSCA Inventory: listed

Chemical: *citric acid* CAS No.: 77-92-9
 Korea Exist.Chem.Inventory: KE-20831
 TSCA Inventory: listed

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
 Korea Exist.Chem.Inventory: KE-35518
 TSCA Inventory: listed

30 mL NO₂ -1

Chemical: *sulfanilamide* CAS No.: 63-74-1
 Korea Exist.Chem.Inventory: KE-01188
 TSCA Inventory: listed

Chemical: *o-phosphoric acid* CAS No.: 7664-38-2
 DNEL: 2.92 mg/m³
 DNEL = Derived No-Effect Level (for workers)
 EU value: 2 e (1) mg/m³
 TRGS 900 (DE): 1 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
 TRGS 905 (DE): R_F C
 Australia NICNAS: not listed Canada CEPA 1999: DSL Yes
 Japan CSCL/PRTR: not listed Japan ISHL: Article 57-2 (SDS required)
 Japan PDSCL: not listed
 South Korea TCCA: not listed
 Korea Exist.Chem.Inventory: KE-27427 California Proposition 65 List: not listed
 TSCA Inventory: listed NIOSH STEL: 3 mg/m³
 NIOSH: not listed
 OSHA: not listed

5 g NO₂ -2

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

Chemical: *citric acid* CAS No.: 77-92-9
 Korea Exist.Chem.Inventory: KE-20831
 TSCA Inventory: listed

25 mL PO₄ -1

Chemical: *ammonium heptamolybdate* CAS No.: 12054-85-2
 TRGS 900 (DE): 5_{Mo} E mg/m³
 E/e respirable
 SUVA(CH) MAK value: 5_{Mo} e mg/m³
 Korea Exist.Chem.Inventory: not listed
 TSCA Inventory: not listed

Chemical: *sulphuric acid* CAS No.: 7664-93-9
 EU value: 0.1 e mg/m³
 TRGS 900 (DE): 0.1 E mg/m³
 E/e respirable

Short-term exposure factor: 1 (I), Y
 skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded
 SUVA(CH) MAK value: 0,1 e mg/m³
 TRGS 905 (DE): R_F C
 Australia NICNAS: not listed Canada CEPA 1999: DSL Yes
 Japan CSCL/PRTR: not listed Japan ISHL: Article 57-2 (SDS required)
 Japan PDSCL: Deleterious Substance Yes



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South Korea TCCA: Accident Precaution Chemical Yes
 Korea Exist.Chem.Inventory: KE-32570, >10% Toxic 97-1-405, Acc. Precaution Chem.
 TSCA Inventory: listed California Proposition 65 List: not listed
 NIOSH: NTP Report on Carcinogens (RoC) List Yes (Known to be a human carcinogen); TWA 1 mg/m³
 OSHA: TWA 1 mg/m³

25 mL PO₄-2

Chemical: *sodium disulfite* CAS No.: 7681-57-4
 SUVA(CH) MAK value: 5 e mg/m³
 Australia NICNAS: not listed Canada CEPA 1999: DSL yes
 Japan CSCL/PRTR: not listed Japan ISHL: Article 57-2 (SDS required)
 Japan PDSCL: not listed
 South Korea TCCA: not listed California Proposition 65 List: not listed
 Korea Exist.Chem.Inventory: KE-12701
 TSCA Inventory: listed
 NIOSH: not listed
 OSHA: not listed

8.2 Exposure controls

The highest level of cleanliness must be maintained at the workplace.

8.2.1 Respiratory Protection

Only if additional recommendations in test instruction or packing insert.

8.2.2 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 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.

9 Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

17 mL Fe-1

Appearance : liquid Color : slightly yellow Odor : acetic
 pH: 4-6

5 g Fe-2

Appearance : powder (solid) Color : slightly yellow Odor : odorless

15 mL Indicator H 20 F

Appearance : liquid Color : green Odor : aminic
 pH: 10-11
 Flash point: 29 °C

10 mL Indicator m

Appearance : liquid Color : red Odor : alcoholic
 pH: 6-8
 Specific gravity: 0,89 g/cm³
 Flash point: 22,5 °C
 Solubility in water: 0-100 %

10 mL Indicator p

Appearance : liquid Color : colourless Odor : alcoholic
 pH: 7-8
 Specific gravity: 0,89 g/cm³
 Flash point: 22,5 °C
 Solubility in water: 0-100 %



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24 mL pH-1

Appearance : liquid		Color : red	Odor : alcoholic
pH:	7		
Specific gravity:	0,79-0,86 g/cm ³		
Flash point:	> 12 °C		
Explosion limits:	3.5 ... 15 Vol%		
Solubility in water:	0-100 %		
Melting point:	-114 °C		
Boiling point:	78 °C		
Vapour pressure (20°C):	59 hPa		
Flashing temperature:	425 °C		
Odor limit:	19...93 mg/m ³		
rel. Vapour density _(air=1) :	1,59		
Volatiles by volume:	112 g/m ³		

100 mL TL C 20

Appearance : liquid		Color : colourless	Odor : odorless
pH:	1-2		
Specific gravity:	1,00 g/cm ³		
Solubility in water:	0-100 %		

100 mL TL H 20

Appearance : liquid		Color : colourless	Odor : aminic
pH:	9-10		
Solubility in water:	0-100 %		

30 mL NH₄ -1

Appearance : liquid		Color : colourless	Odor : odorless
pH:	11,5-12,5		

2,5 g NH₄ -2

Appearance : powder (solid)		Color : colourless	Odor : chloric
pH:	5-7		

6 mL NH₄ -3

Appearance : liquid		Color : rose	Odor : organic
pH:	6-8		
Specific gravity:	0,9 g/cm ³		
Flash point:	23 °C		

30 mL NO₃ -1

Appearance : liquid		Color : rose	Odor : odorless
pH:	2-3		

5 g NO₃ -2

Appearance : powder (solid)		Color : slightly grey	Odor : odorless
pH:	6,5-7,5		

30 mL NO₂ -1

Appearance : liquid		Color : colourless	Odor : odorless
pH:	2-3		
Specific gravity:	1,04 g/cm ³		

5 g NO₂ -2

Appearance : powder (solid)		Color : colourless	Odor : odorless
pH:	2-3		

25 mL PO₄ -1

Appearance : liquid		Color : colourless	Odor : odorless
pH:	1-2		
Specific gravity:	1,07 g/cm ³		

25 mL PO₄ -2



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Appearance : liquid
pH: 6-7

Color : colourless

Odor : sulphuric

9.2 Other information

Relevant Properties of Substance Group

9.2.1

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10 Stability and Reactivity

10.1 Reactivity

no data available

10.2. Chemical stability:

no data available

10.3. Possibility of hazardous reactions:

no data available

10.4. Conditions to avoid

If on label. When indicated in packing insert.

10.5 Incompatible materials

Avoid contact with strong acids or alkalines.

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.

11 Toxicological information

11.1 Information on toxicological effects

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

17 mL Fe-1

Chemical: *triazine derivate*

CAS No.: -

Chemical: *acetate buffer solution*

CAS No.: -

5 g Fe-2

Chemical: *L(+)-ascorbic acid*

CAS No.: 50-81-7

LD50_{orl rat}: 11900 mg/kg

LD50_{ivn mus}: 518 mg/kg

Chemical: *sodium chloride*

CAS No.: 7647-14-5

LD50_{orl rat}: 3000 mg/kg

LD50_{drm rbt}: 10 g/kg

15 mL Indicator H 20 F

Chemical: *triethanolamine*

CAS No.: 102-71-6

LD50_{orl rat}: > 5000 mg/kg

LD50_{drm rbt}: > 2000 mg/kg

Chemical: *ethanol*

CAS No.: 64-17-5

LD50_{orl rat}: 6200 mg/kg

LC_{Lowihl gpg}: 21.9 g/m³

LC_{Loworl hmn}: 1400 mg/kg

LC50_{ihl mouse}: 39_{4h} g/m³

LC50_{ihl rat}: 20_{10h} g/m³

LD50_{drm rbt}: 20 000 mg/kg

LD50_{oral mouse}: 3450 mg/kg

Chemical: *indicator dye(s)*

CAS No.: -

10 mL Indicator m

Chemical: *methyl red (pH indicator)*

CAS No.: 493-52-7

Chemical: *ethanol*

CAS No.: 64-17-5

LD50_{orl rat}: 6200 mg/kg

LC_{Lowihl gpg}: 21.9 g/m³

LC_{Loworl hmn}: 1400 mg/kg

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LC50_{ihl} mouse : 39_{4h} g/m³
 LC50_{ihl} rat : 20_{10h} g/m³
 LD50_{drm} rbt : 20 000 mg/kg
 LD50_{oral} mouse : 3450 mg/kg

Chemical: *indicator dye(s)*

CAS No.: -

10 mL Indicator p

Chemical: *ethanol*
 LD50_{orl} rat : 6200 mg/kg
 LC_{Low}ihl gpg : 21.9 g/m³
 LC_{Low}orl hmn : 1400 mg/kg
 LC50_{ihl} mouse : 39_{4h} g/m³
 LC50_{ihl} rat : 20_{10h} g/m³
 LD50_{drm} rbt : 20 000 mg/kg
 LD50_{oral} mouse : 3450 mg/kg

CAS No.: 64-17-5

Chemical: *phenolphthaleine (pH indicator)*
 LD50_{orl} rat : >1000 mg/kg

CAS No.: 77-09-8

24 mL pH-1

Chemical: *methyl red (pH indicator)*

CAS No.: 493-52-7

Chemical: *ethanol*
 LD50_{orl} rat : 6200 mg/kg
 LC_{Low}ihl gpg : 21.9 g/m³
 LC_{Low}orl hmn : 1400 mg/kg
 LC50_{ihl} mouse : 39_{4h} g/m³
 LC50_{ihl} rat : 20_{10h} g/m³
 LD50_{drm} rbt : 20 000 mg/kg
 LD50_{oral} mouse : 3450 mg/kg

CAS No.: 64-17-5

Chemical: *phenolphthaleine (pH indicator)*
 LD50_{orl} rat : >1000 mg/kg

CAS No.: 77-09-8

Chemical: *indicator dye(s)*

CAS No.: -

100 mL TL C 20

Chemical: *hydrochloric acid*
 LD50_{orl} rat : 900 mg/kg
 LC50_{drm} rbt : >5010 mg/kg

CAS No.: 7647-01-0

100 mL TL H 20

Chemical: *ethylendinitrilo tetraacetic acid, di Na-salt (EDTA-Na)*
 LD50_{orl} rat : >2000 mg/kg

CAS No.: 6381-92-6

30 mL NH₄ -1

Chemical: *sodium hydroxide solution*
 LD50_{orl} rat : 500_{100%} mg/kg
 LD50_{orl} mus : 40 mg/kg

CAS No.: 1310-73-2

Chemical: *tri-sodium citrate*
 LD50_{orl} rat : >8000 mg/kg

CAS No.: 6132-04-3

2,5 g NH₄ -2

Chemical: *dichloroisocyanuric acid, Na salt*
 LD50_{orl} rat : 550-1600 mg/kg
 LC_{Low}orl hmn : 3570 mg/kg
 LD50_{drm} rbt : >5000 mg/kg

CAS No.: 2893-78-9

Chemical: *sodium chloride*
 LD50_{orl} rat : 3000 mg/kg
 LD50_{drm} rbt : 10 g/kg

CAS No.: 7647-14-5

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6 mL NH₄ -3

Chemical: *sodium nitroprusside* CAS No.: 13755-38-9
 LD50_{orl rat}: 99 mg/kg
 LC_{Loworl rat}: 20 mg/kg

Chemical: *ethanol* CAS No.: 64-17-5
 LD50_{orl rat}: 6200 mg/kg
 LC_{Lowihl gpg}: 21.9 g/m³
 LC_{Loworl hmn}: 1400 mg/kg
 LC50_{ihl mouse}: 39_{4h} g/m³
 LC50_{ihl rat}: 20_{10h} g/m³
 LD50_{drm rbt}: 20 000 mg/kg
 LD50_{oral mouse}: 3450 mg/kg

Chemical: *thymol* CAS No.: 89-83-8
 LD50_{orl rat}: 980 mg/kg
 LD50_{drm rat}: > 2000 mg/kg

30 mL NO₃ -1

Chemical: *m-phenylenediammonium dichloride* CAS No.: 541-69-5
 LD50_{orl rat}: 280 mg/kg

Chemical: *citric acid* CAS No.: 77-92-9
 LD50_{orl rat}: >3000 mg/kg
 LC50_{ihl rat}: 5800 mg/m³
 LD50_{drm rat}: >2000 mg/kg
 LD50_{orl mus}: 5400 mg/kg
 LD50_{scu rat}: 5500 mg/kg

5 g NO₃ -2

Chemical: *zinc powder (stabilized)* CAS No.: 7440-66-6
 LD50_{orl rat}: >2000 mg/kg
 LC_{Lowinh hmn}: 124_{50min} mg/m³
 LC50_{ihl rat}: >5.4_h mg/m³

30 mL NO₂ -1

Chemical: *sulfanilamide* CAS No.: 63-74-1
 LD50_{orl rat}: 3900 mg/kg

Chemical: *o-phosphoric acid* CAS No.: 7664-38-2
 LD50_{orl rat}: 1530 mg/kg
 LC50_{ihl rbt}: 1.689 mg/L
 LD50_{drm rbt}: 2750 mg/kg

5 g NO₂ -2

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

Chemical: *citric acid* CAS No.: 77-92-9
 LD50_{orl rat}: >3000 mg/kg
 LC50_{ihl rat}: 5800 mg/m³
 LD50_{drm rat}: >2000 mg/kg
 LD50_{orl mus}: 5400 mg/kg
 LD50_{scu rat}: 5500 mg/kg

25 mL PO₄ -1

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

Chemical: *sulphuric acid* CAS No.: 7664-93-9
 LD50_{orl rat}: 2140 mg/kg
 LC50_{ihl mouse}: 320_{4h} mg/L
 LC50_{ihl rat}: 510 mg/m³

25 mL PO₄ -2



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Chemical: *sodium disulfite*
 LD50_{orl rat}: 1540 mg/kg
 LD50_{dirm rat}: 2000 mg/kg

CAS No.: 7681-57-4

12 Ecological information

12.1 Toxicity

12.2. Persistence and degradability: no data available
 12.3. Bioaccumulative potential: no data available
 12.4. Mobility in soil: no data available
 12.5. Results of PBT and vPvB assessment: no data available
 12.6. Other adverse effects: no data available

12.1. Following information is valid for pure substances.

17 mL Fe-1

Chemical: *triazine derivate*
 Storage class (VCI): 12-13

CAS No.: -

Chemical: *acetate buffer solution*
 Storage class (VCI): 12

CAS No.: -

5 g Fe-2

Chemical: *L(+)-ascorbic acid*
 WGK (DE): 1 WGK No.: 0737
 Storage class (VCI): 13

CAS No.: 50-81-7

Chemical: *sodium chloride*
 WGK (DE): 1
 Storage class (VCI): 12-13

CAS No.: 7647-14-5

15 mL Indicator H 20 F

Chemical: *triethanolamine*
 PNEC_(sweet water): 0.32 mg/L
 PNEC = Predicted No Effect Concentration
 LC50_{fish/96h}: >1000 mg/L
 EC50_{daphnia/48h}: >1000_{24h} mg/L
 WGK (DE): 1 WGK No.: 0201
 Dispersion coefficient (o-w): -2.3
 Storage class (VCI): 12

CAS No.: 102-71-6

Chemical: *ethanol*
 PNEC_(sweet 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}: 8140_{48h} mg/L
 LC50_{fish/96h}: 13 g/L
 EC50_{daphnia/48h}: 9.3-14.2 g/L
 IC50_{scenedesmus quadricauda/72h}: 5000_{7d} mg/L
 EC10_{pseudomonas putita/16h}: EC5: 6500 mg/L
 WGK (DE): 1 WGK No.: 0096
 Dispersion coefficient (o-w): -0.31
 Storage class (VCI): 3

CAS No.: 64-17-5

Chemical: *indicator dye(s)*
 Storage class (VCI): 12-13

CAS No.: -

10 mL Indicator m

Chemical: *methyl red (pH indicator)*
 WGK (DE): 2
 Storage class (VCI): 12-13

CAS No.: 493-52-7

Chemical: *ethanol*
 PNEC_(sweet 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

CAS No.: 64-17-5



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LC50_{leuciscus idus/96h} : 8140_{48h} mg/L
 LC50_{fish/96h} : 13 g/L
 EC50_{daphnia/48h} : 9.3-14.2 g/L
 IC50_{scenedesmus quadricauda/72h} : 5000_{7d} mg/L
 EC10_{pseudomonas putita/16h} : EC5: 6500 mg/L
 WGK (DE): 1 WGK No.: 0096
 Dispersion coefficient (o-w): -0.31
 Storage class (VCI): 3

Chemical: *indicator dye(s)*
 Storage class (VCI): 12-13

CAS No.: -

10 mL Indicator p

Chemical: *ethanol*
 PNEC_(sweet 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} : 8140_{48h} mg/L
 LC50_{fish/96h} : 13 g/L
 EC50_{daphnia/48h} : 9.3-14.2 g/L
 IC50_{scenedesmus quadricauda/72h} : 5000_{7d} mg/L
 EC10_{pseudomonas putita/16h} : EC5: 6500 mg/L
 WGK (DE): 1 WGK No.: 0096
 Dispersion coefficient (o-w): -0.31
 Storage class (VCI): 3

CAS No.: 64-17-5

Chemical: *phenolphthaleine (pH indicator)*
 WGK (DE): 1
 Dispersion coefficient (o-w): 0.9
 Storage class (VCI): 12-13

CAS No.: 77-09-8

24 mL pH-1

Chemical: *methyl red (pH indicator)*
 WGK (DE): 2
 Storage class (VCI): 12-13

CAS No.: 493-52-7

Chemical: *ethanol*
 PNEC_(sweet 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} : 8140_{48h} mg/L
 LC50_{fish/96h} : 13 g/L
 EC50_{daphnia/48h} : 9.3-14.2 g/L
 IC50_{scenedesmus quadricauda/72h} : 5000_{7d} mg/L
 EC10_{pseudomonas putita/16h} : EC5: 6500 mg/L
 WGK (DE): 1 WGK No.: 0096
 Dispersion coefficient (o-w): -0.31
 Storage class (VCI): 3

CAS No.: 64-17-5

Chemical: *phenolphthaleine (pH indicator)*
 WGK (DE): 1
 Dispersion coefficient (o-w): 0.9
 Storage class (VCI): 12-13

CAS No.: 77-09-8

Chemical: *indicator dye(s)*
 Storage class (VCI): 12-13

CAS No.: -

100 mL TL C 20

Chemical: *hydrochloric acid*
 PNEC_(sweet water) : 36 µg/L
 PNEC = Predicted No Effect Concentration
 LC50_{fish/96h} : 24.6 mg/L
 EC50_{daphnia/48h} : 0.492 mg/L
 EC50_{pseudokirchneriella subcapitata/72h} : 0.78 mg/L
 WGK (DE): 1 WGK No.: 0238
 Storage class (VCI): 8 B

CAS No.: 7647-01-0



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100 mL TL H 20

Chemical: *ethylendinitrilo tetraacetic acid, di Na-salt (EDTA-Na)*
 WGK (DE): 2
 Storage class (VCI): 12-13

CAS No.: 6381-92-6

30 mL NH₄ -1

Chemical: *sodium hydroxide solution*
 LC50_{leuciscus idus/96h}: 35-189 mg/L
 LC50_{fish/96h}: 45.4 mg/L
 EC50_{daphnia/48h}: >100 mg/L
 WGK (DE): 1 WGK No.: 0142
 Storage class (VCI): 8 B

CAS No.: 1310-73-2

Chemical: *tri-sodium citrate*
 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 putita/16h}: EC50_{ps. fluorescens/8h}: >1.8-3.2 g/L
 WGK (DE): 1
 Storage class (VCI): 12-13

CAS No.: 6132-04-3

2,5 g NH₄ -2

Chemical: *dichloroisocyanuric acid, Na salt*
 WGK (DE): 3
 Storage class (VCI): 13

CAS No.: 2893-78-9

Chemical: *sodium chloride*
 WGK (DE): 1
 Storage class (VCI): 12-13

CAS No.: 7647-14-5

6 mL NH₄ -3

Chemical: *sodium nitroprusside*
 WGK (DE): 3
 Storage class (VCI): 6.1 B

CAS No.: 13755-38-9

Chemical: *ethanol*
 PNEC_(sweet water): 0.96 mg/L
 PNEC = Predicted No Effected Concentration
 LC50_{daphnia magna/48h}: >100 mg/L
 LC50_{pimephales promelas/96h}: 13400 - 15100 mg/L
 LC50_{leuciscus idus/96h}: 8140_{48h} mg/L
 LC50_{fish/96h}: 13 g/L
 EC50_{daphnia/48h}: 9.3-14.2 g/L
 IC50_{scenedesmus quadricauda/72h}: 5000_{7d} mg/L
 EC10_{pseudomonas putita/16h}: EC5: 6500 mg/L
 WGK (DE): 1 WGK No.: 0096
 Dispersion coefficient (o-w): -0.31
 Storage class (VCI): 3

CAS No.: 64-17-5

Chemical: *thymol*
 LC50_{pimephales promelas/96h}: 3.2 mg/L
 EC50_{daphnia/48h}: 3.2 mg/L
 WGK (DE): 2 WGK No.: 1220
 Storage class (VCI): 8 A

CAS No.: 89-83-8

30 mL NO₃ -1

Chemical: *m-phenylenediammonium dichloride*
 WGK (DE): 3 WGK No.: 1312
 Storage class (VCI): 6.1 D

CAS No.: 541-69-5

Chemical: *citric acid*
 PNEC_(sweet water): 440 mg/L
 PNEC = Predicted No Effected 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
 WGK (DE): 1 WGK No.: 0057
 Dispersion coefficient (o-w): -1.72
 Storage class (VCI): 12-13

CAS No.: 77-92-9



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5 g NO₃ -2

Chemical: *zinc powder (stabilized)* CAS No.: 7440-66-6
 LC50_{fish/96h}: 2.01 mg/L
 EC50_{daphnia/48h}: 0.131 mg/L
 EC50_{pseudokirchneriella subcapitata/72h}: IC50: 0.713 mg/L
 WGK (DE): 2 WGK No.: 7325
 Storage class (VCI): 13

30 mL NO₂ -1

Chemical: *sulfanilamide* CAS No.: 63-74-1
 WGK (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
 WGK (DE): 1 WGK No.: 0392
 Storage class (VCI): 8 B

5 g NO₂ -2

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

Chemical: *citric acid* CAS No.: 77-92-9
 PNEC_(sweet 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
 WGK (DE): 1 WGK No.: 0057
 Dispersion coefficient (o-w): -1.72
 Storage class (VCI): 12-13

25 mL PO₄ -1

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

Chemical: *sulphuric acid* CAS No.: 7664-93-9
 LC50_{fish/96h}: 16-29 mg/L
 EC50_{daphnia/48h}: 29_{24h} mg/L
 WGK (DE): 1 WGK No.: 0182
 Storage class (VCI): 8 B

25 mL PO₄ -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
 WGK (DE): 1 WGK No.: 1169
 Storage class (VCI): 8 B

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

Empty containers of corrosive reagents prior to disposal, rinse with water.

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14 Transport Information

14.1. UN No.: 3316 **14.2. Proper shipping name:** **Chemical Kit**
14.3. Class: 9 **14.4. Packing group:** II
Road transport
 Classification code: M11 Tunnel restriction code: E
 Limited Quantity: LQ 0 (acc. ADR 3.3.1/251: see LQ in Alternative Transport Labelling)
Air transport
 PAX: 960 max. weight PAX: 10 KG
 CAO: 960 max. weight CAO: 10 KG
Maritime transport
 EmS: F-A, S-P Storage category: A
14.5. Environmental hazards: low, small amounts
14.6. Special precautions for user: not necessary
14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: not applicable

Alternative Transport Labelling follows:

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

or

14.1 UN No.: 1993 **14.2 Proper shipping name:** **Flammable liquid, n.o.s. (ethanol mixture)**
14.3 Class: 3 **14.4 Packing group:** II

Road transport

Classification code: F1
 Limited Quantity: LQ 4 Tunnel restriction code: E
 Excepted Quantity: E 2 Special instructions: 640C

Air transport

PAX: 353 max. weight PAX: 5 L
 CAO: 364 max. weight CAO: 60 L

Maritime transport

EmS: F-E, S-E Storage category: B

14.1 UN No.: 3264 **14.2 Proper shipping name:**
Corrosive liquid, acidic, inorganic, n.o.s. (hydrochloric acid, o-phosphoric acid, sulphuric acid, sodium disulfite solution)

14.3 Class: 8 **14.4 Packing group:** III

Road transport

Classification code: C1
 Limited Quantity: LQ 7 Tunnel restriction code: E
 Excepted Quantity: E 1

Air transport

PAX: 852 max. weight PAX: 5 L
 CAO: 856 max. weight CAO: 60 L

Maritime transport

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

14.1 UN No.: 3266 **14.2 Proper shipping name:** **Corrosive liquid, basic, inorganic, n.o.s. (sodium hydroxide solution)**

14.3 Class: 8 **14.4 Packing group:** II

Road transport

Classification code: C5
 Limited Quantity: LQ22 Tunnel restriction code: E
 Excepted Quantity: E 2

Air transport

PAX: 851 max. weight PAX: 1 L
 CAO: 855 max. weight CAO: 30 L

Maritime transport

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

15 Regulatory Information

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

German act governing protection from hazardous substances (Chemicals Act / Chemikaliengesetz- ChemG), revised on August 2013
 German order governing protection from hazardous substances (Ordinance on Hazardous Substances / Gefahrstoffverordnung - GefStoffV), revised on November 2010, according to Directive 98/24/EC
 TRGS 200, German engineering rules governing the classification and labelling of hazardous substances, preparations and products, updated October 2011
 Announcement BekGS 220 (DE), Safety Data Sheet, June 2013

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according to Directive 1907/2006/EC (REACH) and 453/2010/EU

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Date of issue: 28.01.2015

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15.2 Chemical safety assessment not necessary for these small amounts

16 Other Information

16.1 List of R and H phrases

16.1.1 List of relevant R phrases

R10	Flammable.
R11	Highly flammable.
R31	Contact with acids liberates toxic gas.
R35	Causes severe burns.
R36/38	Irritating to eyes and skin.
R41	Risk of serious damage to eyes.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

16.1.2 List of relevant H phrases

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
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 Training Advice

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.

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 DE §§ 4 und 5 MuSchRiV)!

An individual package of this product or test kit has a moderate hazardous potential.

16.4 Further Information

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16.5 Sources of Key Data

Regulation 453/2010/EU REACH - REQUIREMENTS FOR THE COMPILATION OF SAFETY DATA SHEETS

Regulation 487/2013/EU, 4th adaptation of CLP regulation to technical and scientific progress

TRGS 900, German engineering rules governing limits in air at work, updated February 2014

SUVA .CH, Limits in air at work 2009, revised on 01.2009

KÜHN, BIRETT Merkblätter Gefährliche Arbeitsstoffe (Data Sheets of Hazardous Substances)

16.6. Revisions/Updates

Reason for Revision: 2014-02 Corrected structure of sections acc. regulation 453/2010/EU, if necessary

2014-04 Adaptation of regulation 487/2013/EU

You find our current versions of MSDS in Internet:

<http://www.mn-net.com/MSDS>