Safety Data Sheet

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

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

1.1 Product identifier

REF 931601
Product name VISOCOLOR soil case, with accessories

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 1 L CAL solution
1 x 100 mL CAL stock solution
1 x 500 mL dist. water
2 x 25 mL K-1
1 x 12 g K-2
1 x 30 mL P-1
1 x 30 mL P-2
1 x 100 p. folded filter papers
2 x 25 mL pH 4-10
1 x 30 mL P-K
1 x 30 mL Pyrophosphate solution
1 x 100 Test sticks Ammonium
1 x 100 Indicator sticks
1 x 100 test strips
1 x 1 L $CaCl_2$ solution
1 x 100 mL $CaCl_2$ stock solution
2 x 30 mL NH_4^+ -1

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

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

1.3 Details of the supplier of the safety data sheet

Manufactured by:
MACHEREY-NAGEL GmbH & Co. KG
Valencienner Str. 11, 52355 Düren, GERMANY
Tel.: +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

You find our current versions of SDS (22 languages) in Internet: **http://www.mn-net.com/SDS**

SECTION 2: Hazard identification

2.0 Classification of the complete product



GHS02 GHS05 GHS07

Signal word DANGER

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Hazard identification	Hazard classes/categories
EUH031	031 not defined
H225	Flam. Liq. 2
H290	Met. Corr. 1
H302	Acute Tox. 4 oral
H314	Skin Corr. 1A
H315	Skin Irrit. 2
H318	Eye Dam. 1
H319	Eye Irrit. 2

2.1 Classification of the substance or mixture

1 L CAL solution

Do not need labelling as hazardous

Signal word -

No hazard class

100 mL CAL stock solution

Do not need labelling as hazardous

Signal word -

No hazard class

500 mL dist. water

Do not need labelling as hazardous

Signal word -

No hazard class

25 mL K-1



GHS05

Signal word DANGER

Hazard identification	Hazard classes/categories
H290	Met. Corr. 1
H314	Skin Corr. 1B

12 g K-2



GHS07

Signal word WARNING

Hazard identification	Hazard classes/categories
H302	Acute Tox. 4 oral
H315	Skin Irrit. 2
H319	Eye Irrit. 2

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30 mL P-1



GHS05

Signal word DANGER

Hazard identification	Hazard classes/categories
H290	Met. Corr. 1
H314	Skin Corr. 1A

30 mL P-2



GHS05

Signal word DANGER

Hazard identification	Hazard classes/categories
EUH031	031 not defined
H318	Eye Dam. 1

100 p. folded filter papers

Do not need labelling as hazardous

Signal word -

No hazard class

25 mL pH 4-10



GHS02

Signal word DANGER

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

30 mL P-K



GHS05

Signal word DANGER

Hazard identification	Hazard classes/categories
H314	Skin Corr. 1A

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30 mL Pyrophosphate solution

Do not need labelling as hazardous

Signal word -

No hazard class

100 Test sticks Ammonium

Do not need labelling as hazardous

Signal word -

No hazard class

100 Indicator sticks

Do not need labelling as hazardous

Signal word -

No hazard class

100 test strips

Do not need labelling as hazardous

Signal word -

No hazard class

1 L $CaCl_2$ solution

Do not need labelling as hazardous

Signal word -

No hazard class

100 mL $CaCl_2$ stock solution



GHS07

Signal word WARNING

Hazard identification	Hazard classes/categories
H319	Eye Irrit. 2

30 mL NH_4^+ -1



GHS05

Signal word DANGER

Hazard identification	Hazard classes/categories
H290	Met. Corr. 1
H314	Skin Corr. 1A

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2.2 Label elements

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

1 L CAL solution

Do not need labelling as hazardous
Signal word: -

100 mL CAL stock solution

Do not need labelling as hazardous
Signal word: -

500 mL dist. water

Do not need labelling as hazardous
Signal word: -

25 mL K-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.

12 g K-2



GHS07

Signal word: WARNING

30 mL P-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.

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30 mL P-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.

100 p. folded filter papers

Do not need labelling as hazardous
Signal word: -

25 mL pH 4-10



GHS02

Signal word: DANGER

30 mL P-K



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 Pyrophosphate solution

Do not need labelling as hazardous
Signal word: -

100 Test sticks Ammonium

Do not need labelling as hazardous
Signal word: -

100 Indicator sticks

Do not need labelling as hazardous
Signal word: -

100 test strips

Do not need labelling as hazardous

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Signal word: -

1 L $CaCl_2$ solution

Do not need labelling as hazardous
Signal word: -

100 mL $CaCl_2$ stock solution



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.

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. 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.
Cause after oral intake, impairments of health when ingested in small quantities. Can accumulate within the body.
-

Information pertaining to particular risks to the environment
Avoid contact of substance/mixture to environment.
PBT: not applicable
vPvB: not applicable

Other hazards
Contains an odor intensive reagent. ---

SECTION 3: Composition/information on ingredients

3.1 Substances or 3.2 Mixtures

1 L CAL solution

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Chemical: *calcium acetate* CAS No.: 62-54-4
Classification: No criteria for classification or naming of chemical not required.
Formula: $Ca(CH_3COO)_2$
Pseudonym: Acetic acid, calcium salt (2:1)
TSCA Inventory: listed
REACH Reg. No.: 01-2119987569-11-xxxx
EC No.: 200-540-9
RTECS: AF75250000 MFCD: 00012448
Concentration: < 0.10 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

Chemical: *acetic acid* CAS No.: 64-19-7
Classification: H226, Flam. Liq. 3, H314, Skin Corr. 1B
Formula: $C_2H_4O_2$; CH_3-COOH
TSCA Inventory: listed
REACH Reg. No.: 01-2119475328-30-xxxx
EC No.: 200-580-7 Indice No.: 607-002-00-6
RTECS: AF1225000 MFCD: 00036152
KE No.: KE-00013
Concentration: 1 - <10 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

100 mL CAL stock solution

Chemical: *calcium acetate* CAS No.: 62-54-4
Classification: No criteria for classification or naming of chemical not required.
Formula: $Ca(CH_3COO)_2$
Pseudonym: Acetic acid, calcium salt (2:1)
TSCA Inventory: listed
REACH Reg. No.: 01-2119987569-11-xxxx
EC No.: 200-540-9
RTECS: AF75250000 MFCD: 00012448
Concentration: 1 - <10 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

Chemical: *acetic acid* CAS No.: 64-19-7
Classification: H226, Flam. Liq. 3, H314, Skin Corr. 1B
Formula: $C_2H_4O_2$; CH_3-COOH
TSCA Inventory: listed
REACH Reg. No.: 01-2119475328-30-xxxx
EC No.: 200-580-7 Indice No.: 607-002-00-6
RTECS: AF1225000 MFCD: 00036152
KE No.: KE-00013
Concentration: 1 - <10 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

500 mL dist. water

Chemical: *water* CAS No.: 7732-18-5
Classification: No criteria for classification or naming of chemical not required.
Formula: H_2O
TSCA Inventory: listed
REACH Reg. No.: exempt, Annex IV
EC No.: 231-791-2
RTECS: ZC0110000
KE No.: KE-35400
Concentration: 90 - <100 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

25 mL K-1

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Chemical: *sodium hydroxide solution* CAS No.: 1310-73-2
Classification: H290, Met. Corr. 1, H314, Skin Corr. 1B
Formula: $NaOH \cdot H_2O$
Pseudonym: soda lye
TSCA Inventory: listed
REACH Reg. No.: 01-2119457892-27-xxxx
EC No.: 215-185-5 Indice No.: 011-002-00-6
RTECS: WB4900000
KE No.: KE-31487
Concentration: 2 - <5 %
acc. CLP (GHS): H290, Met. Corr. 1, H314, Skin Corr. 1B

12 g K-2

Chemical: *sodium tetraphenylborate* CAS No.: 143-66-8
Classification: H301, Acute Tox. 3 oral, H315, Skin Irrit. 2, H319, Eye Irrit. 2
Formula: $C_{24}H_{20}BNa$
TSCA Inventory: listed
EC No.: 205-605-5
RTECS: ED3362500 MFCD: 00011494
KE No.: KE-31629
Concentration: 14 - <35 % Correlation factor: x 0.032 (= %B)
The classification refers to weight percent of the metal (according to CLP Regulation 2008/1272/EC Annex VI, 1.1.3.2 Note 1)
acc. CLP (GHS): H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H319, Eye Irrit. 2

30 mL P-1

Chemical: *ammonium heptamolybdate* CAS No.: 12054-85-2
Classification: No criteria for classification or naming of chemical not required.
Formula: $H_{24}Mo_7N_6O_{24}$
Pseudonym: hexaammonium heptamolybdate
TSCA Inventory: listed (CAS 11098-84-3)
REACH Reg. No.: 01-2119498057-28-xxxx
EC No.: 234-722-4
RTECS: QA5076000 / QA4900000 MFCD: 00167059
KE No.: not listed
Concentration: 2 - <5 % Correlation factor: x 0.58 (= %Mo)
The classification refers to weight percent of the metal (according to CLP Regulation 2008/1272/EC Annex VI, 1.1.3.2 Note 1)
acc. CLP (GHS): The criteria for classification are not fulfilled.

Chemical: *sulfuric acid* CAS No.: 7664-93-9
Classification: H314, Skin Corr. 1B
Formula: H_2SO_4 ($\cdot H_2O$)
TSCA Inventory: listed
REACH Reg. No.: 01-2119458838-20-xxxx
EC No.: 231-639-5 Indice No.: 016-020-00-8
RTECS: WS5600000
KE No.: KE-32570, >10% Toxic 97-1-405, Acc. Precaution Chem.
Concentration: 15 - <30 %
acc. CLP (GHS): H290, Met. Corr. 1, H314, Skin Corr. 1B

30 mL P-2

Chemical: *sodium disulfite* CAS No.: 7681-57-4
Classification: H302, Acute Tox. 4 oral, H318, Eye Dam. 1, EUH031, 031 not defined
Formula: $Na_2O_5S_2$
Pseudonym: sodium metabisulphite, sodium pyrosulfite
TSCA Inventory: listed
REACH Reg. No.: 01-2119531326-45-xxxx
EC No.: 231-673-0 Indice No.: 016-063-00-2
RTECS: UX8225000
KE No.: KE-12701
Concentration: 10 - <25 %
acc. CLP (GHS): H318, Eye Dam. 1, EUH031, 031 not defined

100 p. folded filter papers

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Chemical: *filter paper (cellulose CAS 9004-34-6)* CAS No.: -
Classification: No criteria for classification or naming of chemical not required.
Formula: $(C_6 H_{10} O_5)_n$
TSCA Inventory: listed
REACH Reg. No.: exempt, Annex IV
EC No.: 232-674-9
RTECS: FJ5691460
KE No.: KE-05339
Concentration: 80 - <100 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

25 mL pH 4-10

Chemical: *methyl red (pH indicator)* CAS No.: 493-52-7
Classification: No criteria for classification or naming of chemical not required.
Formula: $C_{15} H_{15} N_3 O_2$
Pseudonym: 4-(dimethylamino)-azobenzene-1,2'-carbonic acid
TSCA Inventory: listed
EC No.: 207-776-1
RTECS: DG8960000 MFCD: 00002425
KE No.: KE-06693
Concentration: < 0.10 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

Chemical: *ethanol* CAS No.: 64-17-5
(denatured with 1%IPA/1%MEK, acc.2016/1867/EU)
Classification: H225, Flam. Liq. 2
Formula: $C_2 H_6 O$; $C_2 H_5 OH$
Pseudonym: ethyl alcohol, methylated spirit
TSCA Inventory: listed
REACH Reg. No.: 01-2119457610-43-xxxx
EC No.: 200-578-6 Indice No.: 603-002-00-5
RTECS: KQ6300000 MFCD: 00003568
KE No.: KE-13217
Concentration: 90 - <98 %
acc. CLP (GHS): H225, Flam. Liq. 2

Chemical: *phenolphthalein (pH indicator)* CAS No.: 77-09-8
Classification: H341, Muta. 2, H350, Carc. 1A, H361f, Repr. 2
Formula: $C_{20} H_{14} O_4$
Pseudonym: 3,3-bis(4-hydroxyphenyl)-1(3H)-isobenzofuranone
TSCA Inventory: listed
REACH Reg. No.: 01-2119498295-24-0000
SVHC listed: YES (> 1%)
EC No.: 201-004-7 Indice No.: 604-076-00-1
RTECS: SM8380000 MFCD: 00005913
KE No.: KE-03234
Concentration: 0.01 - <0.1 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

Chemical: *indicator dye(s)* CAS No.: -
Classification: No criteria for classification or naming of chemical not required.
TSCA Inventory: all listed, <1%
Concentration: 0.01 - <0.1 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

30 mL P-K

Chemical: *sulfuric acid* CAS No.: 7664-93-9
Classification: H314, Skin Corr. 1B
Formula: $H_2 SO_4$ ($\bullet H_2 O$)
TSCA Inventory: listed
REACH Reg. No.: 01-2119458838-20-xxxx
EC No.: 231-639-5 Indice No.: 016-020-00-8
RTECS: WS5600000
KE No.: KE-32570, >10% Toxic 97-1-405, Acc. Precaution Chem.
Concentration: 30 - <51 %
acc. CLP (GHS): H314, Skin Corr. 1B

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30 mL Pyrophosphate solution

Chemical: *phosphate buffer solution* CAS No.: -
Classification: No criteria for classification or naming of chemical not required.
Formula: $K/Na_{1-3}\,H_{2-0}\,PO_4 \bullet x\,H_2O$
TSCA Inventory: all listed
KE No.: listed
Concentration: 1 - <5 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

100 Test sticks Ammonium

Chemical: *potassium tetraiodomercurate(II)* CAS No.: 7783-33-7
Classification: No criteria for classification or naming of chemical not required.
Formula: $K_2\,(HgI_4)$
TSCA Inventory: listed
EC No.: 231-990-4-8 Indice No.: 080-004-00-7
RTECS: OU9670000
KE No.: KE-12197, Toxic 97-1-140
Concentration: < 0.10 % Correlation factor: x 0.26 (= %Hg)
The classification refers to weight percent of the metal (according to CLP Regulation 2008/1272/EC Annex VI, 1.1.3.2 Note 1)
acc. CLP (GHS): The criteria for classification are not fulfilled.

Chemical: *filter paper (cellulose CAS 9004-34-6)* CAS No.: -
Classification: No criteria for classification or naming of chemical not required.
Formula: $(C_6\,H_{10}\,O_5)_n$
TSCA Inventory: listed
REACH Reg. No.: exempt, Annex IV
EC No.: 232-674-9
RTECS: FJ5691460
KE No.: KE-05339
Concentration: 1 - <10 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

Chemical: *PVC foil (CAS 9002-86-2)* CAS No.: -
Classification: No criteria for classification or naming of chemical not required.
TSCA Inventory: listed
Concentration: 95 - <100 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

100 Indicator sticks

Chemical: *cellulose* CAS No.: 9004-34-6
Classification: No criteria for classification or naming of chemical not required.
Formula: $(C_6\,H_{10}\,O_5)_n$
TSCA Inventory: listed
REACH Reg. No.: exempt, Annex IV
EC No.: 232-674-9
RTECS: FJ5691460
KE No.: KE-05339
Concentration: 1 - <10 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

Chemical: *indicator dye(s)* CAS No.: -
Classification: No criteria for classification or naming of chemical not required.
TSCA Inventory: all listed, <1%
Concentration: 0.01 - <0.1 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

Chemical: *PVC foil (CAS 9002-86-2)* CAS No.: -
Classification: No criteria for classification or naming of chemical not required.
TSCA Inventory: listed
Concentration: 95 - <100 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

100 test strips

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Chemical: *cellulose* CAS No.: 9004-34-6
Classification: No criteria for classification or naming of chemical not required.
Formula: $(C_6H_{10}O_5)_n$
TSCA Inventory: listed
REACH Reg. No.: exempt, Annex IV
EC No.: 232-674-9
RTECS: FJ5691460
KE No.: KE-05339
Concentration: 1 - <10 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

Chemical: *chemicals/mixture < 1%* CAS No.: -
Classification: No criteria for classification or naming of chemical not required.
TSCA Inventory: all listed, <1%
KE No.: listed
Concentration: 0.1 - <1 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

Chemical: *PVC foil (CAS 9002-86-2)* CAS No.: -
Classification: No criteria for classification or naming of chemical not required.
TSCA Inventory: listed
Concentration: 95 - <100 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

1 L $CaCl_2$ solution

Chemical: *calcium chloride (dihydrate)* CAS No.: 10035-04-8
Classification: No criteria for classification or naming of chemical not required.
Formula: $CaCl_2 \cdot 2H_2O$
TSCA Inventory: listed (CAS 10043-52-4)
REACH Reg. No.: 01-2119494219-28-xxxx
EC No.: 233-140-8 Indice No.: 017-013-00-2
RTECS: EV9810000 MFCD: 00149613
KE No.: KE-04496
Concentration: < 0.10 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

100 mL $CaCl_2$ stock solution

Chemical: *calcium chloride (dihydrate)* CAS No.: 10035-04-8
Classification: H319, Eye Irrit. 2
Formula: $CaCl_2 \cdot 2H_2O$
TSCA Inventory: listed (CAS 10043-52-4)
REACH Reg. No.: 01-2119494219-28-xxxx
EC No.: 233-140-8 Indice No.: 017-013-00-2
RTECS: EV9810000 MFCD: 00149613
KE No.: KE-04496
Concentration: 10 - <20 %
acc. CLP (GHS): H319, Eye Irrit. 2

30 mL NH_4^+ -1

Chemical: *sodium hydroxide solution* CAS No.: 1310-73-2
Classification: H290, Met. Corr. 1, H314, Skin Corr. 1B
Formula: $NaOH \cdot H_2O$
Pseudonym: soda lye
TSCA Inventory: listed
REACH Reg. No.: 01-2119457892-27-xxxx
EC No.: 215-185-5 Indice No.: 011-002-00-6
RTECS: WB4900000
KE No.: KE-31487
Concentration: 20 - <35 %
acc. CLP (GHS): H290, Met. Corr. 1, H314, Skin Corr. 1B

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 16.1

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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

Can accumulate within the body. ---

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 to 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 DISTREES ensure that the patient inhales oxygen. ---

SECTION 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

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

5.3 Advice for firefighters

No, for listed product. Product package burns like paper or plastic. 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

not necessary

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.

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6.4 Reference to other sections

see information in section 5.4 ---

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

The original product package of MACHEREY-NAGEL allows a safe storage.
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

1 L CAL solution

Chemical: *calcium acetate* CAS No.: 62-54-4

Chemical: *acetic acid* CAS No.: 64-19-7
DNEL: [loc, inh] 25 mg/m³
DNEL = Derived No-Effect Level (for workers)
$PNEC_{(fresh\ water)}$: 3.058 mg/L
PNEC = Predicted No Effected Concentration
EU value: [TWA] 25 / [STEL] 50 mg/m³
TRGS 900 (DE): 10 mL/m³ / 25 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: 10 ppm / 25 mg/m³
NIOSH: [TWA] 10 ppm / 25 mg/m³ ; [STEL] 15 ppm / 37 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] 10 ppm / 25 mg/m³

100 mL CAL stock solution

Chemical: *calcium acetate* CAS No.: 62-54-4

Chemical: *acetic acid* CAS No.: 64-19-7
DNEL: [loc, inh] 25 mg/m³
DNEL = Derived No-Effect Level (for workers)
$PNEC_{(fresh\ water)}$: 3.058 mg/L
PNEC = Predicted No Effected Concentration
EU value: [TWA] 25 / [STEL] 50 mg/m³
TRGS 900 (DE): 10 mL/m³ / 25 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: 10 ppm / 25 mg/m³
NIOSH: [TWA] 10 ppm / 25 mg/m³ ; [STEL] 15 ppm / 37 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] 10 ppm / 25 mg/m³

500 mL dist. water

Chemical: *water* CAS No.: 7732-18-5

25 mL K-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

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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

12 g K-2
Chemical: *sodium tetraphenylborate* CAS No.: 143-66-8

30 mL P-1
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

Chemical: *sulfuric acid* CAS No.: 7664-93-9
DNEL: [inh] 50 µg/m³
DNEL = Derived No-Effect Level (for workers)

$PNEC_{(fresh\ water)}$: 2.5 µg/L
PNEC = Predicted No Effected Concentration

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
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

30 mL P-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

100 p. folded filter papers
Chemical: *filter paper (cellulose CAS 9004-34-6)* CAS No.: -
TRGS 900 (DE): 1.25 A / 4 E mg/m³
E/e respirable

SUVA(CH) MAK value: 3 a 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

25 mL pH 4-10
Chemical: *methyl red (pH indicator)* CAS No.: 493-52-7

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 Effected 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

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[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

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

30 mL P-K
Chemical: *sulfuric acid* CAS No.: 7664-93-9
DNEL: [inh] 50 µg/m³
DNEL = Derived No-Effect Level (for workers)
$PNEC_{(fresh\ water)}$: 2.5 µg/L
PNEC = Predicted No Effected Concentration
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
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

30 mL Pyrophosphate solution
Chemical: *phosphate buffer solution* CAS No.: -

100 Test sticks Ammonium
Chemical: *potassium tetraiodomercurate(II)* CAS No.: 7783-33-7
EU value: [Hg] 0.02 e mg/m³
TRGS 900 (DE): [Hg] 0,02 E mg/m³
E/e respirable
Short-term exposure factor: 8 (II), H, Sh
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded
SUVA(CH) MAK value: [Hg][MAK] 0,02 e/[STEL] 0,16 e mg/m³
SUVA(CH) BAT value: [Krea U/d] 35 µg/L
TRGS 903 (DE): [Krea U/a] 25 µg/L
B blood, U urine, a no limitation, b end of exposition or shift
NIOSH: [Hg vapor, TWA_{skin}] 0.05; other 0.1 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] 0.1 mg/m³

Chemical: *filter paper (cellulose CAS 9004-34-6)* CAS No.: -
TRGS 900 (DE): 1.25 A / 4 E mg/m³
E/e respirable
SUVA(CH) MAK value: 3 a 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: *PVC foil (CAS 9002-86-2)* CAS No.: -

100 Indicator sticks
Chemical: *cellulose* CAS No.: 9004-34-6
TRGS 900 (DE): Staub 1.25 A / 4 E mg/m³
E/e respirable
SUVA(CH) MAK value: 3 a ppm
NIOSH: TWA 10 (total) / 5 (resp) mg/m³
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period
OSHA: TWA 15 (total) / 5 (resp) mg/m³

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

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

100 test strips
Chemical: *cellulose* CAS No.: 9004-34-6
TRGS 900 (DE): Staub 1.25 A / 4 E mg/m³
E/e respirable
SUVA(CH) MAK value: 3 a ppm
NIOSH: TWA 10 (total) / 5 (resp) mg/m³
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period
OSHA: TWA 15 (total) / 5 (resp) mg/m³

Chemical: *chemicals/mixture < 1%* CAS No.: -

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

1 L $CaCl_2$ solution
Chemical: *calcium chloride (dihydrate)* CAS No.: 10035-04-8

100 mL $CaCl_2$ stock solution
Chemical: *calcium chloride (dihydrate)* CAS No.: 10035-04-8

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

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 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.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

1 L CAL solution

Appearance: liquid	Colour: colourless	Odor: acetic
pH:	2-3	
Solubility in water:	0-100 %	

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100 mL CAL stock solution
Appearance: liquid | Colour: colourless | Odor: acetic
pH: 2-3
Specific gravity: 1,02 g/cm³
Solubility in water: 0-100 %

500 mL dist. water
Appearance: liquid | Colour: colourless | Odor: odorless
pH: 6-8
Specific gravity: 1,00 g/cm³

25 mL K-1
Appearance: liquid | Colour: colourless | Odor: odorless
pH: 12-13
Specific gravity: 1,04 g/cm³
Solubility in water: 0-100 %

12 g K-2
Appearance: powder (solid) | Colour: colourless | Odor: odorless
pH: 6-8 (10%)
Solubility in water: 0-30 %

30 mL P-1
Appearance: liquid | Colour: colourless | Odor: odorless
pH: 0-1
Specific gravity: 1,21 g/cm³
Solubility in water: 0-100 %

30 mL P-2
Appearance: liquid | Colour: colourless | Odor: penetrative
pH: 5-7
Solubility in water: 0-100 %

100 p. folded filter papers
Appearance: solid | Colour: colourless | Odor: odorless
Solubility in water: 0 %

25 mL pH 4-10
Appearance: liquid | Colour: red | Odor: alcoholic
pH: 6-8
Flash point: 18 °C
Specific gravity: 0,79 g/cm³
Solubility in water: 0-100 %

30 mL P-K
Appearance: liquid | Colour: colourless | Odor: odorless
pH: 0-1
Specific gravity: 1,22 g/cm³
Solubility in water: 0-100 %

30 mL Pyrophosphate solution
Appearance: liquid | Colour: colourless | Odor: odorless
pH: 9-10
Solubility in water: 0-100 %

100 Test sticks Ammonium
Appearance: solid | Colour: yellow | Odor: odorless

100 Indicator sticks
Appearance: solid | Colour: colored | Odor: odorless

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100 test strips
Appearance: solid | Colour: colored | Odor: odorless

1 L $CaCl_2$ solution
Appearance: liquid | Colour: colourless | Odor: odorless
pH: 6-8
Specific gravity: 1,0 g/cm³
Solubility in water: 0-100 %

100 mL $CaCl_2$ stock solution
Appearance: liquid | Colour: colourless | Odor: odorless
pH: 6-8
Solubility in water: 0-100 %

30 mL NH_4^+ -1
Appearance: liquid | Colour: colourless | Odor: odorless
pH: 14
Specific gravity: 1,35 g/mL
Solubility in water: 0-100 %

9.2 Other information

Data for the other parameters of the mixtures are not available, because no registration and no chemical safety report is required.
Relevant Properties of Substance Group
Substances are very volantile and form flammable vapour-air mixtures. ---

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

Not necessary. ---

10.5 Incompatible materials

Avoid contact with concentrated acids and oxidizing agents. 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.

SECTION 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.

1 L CAL solution

Chemical: *calcium acetate* CAS No.: 62-54-4
TSCA Inventory: listed
$LD50_{orl\ rat}$: 4280 mg/kg

Chemical: *acetic acid* CAS No.: 64-19-7
TSCA Inventory: listed California Proposition 65 List: not listed
Exposure Routes: inhalation, skin and/or eye contact
Target Organs: Eyes, skin, respiratory system, teeth
Symptoms: irritation eyes, skin, nose, throat; eye, skin burns; skin sensitization; dental erosion; black skin, hyperkeratosis; conjunctivitis, lacrimation (di
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)

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South Korea TCCA: not listed
Korea Exist.Chem.Inventory: KE-00013
$LD50_{orl\ rat}$: 3310 mg/kg
$LC50_{inh\ rat}$: [4h] 8.5-12,7 mg/L
$LD50_{drm\ rbt}$: 1060 mg/kg
$LD50_{oral\ mouse}$: 4960 mg/kg

100 mL CAL stock solution

Chemical: *calcium acetate* CAS No.: 62-54-4
TSCA Inventory: listed
$LD50_{orl\ rat}$: 4280 mg/kg

Chemical: *acetic acid* CAS No.: 64-19-7
TSCA Inventory: listed California Proposition 65 List: not listed
Exposure Routes: inhalation, skin and/or eye contact
Target Organs: Eyes, skin, respiratory system, teeth
Symptoms: irritation eyes, skin, nose, throat; eye, skin burns; skin sensitization; dental erosion; black skin, hyperkeratosis; conjunctivitis, lacrimation (di
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-00013
$LD50_{orl\ rat}$: 3310 mg/kg
$LC50_{inh\ rat}$: [4h] 8.5-12,7 mg/L
$LD50_{drm\ rbt}$: 1060 mg/kg
$LD50_{oral\ mouse}$: 4960 mg/kg

500 mL dist. water

Chemical: *water* CAS No.: 7732-18-5
TSCA Inventory: listed
Korea Exist.Chem.Inventory: KE-35400

25 mL K-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
$LD50_{drm\ rbt}$: not applicable
$LD50_{orl\ mus}$: 40 mg/kg

12 g K-2

Chemical: *sodium tetraphenylborate* CAS No.: 143-66-8
TSCA Inventory: listed
Japan CSCL/PRTR: PRTR: >1,0% B class I
Korea Exist.Chem.Inventory: KE-31629
$LD50_{orl\ rat}$: 288 mg/kg
Acute Effects: Cause after oral intake, impairments of health when ingested in small quantities.

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30 mL P-1

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

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, throat; pulmonary edema, bronchitis; emphysema; conjunctivitis; stomatis; dental erosion; eye, skin burns; dermatitis
Australia NICNAS: not listed Canada CEPA 1999: DSL Yes
Japan CSCL/PRTR: not listed, Japan PDSCL: Deleterious Substance
Japan ISHL: listed ≥1,0%/≥1,0%, Article 57-2 (SDS required)
South Korea TCCA: Accident Precaution Chemical Yes
Korea Exist.Chem.Inventory: KE-32570, >10% Toxic 97-1-405, Acc. Precaution Chem.
$LD50_{orl\ rat}$: 2140 mg/kg
$LC50_{ihl\ rat}$: [8h] 600/ [4h] 850 mg/m³

TRGS 905 (DE): Kat 4

30 mL P-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
$LD50_{drm\ rat}$: 2000 mg/kg

100 p. folded filter papers

Chemical: *filter paper (cellulose CAS 9004-34-6)* CAS No.: -
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-05339
$LD50_{orl\ rat}$: >5000 mg/kg
$LC50_{ihl\ rat}$: $>5800_{4h}$ mg/m³
$LD50_{drm\ rbt}$: >2000 mg/kg

25 mL pH 4-10

Chemical: *methyl red (pH indicator)* CAS No.: 493-52-7
TSCA Inventory: listed
Korea Exist.Chem.Inventory: KE-06693
$LD50_{orl\ rat}$: Keine Daten verfügbar
$LC50_{ihl\ rat}$: Keine Daten verfügbar
$LD50_{drm\ rat}$: Keine Daten verfügbar

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;

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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
$LC_Low_{ihl\ gpg}$: 21.9 g/m³
$LC_Low_{orl\ hmn}$: 1400 mg/kg
$LC50_{ihl\ mouse}$: [4h] 39 g/m³
$LC50_{ihl\ rat}$: [10h] 20 g/m³
$LD50_{drm\ rbt}$: 20 000 mg/kg
$LD50_{oral\ mouse}$: 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

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

30 mL P-K

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, throat; pulmonary edema, bronchitis; emphysema; conjunctivitis; stomatis; dental erosion; eye, skin burns; dermatitis
Australia NICNAS: not listed Canada CEPA 1999: DSL Yes
Japan CSCL/PRTR: not listed, Japan PDSCL: Deleterious Substance
Japan ISHL: listed ≥1,0%/≥1,0%, Article 57-2 (SDS required)
South Korea TCCA: Accident Precaution Chemical Yes
Korea Exist.Chem.Inventory: KE-32570, >10% Toxic 97-1-405, Acc. Precaution Chem.
$LD50_{orl\ rat}$: 2140 mg/kg
$LC50_{ihl\ rat}$: [8h] 600/ [4h] 850 mg/m³

TRGS 905 (DE): Kat 4

30 mL Pyrophosphate solution

Chemical: *phosphate buffer solution* CAS No.: -
TSCA Inventory: all listed
Korea Exist.Chem.Inventory: listed

100 Test sticks Ammonium

Chemical: *potassium tetraiodomercurate(II)* CAS No.: 7783-33-7
TSCA Inventory: listed California Proposition 65 List: listed developmental
Exposure Routes: inhalation, skin absorption, ingestion, skin and/or eye contact
Target Organs: Eyes, skin, respiratory system, central nervous system, kidneys
Symptoms: irritation eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headac
Japan CSCL/PRTR: PRTR: ≥1,0%Hg class I, Japan PDSCL: Poisonous substance
Japan ISHL: listed ≥0,3%/≥0,1%
Korea Exist.Chem.Inventory: KE-12197, Toxic 97-1-140

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$LD50_{orl\ rat}$: HgI_2 18 mg/kg
$LC_Low_{orl\ hmn}$: 357 mg/kg
$LD50_{drm\ rat}$: 75 mg/kg

TRGS 907 (DE): Sh

Chemical: *filter paper (cellulose CAS 9004-34-6)* CAS No.: -
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-05339
$LD50_{orl\ rat}$: >5000 mg/kg
$LC50_{ihl\ rat}$: $>5800_{4h}$ mg/m³
$LD50_{drm\ rbt}$: >2000 mg/kg

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

100 Indicator sticks

Chemical: *cellulose* CAS No.: 9004-34-6
TSCA Inventory: listed California Proposition 65 List: not listed
Exposure Routes: inhalation, skin and/or eye contact
Target Organs: Eyes, skin, respiratory system
Symptoms: irritation eyes, skin, mucous membrane
Australia NICNAS: not listed Canada CEPA 1999: DSL yes
Japan CSCL/PRTR: not listed, Japan PDSCL: not listed
Japan ISHL: not listed
South Korea TCCA: not listed
Korea Exist.Chem.Inventory: KE-05339
$LD50_{orl\ rat}$: >5000 mg/kg
$LC50_{ihl\ rat}$: $>5800_{4h}$ mg/m³
$LD50_{drm\ rbt}$: >2000 mg/kg

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

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

100 test strips

Chemical: *cellulose* CAS No.: 9004-34-6
TSCA Inventory: listed California Proposition 65 List: not listed
Exposure Routes: inhalation, skin and/or eye contact
Target Organs: Eyes, skin, respiratory system
Symptoms: irritation eyes, skin, mucous membrane
Australia NICNAS: not listed Canada CEPA 1999: DSL yes
Japan CSCL/PRTR: not listed, Japan PDSCL: not listed
Japan ISHL: not listed
South Korea TCCA: not listed
Korea Exist.Chem.Inventory: KE-05339
$LD50_{orl\ rat}$: >5000 mg/kg
$LC50_{ihl\ rat}$: $>5800_{4h}$ mg/m³
$LD50_{drm\ rbt}$: >2000 mg/kg

Chemical: *chemicals/mixture < 1%* CAS No.: -
TSCA Inventory: all listed, <1%
Korea Exist.Chem.Inventory: listed

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

1 L $CaCl_2$ solution

Chemical: *calcium chloride (dihydrate)* CAS No.: 10035-04-8
TSCA Inventory: listed (CAS 10043-52-4)
Korea Exist.Chem.Inventory: KE-04496
$LD50_{orl\ rat}$: 1000 mg/kg
$LD50_{drm\ rat}$: 2630 mg/kg

100 mL $CaCl_2$ stock solution

Chemical: *calcium chloride (dihydrate)* CAS No.: 10035-04-8
TSCA Inventory: listed (CAS 10043-52-4)
Korea Exist.Chem.Inventory: KE-04496
$LD50_{orl\ rat}$: 1000 mg/kg
$LD50_{drm\ rat}$: 2630 mg/kg

30 mL NH_4^+ -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
$LD50_{drm\ rbt}$: not applicable
$LD50_{orl\ mus}$: 40 mg/kg

SECTION 12: Ecological information

12.1 Toxicity

Following information is valid for pure substances.

1 L CAL solution

Chemical: *calcium acetate* CAS No.: 62-54-4
Water hazard class (DE): 1
Storage class (VCI): 12-13

Chemical: *acetic acid* CAS No.: 64-19-7
$PNEC_{(fresh\ water)}$: 3.058 mg/L
PNEC = Predicted No Effected Concentration
$LC50_{fish/96h}$: [4d] 301-1000 mg/L
$EC50_{daphnia/48h}$: 301-1000 mg/L
$IC50_{scenedesmus\ quadricauda/72h}$: 301-1000 mg/L
Water hazard class (DE): 1 WGK No.: 0093
$Dispersion\ coefficient_{(octanol-water)}$: -0,17
Storage class (VCI): 8 B

100 mL CAL stock solution

Chemical: *calcium acetate* CAS No.: 62-54-4
Water hazard class (DE): 1
Storage class (VCI): 12-13

Chemical: *acetic acid* CAS No.: 64-19-7
$PNEC_{(fresh\ water)}$: 3.058 mg/L
PNEC = Predicted No Effected Concentration
$LC50_{fish/96h}$: [4d] 301-1000 mg/L

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$EC50_{daphnia/48h}$: 301-1000 mg/L
$IC50_{scenedesmus\ quadricauda/72h}$: 301-1000 mg/L
Water hazard class (DE): 1 WGK No.: 0093
$Dispersion\ coefficient_{(octanol\text{-}water)}$: -0,17
Storage class (VCI): 8 B

500 mL dist. water
Chemical: *water* CAS No.: 7732-18-5

25 mL K-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

12 g K-2
Chemical: *sodium tetraphenylborate* CAS No.: 143-66-8
Water hazard class (DE): 3
Storage class (VCI): 12-13

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

Chemical: *sulfuric acid* CAS No.: 7664-93-9
Avoid contact of substance/mixture to environment.
$PNEC_{(fresh\ water)}$: 2.5 µg/L
PNEC = Predicted No Effected Concentration
$LC50_{fish/96h}$: [NOEC, 65d] 25 µg/L
$EC50_{daphnia/48h}$: 100 mg/L
$EC10_{pseudomonas\ putita/16h}$: [72h] 100 mg/L
Water hazard class (DE): 1 WGK No.: 0182
Storage class (VCI): 8 B

30 mL P-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

100 p. folded filter papers
Chemical: *filter paper (cellulose CAS 9004-34-6)* CAS No.: -
Water hazard class (DE): nwg
Storage class (VCI): 11

25 mL pH 4-10
Chemical: *methyl red (pH indicator)* CAS No.: 493-52-7
Water hazard class (DE): 2
Storage class (VCI): 12-13

Chemical: *ethanol* CAS No.: 64-17-5
$PNEC_{(fresh\ water)}$: 0.96 mg/L
PNEC = Predicted No Effected Concentration
$LC50_{daphnia\ magna/48h}$: >100 mg/L
$LC50_{pimephales\ promelas/96h}$: 13400 - 15100 mg/L
$LC50_{leuciscus\ idus/96h}$: [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

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$EC10_{pseudomonas\ putita/16h}$: [EC5] 6500 mg/L
Water hazard class (DE): 1 WGK No.: 0096
$Dispersion\ coefficient_{(octanol\text{-}water)}$: -0.31
Storage class (VCI): 3

Chemical: *phenolphthalein (pH indicator)* CAS No.: 77-09-8
Water hazard class (DE): 1
$Dispersion\ coefficient_{(octanol\text{-}water)}$: 0.9
Storage class (VCI): 12-13

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

30 mL P-K

Chemical: *sulfuric acid* CAS No.: 7664-93-9
Avoid contact of substance/mixture to environment.
$PNEC_{(fresh\ water)}$: 2.5 µg/L
PNEC = Predicted No Effected Concentration
$LC50_{fish/96h}$: [NOEC, 65d] 25 µg/L
$EC50_{daphnia/48h}$: 100 mg/L
$EC10_{pseudomonas\ putita/16h}$: [72h] 100 mg/L
Water hazard class (DE): 1 WGK No.: 0182
Storage class (VCI): 8 B

30 mL Pyrophosphate solution

Chemical: *phosphate buffer solution* CAS No.: -
Water hazard class (DE): 1
Storage class (VCI): 12

100 Test sticks Ammonium

Chemical: *potassium tetraiodomercurate(II)* CAS No.: 7783-33-7
Bio Toxicity: LC_{50} : $0.5_{HgCl2/48h}$ mg/L
Water hazard class (DE): 3 WGK No.: n.n.
Storage class (VCI): 6.1 B

Chemical: *filter paper (cellulose CAS 9004-34-6)* CAS No.: -
Water hazard class (DE): nwg
Storage class (VCI): 11

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

100 Indicator sticks

Chemical: *cellulose* CAS No.: 9004-34-6
Water hazard class (DE): nwg
Storage class (VCI): 11

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

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

100 test strips

Chemical: *cellulose* CAS No.: 9004-34-6
Water hazard class (DE): nwg
Storage class (VCI): 11

Chemical: *chemicals/mixture < 1%* CAS No.: -
Water hazard class (DE): 1
Storage class (VCI): 12-13

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

1 L $CaCl_2$ solution

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Chemical: *calcium chloride (dihydrate)* CAS No.: 10035-04-8
$LC50_{daphnia\ magna/48h}$: 3005 mg/L
$LC50_{fish/96h}$: 10.65 g/L
$IC50_{scenedesmus\ quadricauda/72h}$: 3130 mg/L
Water hazard class (DE): 1 WGK No.: 0220
Storage class (VCI): 12-13

100 mL $CaCl_2$ stock solution
Chemical: *calcium chloride (dihydrate)* CAS No.: 10035-04-8
$LC50_{daphnia\ magna/48h}$: 3005 mg/L
$LC50_{fish/96h}$: 10.65 g/L
$IC50_{scenedesmus\ quadricauda/72h}$: 3130 mg/L
Water hazard class (DE): 1 WGK No.: 0220
Storage class (VCI): 12-13

30 mL NH_4^+ -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

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
no data available

12.6 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. **Not for** mercury containing test solutions, please collect for disposal of hazardous waste. 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
Classification code: M11 Tunnel restriction code: E
Limited Quantity: acc. ADR 3.3.1/251: see LQ in Alternative declaration for transportation
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

Or use **Alternative declaration for transportation:**
UN No.: (see below) UN 1993 class 3 II, class 8 II, **Excepted Quantities** (≤30 mL/∑≤500 mL) = ADR/ IATA E2
or
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
Classification code: F1

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Limited Quantity:	1 L	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 number: 3264
14.2 UN proper shipping name: Corrosive liquid, acidic, inorganic, n.o.s. (sulfuric acid, sodium disulfite solution)
14.3 Class: 8 14.4 Packing group: II

Road transport			
Classification code:	C1		
Limited Quantity:	1 L	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

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			
Classification code:	C5		
Limited Quantity:	1 L	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

14.5 Environmental hazards

none, contains only small quantities of hazardous substances

14.6 Special precautions for user

not necessary

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

not applicable

SECTION 15: Regulatory information

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

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
MN Leaflet/User manual, also see www.mn-net.com
Look for your country-specific regulations.

15.2 Chemical safety assessment

not necessary for these small amounts ---

SECTION 16: Other information

16.1 List of H and P phrases

16.1.1 List of relevant H phrases

H225	Highly flammable liquid and vapour.
H290	May be corrosive to metals.
H302	Harmful if swallowed.

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H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
EUH031	Contact with acids liberates toxic gas.

16.1.2 List of relevant P phrases

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P260D	Do not breathe vapours.
P260sh	Do not breathe dust/vapours.
P264W	Wash with water thoroughly after handling.
P280sh	Wear protective gloves/eye protection.
P301+312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
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.
P330	Rinse mouth.
P390	Absorb spillage to prevent material damage.

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 for DE §§ 11-13 MuSchG 2017)!
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
Regulation 669/2018/EU, 4th adaptation of CLP regulation to technical and scientific progress
Regulation 1480/2018/EU, 4th adaptation of CLP regulation to technical and scientific progress
Regulation 849/2021/EU, 4th adaptation of CLP regulation to technical and scientific progress
TRGS 900, German engineering rules governing limits in air at work, updated 03/2019
SUVA .CH, Limits in air at work 2009, revised on 01.2009
KÜHN, BIRETT Merkblätter Gefährliche Arbeitsstoffe (Data Sheets of Hazardous Substances)

Revisions/Updates
Reason for Revision: 2016-03 Adaptation of regulation 1221/2015/EU
2017-08 Adaption of new ethanol denaturation 2016/1867/EU

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