

# Safety Data Sheet

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

REF: 814400

TLC Micro Set F 3

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Printing date: 02.06.2020

Date of issue: 20.05.2019

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

### 1.1 Product identifier

REF 814400  
Product name TLC Micro Set F 3

REACH Registration number(s): see SECTION 3.1/3.2 or  
A registration number for the substance(s) does not exist because the annual tonnage does not require registration or the substance or its use is excluded from registration.

1 x 100 mL 2-Propanol  
1 x 30 mL Acetic acid ethyl ester  
1 x 25 mL Ammonia solution 12.5%  
1 x 8 mL Caffeine reference solution  
1 x 100 mL Caffeine spray reagent  
1 x 25 mL Diethylamine  
1 x 100 mL Ethanol  
1 x 50 mL Iron(III) chloride solution  
1 x 8 mL Paracetamol reference solution  
1 x 50 mL Potassium hexacyanoferrate(III) solution  
1 x 8 mL Quinine reference solution  
1 x 100 mL Spray reagent acc. to Dragendorff-Munier  
1 x 100 mL Toluene/Diethyl ether (55:35)

### 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: [sds@mn-net.com](mailto:sds@mn-net.com) ([msds@mn-net.com](mailto: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



GHS08



GHS09

Signal word

DANGER

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Hazard identification	Hazard classes/categories
H225	Flam. Liq. 2
H302	Acute Tox. 4 oral
H304	Asp. Tox. 1
H312	Acute Tox. 4 derm.
H314	Skin Corr. 1B
H315, EUH066	Skin Irrit. 2
H318	Eye Dam. 1
H319	Eye Irrit. 2
H332	Acute Tox. 4 inh.
H336	not defined
H336, H335	STOT SE 3
H361d	Repr. 2
H373	STOT RE 2
H400	Aquatic Acute 1
H412	Aquatic Chronic 3

## 2.1 Classification of the substance or mixture

### 100 mL 2-Propanol



GHS02 GHS07

Signal word DANGER

Hazard identification	Hazard classes/categories
H225	Flam. Liq. 2
H319	Eye Irrit. 2
H336, H335	STOT SE 3

### 30 mL Acetic acid ethyl ester



GHS02 GHS07

Signal word DANGER

Hazard identification	Hazard classes/categories
EUH066	Skin Irrit. 2
H225	Flam. Liq. 2
H319	Eye Irrit. 2
H336	STOT SE 3

### 25 mL Ammonia solution 12.5%



GHS05 GHS07 GHS09

Signal word DANGER

Hazard identification	Hazard classes/categories
H314	Skin Corr. 1B
H335	STOT SE 3
H400	Aquatic Acute 1

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## 8 mL Caffeine reference solution



GHS02

Signal word

DANGER

**Hazard identification**

H225

**Hazard classes/categories**

Flam. Liq. 2

## 100 mL Caffeine spray reagent



GHS02



GHS05



GHS07

Signal word

DANGER

**Hazard identification**

EUH066

H225

H318

H319

H336

H412

**Hazard classes/categories**

Skin Irrit. 2

Flam. Liq. 2

Eye Dam. 1

Eye Irrit. 2

STOT SE 3

Aquatic Chronic 3

## 25 mL Diethylamine



GHS02



GHS05



GHS07

Signal word

DANGER

**Hazard identification**

H225

H302

H312

H314

H332

**Hazard classes/categories**

Flam. Liq. 2

Acute Tox. 4 oral

Acute Tox. 4 derm.

Skin Corr. 1B

Acute Tox. 4 inh.

## 100 mL Ethanol



GHS02

Signal word

DANGER

**Hazard identification**

H225

**Hazard classes/categories**

Flam. Liq. 2

## 50 mL Iron(III) chloride solution

Do not need labelling as hazardous

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Signal word -

No hazard class

### 8 mL Paracetamol reference solution



GHS02

Signal word DANGER

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

### 50 mL Potassium hexacyanoferrate(III) solution

Signal word Do not need labelling as hazardous  
-

No hazard class

### 8 mL Quinine reference solution



GHS02

Signal word DANGER

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

### 100 mL Spray reagent acc. to Dragendorff-Munier



GHS07

Signal word WARNING

Hazard identification	Hazard classes/categories
H319	Eye Irrit. 2

### 100 mL Toluene/Diethyl ether (55:35)



GHS02



GHS07



GHS08

Signal word DANGER

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Hazard identification	Hazard classes/categories
H225	Flam. Liq. 2
H302	Acute Tox. 4 oral
H304	Asp. Tox. 1
H315, EUH066	Skin Irrit. 2
H336	not defined
H361d	Repr. 2
H373	STOT RE 2

## 2.2 Label elements

According **CLP directive** inner packages must be only labelled with GHS symbol(s) and product identifier(s) (EU 1272/2008 Annex I - 1.5.1.2).

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

### 100 mL 2-Propanol



GHS02 GHS07

Signal word: DANGER

### 30 mL Acetic acid ethyl ester



GHS02 GHS07

Signal word: DANGER

### 25 mL Ammonia solution 12.5%



GHS05 GHS07 GHS09

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.

### 8 mL Caffeine reference solution



GHS02

Signal word: DANGER

### 100 mL Caffeine spray reagent

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GHS02 GHS05 GHS07

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.

## 25 mL Diethylamine



GHS02 GHS05 GHS07

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.

## 100 mL Ethanol



GHS02

Signal word: DANGER

## 50 mL Iron(III) chloride solution

Do not need labelling as hazardous  
Signal word: -

## 8 mL Paracetamol reference solution



GHS02

Signal word: DANGER

## 50 mL Potassium hexacyanoferrate(III) solution

Do not need labelling as hazardous  
Signal word: -

## 8 mL Quinine reference solution

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GHS02

Signal word: DANGER

## 100 mL Spray reagent acc. to Dragendorff-Munier



GHS07

Signal word: WARNING

## 100 mL Toluene/Diethyl ether (55:35)



GHS02



GHS07



GHS08

Signal word: DANGER

H304, H361d

May be fatal if swallowed and enters airways. Suspected of damaging the unborn child.

P201, P280sh, P301+310, P331

Obtain special instructions before use. Wear protective gloves/eye protection. IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Do NOT induce vomiting.

### 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. ---

#### 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, inhalation of vapours/dust, impairments of health when ingested in small quantities. Suspected of damaging the unborn child. May be fatal if swallowed and enters airways. -

#### Information pertaining to particular risks to the environment

Avoid contact of substance/mixture to environment.

PBT: not applicable

vPvB: not applicable

#### Other hazards

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances or 3.2 Mixtures

100 mL 2-Propanol

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Chemical: *2-propanol* CAS No.: 67-63-0  
 Classification: H225, Flam. Liq. 2, H319, Eye Irrit. 2, H336, STOT SE 3  
 Formula: C<sub>3</sub>H<sub>8</sub>O  
 Pseudonym: isopropanol, IPA, propan-2-ol  
 TSCA Inventory: listed  
 REACH Reg. No.: 01-2119457558-25-XXXX  
 EC No.: 200-661-7 Index No.: 603-117-00-0  
 RTECS: NT8050000 MFCD: 00011674  
 KE No.: KE-29363  
 Concentration: 95 - <100 %  
 acc. CLP (GHS): H225, Flam. Liq. 2, H319, Eye Irrit. 2, H336, STOT SE 3

### 30 mL Acetic acid ethyl ester

Chemical: *ethyl acetate* CAS No.: 141-78-6  
 Classification: H225, Flam. Liq. 2, H319, Eye Irrit. 2, H336, STOT SE 3, EUH066, Skin Irrit. 2  
 Formula: C<sub>4</sub>H<sub>8</sub>O<sub>2</sub>  
 Pseudonym: acetic acid ethyl ester  
 TSCA Inventory: listed  
 REACH Reg. No.: 01-2119475103-46-xxxx  
 EC No.: 205-500-4 Index No.: 607-022-00-5  
 RTECS: AH5425000 MFCD: 00009171  
 KE No.: KE-00047, Toxic 97-1-161  
 Concentration: 80 - <100 %  
 acc. CLP (GHS): H225, Flam. Liq. 2, H319, Eye Irrit. 2, H336, STOT SE 3, EUH066, Skin Irrit. 2

### 25 mL Ammonia solution 12.5%

Chemical: *ammonia solution* CAS No.: 1336-21-6  
 Classification: H314, Skin Corr. 1B, H335, STOT SE 3, H400, Aquatic Acute 1  
 Formula: NH<sub>3</sub>·H<sub>2</sub>O  
 Pseudonym: ammonium hydroxide, Aqua ammonia, aqueous ammonia  
 TSCA Inventory: listed  
 REACH Reg. No.: 01-2119488876-14-xxxx, 01-2119982985-14-XXXX  
 EC No.: 215-647-6 Index No.: 007-001-01-2  
 RTECS: BQ9625000 MFCD: 00011418  
 KE No.: KE-01688, >10% Toxic 97-1-184  
 Concentration: 10 - <16 %  
 acc. CLP (GHS): H314, Skin Corr. 1B, H335, STOT SE 3, H400, Aquatic Acute 1

### 8 mL Caffeine reference solution

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

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

### 100 mL Caffeine spray reagent



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Chemical: *acetone* CAS No.: 67-64-1  
 Classification: H225, Flam. Liq. 2, H319, Eye Irrit. 2, H336, STOT SE 3, EUH066, Skin Irrit. 2  
 Formula: C<sub>3</sub>H<sub>6</sub>O; (CH<sub>3</sub>)<sub>2</sub>-CO  
 Pseudonym: 2-propanone  
 TSCA Inventory: listed  
 REACH Reg. No.: 01-2119471330-49-xxxx  
 EC No.: 200-662-2  
 RTECS: AL3150000  
 KE No.: KE-29367  
 Concentration: 25 - <40 %  
 acc. CLP (GHS): H225, Flam. Liq. 2, H319, Eye Irrit. 2, H336, STOT SE 3, EUH066, Skin Irrit. 2  
 Indice No.: 606-001-00-8  
 MFCD: 00008765

Chemical: *iodine* CAS No.: 7553-56-2  
 Classification: H312, Acute Tox. 4 derm., H332, Acute Tox. 4 inh., H400, Aquatic Acute 1  
 Formula: I<sub>2</sub>  
 TSCA Inventory: listed  
 REACH Reg. No.: 01-2119485285-30-xxxx  
 EC No.: 231-442-4  
 RTECS: NN1575000  
 Concentration: 1 - <2.5 %  
 acc. CLP (GHS): H412, Aquatic Chronic 3  
 Indice No.: 053-001-00-3

Chemical: *iron(III) chloride* CAS No.: 7705-08-0  
 Classification: H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H318, Eye Dam. 1  
 Formula: FeCl<sub>3</sub>  
 TSCA Inventory: listed  
 REACH Reg. No.: 01-2119497998-05-xxxx  
 EC No.: 231-729-4  
 RTECS: LJ9100000  
 Concentration: 3 - <10 %  
 acc. CLP (GHS): H318, Eye Dam. 1  
 MFCD: 00011004

Chemical: *L(+)-tartaric acid* CAS No.: 87-69-4  
 Classification: H319, Eye Irrit. 2  
 Formula: C<sub>4</sub>H<sub>6</sub>O<sub>6</sub>  
 Pseudonym: 2,3-dihydroxy- (2R,3R)-butanedioic acid  
 TSCA Inventory: listed  
 REACH Reg. No.: 01- 2119537204-47-xxxx  
 EC No.: 201-766-0  
 RTECS: WW7875000  
 KE No.: KE-10801  
 Concentration: 1 - <10 %  
 acc. CLP (GHS): The criteria for classification are not fulfilled.  
 MFCD: 00064207

### 25 mL Diethylamine

Chemical: *diethylamine* CAS No.: 109-89-7  
 Classification: H225, Flam. Liq. 2, H302, Acute Tox. 4 oral, H312, Acute Tox. 4 derm., H314, Skin Corr. 1B, H332, Acute Tox. 4 inh.  
 Formula: C<sub>4</sub>H<sub>11</sub>N; (C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>NH  
 Pseudonym: N-ethyl-ethanamine  
 TSCA Inventory: listed  
 REACH Reg. No.: 01-2119475610-41-xxxx  
**Dual-use:** This application is exempt from the regulation 2006/394/EC (see IC350 remark 4).  
 EC No.: 203-716-3  
 RTECS: HZ8750000  
 Concentration: 80 - <100 %  
 acc. CLP (GHS): H225, Flam. Liq. 2, H302, Acute Tox. 4 oral, H312, Acute Tox. 4 derm., H314, Skin Corr. 1B, H332, Acute Tox. 4 inh.  
 Indice No.: 612-003-00-X  
 MFCD: 00009032

### 100 mL Ethanol



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

**50 mL Iron(III) chloride solution**

Chemical: *iron(III) chloride* CAS No.: 7705-08-0  
 Classification: H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H318, Eye Dam. 1  
 Formula: FeCl<sub>3</sub>  
 TSCA Inventory: listed  
 REACH Reg. No.: 01-2119497998-05-xxxx  
 EC No.: 231-729-4  
 RTECS: LJ9100000 MFCD: 00011004  
 Concentration: 1 - <2 %  
 acc. CLP (GHS): The criteria for classification are not fulfilled.

**8 mL Paracetamol reference solution**

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

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

**50 mL Potassium hexacyanoferrate(III) solution**

Chemical: *potassium hexacyanoferrate(III)* CAS No.: 13746-66-2  
 Classification: H315, Skin Irrit. 2, H319, Eye Irrit. 2, H335, STOT SE 3, EUH032, not defined  
 Formula: C<sub>6</sub>FeK<sub>3</sub>N<sub>6</sub>  
 Pseudonym: Ferrate(3-), hexakis(cyano-.kappa.C)-, potassium (1:3), (OC-6-11)-  
 TSCA Inventory: listed (CAS 25869-98-1)  
 EC No.: 237-323-3  
 RTECS: LJ8225000 MFCD: 00011392  
 Concentration: 1 - <10 %  
 acc. CLP (GHS): The criteria for classification are not fulfilled.

**8 mL Quinine reference solution**



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Chemical: *ethanol* CAS No.: 64-17-5  
(denatured with 1%IPA/1%MEK, acc.2016/1867/EU)  
Classification: H225, Flam. Liq. 2  
Formula: C<sub>2</sub>H<sub>6</sub>O; C<sub>2</sub>H<sub>5</sub>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: *test chemical(s) (ppm)* CAS No.: -  
Classification: No criteria for classification or naming of chemical not required.  
TSCA Inventory: all <0.1%  
Concentration: 0.1 - <1 %  
acc. CLP (GHS): The criteria for classification are not fulfilled.

## 100 mL Spray reagent acc. to Dragendorff-Munier

Chemical: *bismuth(III) nitrate, basic* CAS No.: 10361-46-3  
Classification: H315, Skin Irrit. 2, H319, Eye Irrit. 2, H335, STOT SE 3  
Formula: Bi<sub>5</sub>H<sub>9</sub>N<sub>4</sub>O<sub>22</sub>  
Pseudonym: (nitrooxy)oxobismuthine, bismuth hydroxide nitrate oxide  
TSCA Inventory: listed (CAS 1304-85-4)  
REACH Reg. No.: None 2017  
EC No.: 215-136-8  
RTECS: EB2984460  
Concentration: 1 - <3 %  
acc. CLP (GHS): The criteria for classification are not fulfilled.

Chemical: *potassium iodide* CAS No.: 7681-11-0  
Classification: H319, Eye Irrit. 2  
Formula: KI  
TSCA Inventory: listed  
REACH Reg. No.: YES, confidential  
EC No.: 231-659-4  
RTECS: TT29750000 MFCD: 00011405  
KE No.: not listed  
Concentration: 10 - <20 %  
acc. CLP (GHS): H319, Eye Irrit. 2

Chemical: *L(+)-tartaric acid* CAS No.: 87-69-4  
Classification: H319, Eye Irrit. 2  
Formula: C<sub>4</sub>H<sub>6</sub>O<sub>6</sub>  
Pseudonym: 2,3-dihydroxy- (2R,3R)-butanedioic acid  
TSCA Inventory: listed  
REACH Reg. No.: 01- 2119537204-47-xxxx  
EC No.: 201-766-0  
RTECS: WW7875000 MFCD: 00064207  
KE No.: KE-10801  
Concentration: 10 - <20 %  
acc. CLP (GHS): H319, Eye Irrit. 2

## 100 mL Toluene/Diethyl ether (55:35)

Chemical: *toluene* CAS No.: 108-88-3  
Classification: H225, Flam. Liq. 2, H304, Asp. Tox. 1, H315, Skin Irrit. 2, H336, STOT SE 3, H361d, Repr. 2, H373, STOT RE 2  
Formula: C<sub>7</sub>H<sub>8</sub>; CH<sub>3</sub>-C<sub>6</sub>H<sub>5</sub>  
Pseudonym: methyl-benzene  
TSCA Inventory: listed  
REACH Reg. No.: 01-2119471310-51-xxxx  
EC No.: 203-625-9 Indice No.: 601-021-00-3  
RTECS: XS5250000 MFCD: 00008512  
KE No.: KE-33936, Toxic 97-1-298, Acc. Precaution Chem.  
Concentration: 60 - <80 %  
acc. CLP (GHS): H225, Flam. Liq. 2, H304, Asp. Tox. 1, H315, Skin Irrit. 2, H336, STOT SE 3, H361d, Repr. 2, H373, STOT RE 2

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Chemical:	<i>diethyl ether, ether</i>	CAS No.:	60-29-7
Classification:	H224, Flam. Liq. 1, H302, Acute Tox. 4 oral, H336, STOT SE 3, EUH019, not defined, EUH066, Skin Irrit. 2		
Formula:	C <sub>4</sub> H <sub>10</sub> O		
Pseudonym:	ether, 1,1'-oxybisethane, diethyl oxid		
TSCA Inventory:	listed		
REACH Reg. No.:	01-2119535785-29-xxxx		
EC No.:	200-467-2	Indice No.:	603-020-00-4
RTECS:	KI5775000	MFCID:	00011646
KE No.:	KE-27690		
Concentration:	10 - <40 %		
acc. CLP (GHS):	H225, Flam. Liq. 2, H302, Acute Tox. 4 oral, H336, STOT SE 3, EUH066, Skin Irrit. 2		

## 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

## 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

CMR Effects: Suspected of damaging the unborn child. ---

### 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. ---

## 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.

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## 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, contains only small amounts of these substances

### 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. Not for organic solvents (see section 13).

### 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): 2

### 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

#### 100 mL 2-Propanol

Chemical: 2-propanol

CAS No.: 67-63-0

DNEL: [inh] 500 mg/m<sup>3</sup>

DNEL = Derived No-Effect Level (for workers)

PNEC<sub>(fresh water)</sub>: 140.9 mg/L

PNEC = Predicted No Effect Concentration

TRGS 900 (DE): 200 ppm / 500 mg/m<sup>3</sup>

A/a aveoles passing, E/e respirable, G total

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: 200 ppm / 500 mg/m<sup>3</sup>

TRGS 903 (DE): [Aceton B/b, U/b] 25 mg/L

B blood, U urine, a no limitation, b end of exposition or shift

NIOSH: [TWA] 400 ppm / 980 mg/m<sup>3</sup>

NIOSH STEL: 500 ppm / 1225 mg/m<sup>3</sup>

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

OSHA: [TWA] 400 ppm / 980 mg/m<sup>3</sup>

#### 30 mL Acetic acid ethyl ester

Chemical: ethyl acetate

CAS No.: 141-78-6

DNEL: [derm] 63 mg/kg; [inh] 730 mg/m<sup>3</sup>

DNEL = Derived No-Effect Level (for workers)

PNEC<sub>(fresh water)</sub>: 0.26 mg/L

PNEC = Predicted No Effect Concentration

EU value: [TWA] 734 / [STEL] 1468 mg/m<sup>3</sup>

TRGS 900 (DE): 200 mL/m<sup>3</sup> / 730 mg/m<sup>3</sup>

A/a aveoles passing, E/e respirable, G total

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 skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded  
 SUVA(CH) MAK value: 400 ppm / 1400 mg/m<sup>3</sup>

**25 mL Ammonia solution 12.5%**

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

DNEL: [inh] 14 mg/m<sup>3</sup>  
 DNEL = Derived No-Effect Level (for workers)

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

EU value: 20 ppm / 14 mg/m<sup>3</sup>  
 TRGS 900 (DE): 20 ppm / 14 mg/m<sup>3</sup>  
 A/a aveoles passing, E/e respirable, G total

Short-term exposure factor: 2 (I), Y  
 skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 20 ppm / 14 mg/m<sup>3</sup>  
 NIOSH: [TWA] 25 ppm / 18 mg/m<sup>3</sup>

NIOSH STEL: 35 ppm / 27 mg/m<sup>3</sup>  
 [TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: Yes (TQ = 15000 lbs) - n/a; [TWA] 50 ppm / 35 mg/m<sup>3</sup>

**8 mL Caffeine reference solution**

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

DNEL: [derm] 343 mg/kg; [inh] 950 mg/m<sup>3</sup>  
 DNEL = Derived No-Effect Level (for workers)

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

TRGS 900 (DE): 200 mL/m<sup>3</sup> / 380 mg/m<sup>3</sup>  
 A/a aveoles passing, E/e respirable, G total

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/m<sup>3</sup>  
 NIOSH: [TWA] 1000 ppm / 1900 mg/m<sup>3</sup>

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

OSHA: [TWA] 1000 ppm / 1900 mg/m<sup>3</sup>

Chemical: *test chemical(s) (ppm)* CAS No.: -

**100 mL Caffeine spray reagent**

Chemical: *acetone* CAS No.: 67-64-1

DNEL: [inh] (1210) mg/m<sup>3</sup>  
 DNEL = Derived No-Effect Level (for workers)

PNEC<sub>(fresh water)</sub>: 10.6 mg/L  
 PNEC = Predicted No Effect Concentration

EU value: 500 ppm / 1200 mg/m<sup>3</sup>  
 TRGS 900 (DE): 500 mL/m<sup>3</sup> / 1200 mg/m<sup>3</sup>  
 A/a aveoles passing, E/e respirable, G total

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: 500 ppm / 1200 mg/m<sup>3</sup>  
 SUVA(CH) BAT value: [U/b] 80 mg/L  
 TRGS 903 (DE): [U/b] 80 mg/L  
 B blood, U urine, a no limitation, b end of exposition or shift

NIOSH: [TWA] 250 ppm / [STEL] 590 mg/m<sup>3</sup>  
 [TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: [TWA] 1000 ppm / [STEL] 2400 mg/m<sup>3</sup>

Chemical: *iodine* CAS No.: 7553-56-2

EU value: STEL 0.1 ppm / 1.1 mg/m<sup>3</sup>  
 SUVA(CH) MAK value: 0,1 ppm / 1 mg/m<sup>3</sup>

NIOSH: C 0.1 ppm / 1 mg/m<sup>3</sup>  
 [TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: C 0.1 ppm / 1 mg/m<sup>3</sup>



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Chemical: *iron(III) chloride* CAS No.: 7705-08-0  
 SUVA(CH) MAK value: 1 e mg/m<sup>3</sup>

Chemical: *L(+)-tartaric acid* CAS No.: 87-69-4  
 SUVA(CH) MAK value: [MAK] 2 e/[STEL] 4 e mg/m<sup>3</sup>

### 25 mL Diethylamine

Chemical: *diethylamine* CAS No.: 109-89-7  
 EU value: 5 ppm / 15 mg/m<sup>3</sup>  
 TRGS 900 (DE): 2 mL/m<sup>3</sup> / 6,1 mg/m<sup>3</sup>  
 A/a aveoles passing, E/e respirable, G total

Short-term exposure factor: 2 (I), =2,5=, H  
 skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 5 ppm / 15 mg/m<sup>3</sup>  
 NIOSH: not listed  
 [TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period  
 OSHA: not listed

### 100 mL Ethanol

Chemical: *ethanol* CAS No.: 64-17-5  
 DNEL: [derm] 343 mg/kg; [inh] 950 mg/m<sup>3</sup>  
 DNEL = Derived No-Effect Level (for workers)

PNEC<sup>(fresh water)</sup>: 0.96 mg/L  
 PNEC = Predicted No Effect Concentration  
 TRGS 900 (DE): 200 mL/m<sup>3</sup> / 380 mg/m<sup>3</sup>  
 A/a aveoles passing, E/e respirable, G total

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/m<sup>3</sup>  
 NIOSH: [TWA] 1000 ppm / 1900 mg/m<sup>3</sup>  
 [TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period  
 OSHA: [TWA] 1000 ppm / 1900 mg/m<sup>3</sup>

### 50 mL Iron(III) chloride solution

Chemical: *iron(III) chloride* CAS No.: 7705-08-0  
 SUVA(CH) MAK value: 1 e mg/m<sup>3</sup>

### 8 mL Paracetamol reference solution

Chemical: *ethanol* CAS No.: 64-17-5  
 DNEL: [derm] 343 mg/kg; [inh] 950 mg/m<sup>3</sup>  
 DNEL = Derived No-Effect Level (for workers)

PNEC<sup>(fresh water)</sup>: 0.96 mg/L  
 PNEC = Predicted No Effect Concentration  
 TRGS 900 (DE): 200 mL/m<sup>3</sup> / 380 mg/m<sup>3</sup>  
 A/a aveoles passing, E/e respirable, G total

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/m<sup>3</sup>  
 NIOSH: [TWA] 1000 ppm / 1900 mg/m<sup>3</sup>  
 [TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period  
 OSHA: [TWA] 1000 ppm / 1900 mg/m<sup>3</sup>

Chemical: *test chemical(s) (ppm)* CAS No.: -

### 50 mL Potassium hexacyanoferrate(III) solution

Chemical: *potassium hexacyanoferrate(III)* CAS No.: 13746-66-2

### 8 mL Quinine reference solution

Chemical: *ethanol* CAS No.: 64-17-5  
 DNEL: [derm] 343 mg/kg; [inh] 950 mg/m<sup>3</sup>  
 DNEL = Derived No-Effect Level (for workers)

PNEC<sup>(fresh water)</sup>: 0.96 mg/L  
 PNEC = Predicted No Effect Concentration  
 TRGS 900 (DE): 200 mL/m<sup>3</sup> / 380 mg/m<sup>3</sup>  
 A/a aveoles passing, E/e respirable, G total

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

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SUVA(CH) MAK value: 500 ppm / 960 mg/m<sup>3</sup>  
 NIOSH: [TWA] 1000 ppm / 1900 mg/m<sup>3</sup>  
 [TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period  
 OSHA: [TWA] 1000 ppm / 1900 mg/m<sup>3</sup>

Chemical: *test chemical(s) (ppm)* CAS No.: -

**100 mL Spray reagent acc. to Dragendorff-Munier**

Chemical: *bismuth(III) nitrate, basic* CAS No.: 10361-46-3

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

Chemical: *L(+)-tartaric acid* CAS No.: 87-69-4

SUVA(CH) MAK value: [MAK] 2 e/[STEL] 4 e mg/m<sup>3</sup>

**100 mL Toluene/Diethyl ether (55:35)**

Chemical: *toluene* CAS No.: 108-88-3

DNEL: [oral] 8.13 mg/kg bw; [inh] 192 mg/m<sup>3</sup>  
 DNEL = Derived No-Effect Level (for workers)

PNEC<sup>(fresh water)</sup>: 0.68 mg/L  
 PNEC = Predicted No Effect Concentration

EU value: 50 ppm / 190 mg/m<sup>3</sup>  
 TRGS 900 (DE): 50 ppm / 190 mg/m<sup>3</sup>  
 A/a aveoles passing, E/e respirable, G total

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

SUVA(CH) MAK value: [MAK] 190/[STEL] 760 mg/m<sup>3</sup>  
 SUVA(CH) BAT value: B/b 1,0 mg/L  
 TRGS 903 (DE): B/b 600 µg/L  
 B blood, U urine, a no limitation, b end of exposition or shift

NIOSH: TWA 100 ppm / 375 mg/m<sup>3</sup>  
 NIOSH STEL: TWA 150 ppm / 560 mg/m<sup>3</sup>  
 [TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: TWA 200 / C 300 / 500<sub>10min</sub> ppm

Chemical: *diethyl ether, ether* CAS No.: 60-29-7

EU value: 400 ppm / 1200 mg/m<sup>3</sup>  
 TRGS 900 (DE): 100 ppm / 308 mg/m<sup>3</sup>  
 A/a aveoles passing, E/e respirable, G total

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

SUVA(CH) MAK value: 400 ppm / 1200 mg/m<sup>3</sup>  
 NIOSH: Appendix D: TWA 400 ppm; STEL 500 ppm  
 [TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: TWA 400 ppm / 1200 mg/m<sup>3</sup>

## 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 (f.ex. from Ansell or KCL). Use for short times chemical resistant latex or nitril 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.



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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### 100 mL 2-Propanol

Appearance: liquid	Colour: colourless	Odor: alcoholic
Melting point:	-90 °C	
Boiling point:	82 °C	
Flash point:	12 °C	
Explosion limits:	2-12.7 Vol%	
Vapour pressure (20°C):	43 hPa	
Vapour density <sub>(air=1)</sub> :	2,08	
Specific gravity:	0,785 g/cm <sup>3</sup>	
Solubility in water:	0-100 %	
Flashing temperature:	425 °C	
Volatiles by volume:	106 g/m <sup>3</sup>	

#### 30 mL Acetic acid ethyl ester

Appearance: liquid	Colour: colourless	Odor: aromatic
Odor limit:	0.2-183 mg/m <sup>3</sup>	
pH:	6-7	
Melting point:	-84 °C	
Boiling point:	77 °C	
Flash point:	-4 °C	
Evaporation rate <sub>(ether=1)</sub> :	2,8	
Explosion limits:	2.1-11.5 Vol%	
Vapour pressure (20°C):	92 hPa	
Vapour density <sub>(air=1)</sub> :	3,04	
Specific gravity:	0,90 g/cm <sup>3</sup>	
Solubility in water:	0-8 %	
Flashing temperature:	460 °C	
Volatiles by volume:	333 g/m <sup>3</sup>	

#### 25 mL Ammonia solution 12.5%

Appearance: liquid	Colour: colourless	Odor: aminic
pH:	10-11	
Specific gravity:	0,95 g/cm <sup>3</sup>	

#### 8 mL Caffeine reference solution

Appearance: liquid	Colour: colourless	Odor: like chloroform
Odor limit:	50...200 mg/m <sup>3</sup>	
Melting point:	-63.5 °C	
Boiling point:	61.7 °C	
Vapour pressure (20°C):	211 hPa	
Vapour density <sub>(air=1)</sub> :	4,12	
Specific gravity:	1,48 g/cm <sup>3</sup>	
Solubility in water:	< 1 %	
Flashing temperature:	982 °C	
Volatiles by volume:	1035 g/m <sup>3</sup>	

#### 100 mL Caffeine spray reagent

Appearance: liquid	Colour: slightly yellow	Odor: odorless
pH:	2-3	

#### 25 mL Diethylamine

Appearance: liquid	Colour: colourless	Odor: aminic
Odor limit:	0.06...114 mg/m <sup>3</sup>	
pH:	13	
Melting point:	-48 °C	
Boiling point:	56 °C	
Flash point:	-23 °C	
Explosion limits:	1.7 ...10.1 Vol%	
Vapour pressure (20°C):	260 hPa	
Vapour density <sub>(air=1)</sub> :	2,53	
Specific gravity:	0,71 g/cm <sup>3</sup>	
Solubility in water:	0-100 %	
Flashing temperature:	310 °C	

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Volatiles by volume: 750 g/m<sup>3</sup>

**100 mL Ethanol**

Appearance: liquid	Colour: colourless	Odor: alcoholic
Odor limit:	19-93 mg/m <sup>3</sup>	
pH:	7	
Melting point:	-114 °C	
Boiling point:	78 °C	
Flash point:	12 °C	
Explosion limits:	3.2-15 Vol%	
Vapour pressure (20°C):	59 hPa	
Vapour density <sub>(air=1)</sub> :	1,59	
Specific gravity:	0,79 g/cm <sup>3</sup>	
Solubility in water:	0-100 %	
Flashing temperature:	425 °C	
Volatiles by volume:	112 g/m <sup>3</sup>	

**50 mL Iron(III) chloride solution**

Appearance: liquid	Colour: slightly yellow	Odor: odorless
pH:	4-5	

**8 mL Paracetamol reference solution**

Appearance: liquid	Colour: colourless	Odor: odorless
Odor limit:	19-93 mg/m <sup>3</sup>	
pH:	7	
Melting point:	-114 °C	
Boiling point:	78 °C	
Flash point:	12 °C	
Explosion limits:	3.2-15 Vol%	
Vapour pressure (20°C):	59 hPa	
Vapour density <sub>(air=1)</sub> :	1,59	
Specific gravity:	0,79-0,86 g/cm <sup>3</sup>	
Solubility in water:	0-100 %	
Flashing temperature:	425 °C	
Volatiles by volume:	112 g/m <sup>3</sup>	

**50 mL Potassium hexacyanoferrate(III) solution**

Appearance: liquid	Colour: slightly yellow	Odor: odorless
--------------------	-------------------------	----------------

**8 mL Quinine reference solution**

Appearance: liquid	Colour: colourless	Odor: odorless
Odor limit:	19-93 mg/m <sup>3</sup>	
pH:	7	
Melting point:	-114 °C	
Boiling point:	78 °C	
Flash point:	12 °C	
Explosion limits:	3.2-15 Vol%	
Vapour pressure (20°C):	59 hPa	
Vapour density <sub>(air=1)</sub> :	1,59	
Specific gravity:	0,79-0,86 g/cm <sup>3</sup>	
Solubility in water:	0-100 %	
Flashing temperature:	425 °C	
Volatiles by volume:	112 g/m <sup>3</sup>	

**100 mL Spray reagent acc. to Dragendorff-Munier**

Appearance: liquid	Colour: colourless	Odor: odorless
pH:	2-3	

**100 mL Toluene/Diethyl ether (55:35)**

Appearance: liquid	Colour: colourless	Odor: aromatic
Flash point:	6 °C	

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## 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 volatile 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 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.

#### 100 mL 2-Propanol

Chemical:	<i>2-propanol</i>	CAS No.:	67-63-0
TSCA Inventory:	listed	California Proposition 65 List:	not listed
ACGIH:	1230 ppm		
Exposure Routes:	inhalation, ingestion, skin and/or eye contact		
Target Organs:	Eyes, skin, respiratory system		
Symptoms:	irritation eyes, nose, throat; drowsiness, dizziness, headache; dry cracking skin; in animals: narcosis		
Australia NICNAS:		Canada CEPA 1999:	DSL yes
Japan CSCL/PRTR:	PAC yes, Japan PDSCL: -		
Japan ISHL:	listed $\geq 1,0\%$ / $\geq 0,1\%$ , Article 57-2 (SDS required)		
South Korea TCCA:			
Korea Exist.Chem.Inventory:	KE-29363		
LD <sub>50</sub> orl rat :	5045 mg/kg		
LC <sub>LoWorl hmn</sub> :	3570 mg/kg		
LC <sub>50</sub> ihl rat :	16 <sub>4h</sub> g/m <sup>3</sup>		
LD <sub>50</sub> drm rbt :	12.8 g/kg		
TRGS 905 (DE):	R <sub>F</sub> C		

#### 30 mL Acetic acid ethyl ester

Chemical:	<i>ethyl acetate</i>	CAS No.:	141-78-6
TSCA Inventory:	listed		
Target Organs:	affect the eye or visual capacity		
Symptoms:	conjunctivitis; corneal damage		
Japan CSCL/PRTR:	not listed, Japan PDSCL: Deleterious substance		
Japan ISHL:	listed $\geq 1,0\%$ / $\geq 1,0\%$		
Korea Exist.Chem.Inventory:	KE-00047, Toxic 97-1-161		
LD <sub>50</sub> orl rat :	5620 mg/kg		
LD <sub>50</sub> drm rbt :	> 18 g/kg		
TRGS 905 (DE):	R <sub>F</sub> C		

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## 25 mL Ammonia solution 12.5%

Chemical: *ammonia solution* CAS No.: 1336-21-6  
 TSCA Inventory: listed California Proposition 65 List: not listed  
 Exposure Routes: inhalation, ingestion (solution), skin and/or eye contact (solution/liquid)  
 Target Organs: Eyes, skin, respiratory system  
 Symptoms: irritation eyes, nose, throat; dyspnea (breathing difficulty), wheezing, chest pain; pulmonary edema; pink frothy sputum; skin burns, vesiculation; I  
 Australia NICNAS: not listed Canada CEPA 1999: DSL yes, Toxic Substances (Schedule 1) Yes (Item 53.)  
 Japan CSCL/PRTR: not listed, Japan PDSCL: Deleterious Substance  
 Japan ISHL: listed  $\geq 0,2\%/\geq 0,1\%$ , Article 57-2 (SDS required)  
 South Korea TCCA: not listed  
 Korea Exist.Chem.Inventory: KE-01688, >10% Toxic 97-1-184  
 LD50<sub>orl rat</sub>: 350 mg/kg  
 LC<sub>LoWihl hmn</sub>: 5000 mg/m<sup>3</sup>  
 LC50<sub>ihl rat</sub>: [4h] 2000 ppm  
 LD50<sub>drm rbt</sub>: [5min] 5000 ppm  
 Acute Effects: Cause after inhalation of vapours/dust, impairments of health when ingested in small quantities.

## 8 mL Caffeine reference solution

Chemical: *ethanol* CAS No.: 64-17-5  
 TSCA Inventory: listed California Proposition 65 List: not listed  
 ACGIH: 1000 ppm  
 Exposure Routes: inhalation, ingestion, skin and/or eye contact  
 Target Organs: Eyes, skin, respiratory system, central nervous system, liver, blood, reproductive system  
 Symptoms: irritation eyes, skin, nose; headache, drowsiness, lassitude (weakness, exhaustion), narcosis; cough; liver damage; anemia; reproductive, teratogenic  
 Australia NICNAS: not listed Canada CEPA 1999: DSL yes  
 Japan CSCL/PRTR: not listed, Japan PDSCL: not listed  
 Japan ISHL: listed  $\geq 0,1\%/\geq 0,1\%$ , Article 57-2 (SDS required)  
 South Korea TCCA: not listed  
 Korea Exist.Chem.Inventory: KE-13217  
 LD50<sub>orl rat</sub>: 6200 mg/kg  
 LC<sub>LoWihl gpg</sub>: 21.9 g/m<sup>3</sup>  
 LC<sub>LoWorl hmn</sub>: 1400 mg/kg  
 LC50<sub>ihl mouse</sub>: [4h] 39 g/m<sup>3</sup>  
 LC50<sub>ihl rat</sub>: [10h] 20 g/m<sup>3</sup>  
 LD50<sub>drm rbt</sub>: 20 000 mg/kg  
 LD50<sub>oral mouse</sub>: 3450 mg/kg  
 TRGS 905 (DE): K5, M5, R<sub>F</sub> C  
 Chemical: *test chemical(s) (ppm)* CAS No.: -  
 TSCA Inventory: all <0.1%

## 100 mL Caffeine spray reagent

Chemical: *acetone* CAS No.: 67-64-1  
 TSCA Inventory: listed California Proposition 65 List: not listed  
 ACGIH: 750 ppm  
 Exposure Routes: inhalation, ingestion, skin and/or eye contact  
 Target Organs: Eyes, skin, respiratory system, central nervous system  
 Symptoms: irritation eyes, nose, throat; headache, dizziness, central nervous system depression; dermatitis  
 Australia NICNAS: not listed Canada CEPA 1999: DSL yes  
 Japan CSCL/PRTR: [PAC] Yes, Japan PDSCL: not listed  
 Japan ISHL: listed  $\geq 1,0\%/\geq 0,1\%$ , Article 57-1+2 (Labelling&SDS required)  
 South Korea TCCA: not listed  
 Korea Exist.Chem.Inventory: KE-29367  
 LD50<sub>orl rat</sub>: 5800 mg/kg  
 LC50<sub>ihl rat</sub>: [8h] 50.1 g/m<sup>3</sup>  
 LD50<sub>drm rbt</sub>: 7.426-15.8 g/kg

Chemical: *iodine* CAS No.: 7553-56-2  
 TSCA Inventory: listed  
 Exposure Routes: inhalation, ingestion, skin and/or eye contact  
 Target Organs: Eyes, skin, respiratory system, central nervous system, cardiovascular system  
 Symptoms: irritation eyes, skin, nose; lacrimation (discharge of tears); headache; chest tightness; skin burns,

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rash; cutaneous hypersensitivity  
 LD50<sub>orl rat</sub>: 14000 mg/kg

Chemical: *iron(III) chloride* CAS No.: 7705-08-0  
 TSCA Inventory: listed  
 Japan ISHL: listed >1,0%/>1,0%  
 LD50<sub>orl rat</sub>: 450 mg/kg

Chemical: *L(+)-tartaric acid* CAS No.: 87-69-4  
 TSCA Inventory: listed  
 Korea Exist.Chem.Inventory: KE-10801  
 LC<sub>LoWorl rat</sub>: 7500 mg/kg  
 LD50<sub>orl mus</sub>: 4360 mg/kg

## 25 mL Diethylamine

Chemical: *diethylamine* CAS No.: 109-89-7  
 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: Article 57-2 (SDS required)  
 South Korea TCCA: not listed  
 LD50<sub>orl rat</sub>: 540 mg/kg  
 LD50<sub>drm rbt</sub>: 580 mg/kg  
 Acute Effects: Cause after oral intake, inhalation of vapours/dust, skin contact, impairments of health when ingested in small quantities.  
 TRGS 905 (DE): R<sub>F</sub> D

## 100 mL Ethanol

Chemical: *ethanol* CAS No.: 64-17-5  
 TSCA Inventory: listed California Proposition 65 List: not listed  
 ACGIH: 1000 ppm  
 Exposure Routes: inhalation, ingestion, skin and/or eye contact  
 Target Organs: Eyes, skin, respiratory system, central nervous system, liver, blood, reproductive system  
 Symptoms: irritation eyes, skin, nose; headache, drowsiness, lassitude (weakness, exhaustion), narcosis; cough;  
 liver damage; anemia; reproductive, teratogenic  
 Australia NICNAS: not listed Canada CEPA 1999: DSL yes  
 Japan CSCL/PRTR: not listed, Japan PDSCL: not listed  
 Japan ISHL: listed ≥0,1%/≥0,1%, Article 57-2 (SDS required)  
 South Korea TCCA: not listed  
 Korea Exist.Chem.Inventory: KE-13217  
 LD50<sub>orl rat</sub>: 6200 mg/kg  
 LC<sub>LoWihl gpg</sub>: 21.9 g/m<sup>3</sup>  
 LC<sub>LoWorl hmn</sub>: 1400 mg/kg  
 LC50<sub>ihl mouse</sub>: [4h] 39 g/m<sup>3</sup>  
 LC50<sub>ihl rat</sub>: [10h] 20 g/m<sup>3</sup>  
 LD50<sub>drm rbt</sub>: 20 000 mg/kg  
 LD50<sub>oral mouse</sub>: 3450 mg/kg  
 TRGS 905 (DE): K5, M5, R<sub>F</sub> C

## 50 mL Iron(III) chloride solution

Chemical: *iron(III) chloride* CAS No.: 7705-08-0  
 TSCA Inventory: listed  
 Japan ISHL: listed >1,0%/>1,0%  
 LD50<sub>orl rat</sub>: 450 mg/kg

## 8 mL Paracetamol reference solution

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

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Target Organs: Eyes, skin, respiratory system, central nervous system, liver, blood, reproductive system  
 Symptoms: irritation eyes, skin, nose; headache, drowsiness, lassitude (weakness, exhaustion), narcosis; cough;  
 liver damage; anemia; reproductive, teratogenic  
 Australia NICNAS: not listed Canada CEPA 1999: DSL yes  
 Japan CSCL/PRTR: not listed, Japan PDSCL: not listed  
 Japan ISHL: listed  $\geq 0,1\%$ / $\geq 0,1\%$ , Article 57-2 (SDS required)  
 South Korea TCCA: not listed  
 Korea Exist.Chem.Inventory: KE-13217  
 LD50<sub>orl rat</sub>: 6200 mg/kg  
 LC<sub>LoWihl</sub> gpg: 21.9 g/m<sup>3</sup>  
 LC<sub>LoWorl</sub> hmn: 1400 mg/kg  
 LC50<sub>ihl mouse</sub>: [4h] 39 g/m<sup>3</sup>  
 LC50<sub>ihl rat</sub>: [10h] 20 g/m<sup>3</sup>  
 LD50<sub>drm rbt</sub>: 20 000 mg/kg  
 LD50<sub>oral mouse</sub>: 3450 mg/kg

TRGS 905 (DE): K5, M5, R<sub>F</sub> C

Chemical: *test chemical(s) (ppm)* CAS No.: -  
 TSCA Inventory: all <0.1%

## 50 mL Potassium hexacyanoferrate(III) solution

Chemical: *potassium hexacyanoferrate(III)* CAS No.: 13746-66-2  
 TSCA Inventory: listed (CAS 25869-98-1)  
 LC<sub>LoWorl rat</sub>: 1600 mg/L

## 8 mL Quinine reference solution

Chemical: *ethanol* CAS No.: 64-17-5  
 TSCA Inventory: listed California Proposition 65 List: not listed  
 ACGIH: 1000 ppm  
 Exposure Routes: inhalation, ingestion, skin and/or eye contact  
 Target Organs: Eyes, skin, respiratory system, central nervous system, liver, blood, reproductive system  
 Symptoms: irritation eyes, skin, nose; headache, drowsiness, lassitude (weakness, exhaustion), narcosis; cough;  
 liver damage; anemia; reproductive, teratogenic  
 Australia NICNAS: not listed Canada CEPA 1999: DSL yes  
 Japan CSCL/PRTR: not listed, Japan PDSCL: not listed  
 Japan ISHL: listed  $\geq 0,1\%$ / $\geq 0,1\%$ , Article 57-2 (SDS required)  
 South Korea TCCA: not listed  
 Korea Exist.Chem.Inventory: KE-13217  
 LD50<sub>orl rat</sub>: 6200 mg/kg  
 LC<sub>LoWihl</sub> gpg: 21.9 g/m<sup>3</sup>  
 LC<sub>LoWorl</sub> hmn: 1400 mg/kg  
 LC50<sub>ihl mouse</sub>: [4h] 39 g/m<sup>3</sup>  
 LC50<sub>ihl rat</sub>: [10h] 20 g/m<sup>3</sup>  
 LD50<sub>drm rbt</sub>: 20 000 mg/kg  
 LD50<sub>oral mouse</sub>: 3450 mg/kg

TRGS 905 (DE): K5, M5, R<sub>F</sub> C

Chemical: *test chemical(s) (ppm)* CAS No.: -  
 TSCA Inventory: all <0.1%

## 100 mL Spray reagent acc. to Dragendorff-Munier

Chemical: *bismuth(III) nitrate, basic* CAS No.: 10361-46-3  
 TSCA Inventory: listed (CAS 1304-85-4)  
 LC50<sub>fish</sub>: >500 mg/L

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



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Chemical: *L(+)-tartaric acid*  
 TSCA Inventory: listed  
 Korea Exist.Chem.Inventory: KE-10801  
 LC<sub>Low</sub>rat : 7500 mg/kg  
 LD50<sub>rat</sub> mus : 4360 mg/kg

CAS No.: 87-69-4

## 100 mL Toluene/Diethyl ether (55:35)

Chemical: *toluene* CAS No.: 108-88-3  
 TSCA Inventory: listed California Proposition 65 List: WARNING! Cause birth defects or other reproductive harms  
 ACGIH: 50 ppm  
 Target Organs: affect the eye or visual capacity, mild skin irritation  
 Symptoms: conjunctivitis; corneal damage  
 Australia NICNAS: not listed Canada CEPA 1999: DSL Yes  
 Japan CSCL/PRTR: PAC Yes, PRTR: ≥1,0% class I, Japan PDSCL: Deleterious substance  
 Japan ISHL: listed ≥0,3%/≥0,1%, Article 57-1+2 (Labelling&SDS required)  
 South Korea TCCA: not listed  
 Korea Exist.Chem.Inventory: KE-33936, Toxic 97-1-298, Acc. Precaution Chem.  
 LD50<sub>rat</sub> : 5580 mg/kg  
 LC<sub>Low</sub>ihl hmn : 50 mg/m<sup>3</sup>  
 LC50<sub>ihl</sub> rat : [4h] 25,7-30 mg/L  
 LD50<sub>drm</sub> rbt : 5000 mg/kg

Chronic Effects: May cause damage to organs through prolonged or repeated exposure.  
 Carcinogenic Effects: Suspected of damaging the unborn child.

EU carcinogen: repr. 2  
 TRGS 905 (DE): R<sub>F</sub> C

Chemical: *diethyl ether, ether* CAS No.: 60-29-7  
 TSCA Inventory: listed  
 Exposure Routes: inhalation, ingestion, skin and/or eye contact  
 Target Organs: Eyes, skin, respiratory system, central nervous system  
 Symptoms: irritation eyes, skin, upper respiratory system; dizziness, drowsiness, headache, excited, narcosis; nausea, vomiting  
 Australia NICNAS: not listed Canada CEPA 1999: DSL Yes  
 Japan CSCL/PRTR: not listed, Japan PDSCL: not listed  
 Japan ISHL: Article 57-1+2 (Labelling&SDS required)  
 South Korea TCCA: not listed  
 Korea Exist.Chem.Inventory: KE-27690  
 LD50<sub>rat</sub> : 1215 mg/kg  
 LC<sub>Low</sub>ihl hmn : 260 mg/kg  
 LC50<sub>ihl</sub> rat : >20 mg/L  
 LC50<sub>ihl</sub> rbt : 73000 ppm/2h  
 LD50<sub>drm</sub> rbt : 14300 mg/kg  
 Acute Effects: Cause after oral intake, impairments of health when ingested in small quantities.  
 TRGS 905 (DE): R<sub>F</sub> D

## SECTION 12: Ecological information

### 12.1 Toxicity

Following information is valid for pure substances.

#### 100 mL 2-Propanol

Chemical: *2-propanol*  
 PNEC (fresh water) : 140.9 mg/L  
 PNEC = Predicted No Effected Concentration  
 LC50<sub>fish/96h</sub> : 1400 mg/L  
 EC50<sub>daphnia/48h</sub> : 13.3 g/L  
 IC50<sub>scenedesmus quadricauda/72h</sub> : >1000 mg/L  
 EC10<sub>pseudomonas putida/16h</sub> : EC5: 1050 mg/L  
 Water hazard class (DE): 1 WGK No.: 0135  
 Dispersion coefficient<sub>(octanol-water)</sub> : 0.05  
 Storage class (VCI): 3

CAS No.: 67-63-0

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**30 mL Acetic acid ethyl ester**

Chemical: *ethyl acetate* CAS No.: 141-78-6  
 PNEC(fresh water) : 0.26 mg/L  
 PNEC = Predicted No Effected Concentration  
 LC50pimephales promelas/96h : 230-328 mg/L  
 LC50leuciscus idus/96h : LC0: 100-1000 mg/L  
 LC50fish/96h : 455 mg/L  
 EC50daphnia/48h : 8800 mg/L  
 IC50scenedesmus quadricauda/72h : EC50/48h: 3300 mg/L  
 Water hazard class (DE): 1 WGK No.: 0095  
 Dispersion coefficient(octanol-water) : 0.73  
 Storage class (VCI): 3

**25 mL Ammonia solution 12.5%**

Chemical: *ammonia solution* CAS No.: 1336-21-6  
 Very toxic to aquatic life. Avoid contact of substance/mixture to environment.  
 Environmental hazards must not be labelled with H and P phrases until 125 mL (EU 1272/2008 Annex I - 1.5.2).  
 PNEC(fresh water) : 0.0011 mg/L  
 PNEC = Predicted No Effected Concentration  
 LC50fish/96h : 0,89 mg/L  
 EC50daphnia/48h : 101 mg/L  
 Water hazard class (DE): 2 WGK No.: 0211  
 Storage class (VCI): 8 B

**8 mL Caffeine reference solution**

Chemical: *ethanol* CAS No.: 64-17-5  
 PNEC(fresh water) : 0.96 mg/L  
 PNEC = Predicted No Effected Concentration  
 LC50daphnia magna/48h : >100 mg/L  
 LC50pimephales promelas/96h : 13400 - 15100 mg/L  
 LC50leuciscus idus/96h : [48h] 8140 mg/L  
 LC50fish/96h : 13 g/L  
 EC50daphnia/48h : 9.3-14.2 g/L  
 IC50scenedesmus quadricauda/72h : [7d] 5000 mg/L  
 EC10pseudomonas putita/16h : [EC5] 6500 mg/L  
 Water hazard class (DE): 1 WGK No.: 0096  
 Dispersion coefficient(octanol-water) : -0.31  
 Storage class (VCI): 3

Chemical: *test chemical(s) (ppm)* CAS No.: -  
 Storage class (VCI): 12

**100 mL Caffeine spray reagent**

Chemical: *acetone* CAS No.: 67-64-1  
 PNEC(fresh water) : 10.6 mg/L  
 PNEC = Predicted No Effected Concentration  
 LC50daphnia magna/48h : [48h] 8.8 g/L  
 LC50fish/96h : [4d] 5540 mg/L  
 EC50daphnia/48h : 2212 mg/L  
 IC50scenedesmus quadricauda/72h : IC5: 7500 mg/L  
 EC10pseudomonas putita/16h : [30 min] 61,15 g/L  
 Water hazard class (DE): 1 WGK No.: 0006  
 Dispersion coefficient(octanol-water) : -0.24  
 Storage class (VCI): 3

Chemical: *iodine* CAS No.: 7553-56-2  
 Harmful to aquatic life with long lasting effects. Avoid contact of substance/mixture to environment.  
 Environmental hazards must not be labelled with P phrases until 125 mL (EU 1272/2008 Annex I - 1.5.2).  
 Water hazard class (DE): 2 WGK No.: 0492  
 Storage class (VCI): 12-13

Chemical: *iron(III) chloride* CAS No.: 7705-08-0  
 LC50fish/96h : 2324h mg/L  
 EC50daphnia/48h : 29.7 mg/L  
 Water hazard class (DE): 1 WGK No.: 0515  
 Storage class (VCI): 8 B





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Chemical: *L(+)-tartaric acid* CAS No.: 87-69-4  
 Water hazard class (DE): - WGK No.: (5094)  
 Dispersion coefficient<sub>(octanol-water)</sub>: -0.76  
 Storage class (VCI): 12-13

## 25 mL Diethylamine

Chemical: *diethylamine* CAS No.: 109-89-7  
 Avoid contact of substance/mixture to environment.  
 Water hazard class (DE): 1 WGK No.: 0248  
 Storage class (VCI): 3

## 100 mL Ethanol

Chemical: *ethanol* CAS No.: 64-17-5  
 PNEC<sub>(fresh water)</sub>: 0.96 mg/L  
 PNEC = Predicted No Effect Concentration  
 LC50<sub>daphnia magna/48h</sub>: >100 mg/L  
 LC50<sub>pimephales promelas/96h</sub>: 13400 - 15100 mg/L  
 LC50<sub>leuciscus idus/96h</sub>: [48h] 8140 mg/L  
 LC50<sub>fish/96h</sub>: 13 g/L  
 EC50<sub>daphnia/48h</sub>: 9.3-14.2 g/L  
 IC50<sub>scenedesmus quadricauda/72h</sub>: [7d] 5000 mg/L  
 EC10<sub>pseudomonas putita/16h</sub>: [EC5] 6500 mg/L  
 Water hazard class (DE): 1 WGK No.: 0096  
 Dispersion coefficient<sub>(octanol-water)</sub>: -0.31  
 Storage class (VCI): 3

## 50 mL Iron(III) chloride solution

Chemical: *iron(III) chloride* CAS No.: 7705-08-0  
 LC50<sub>fish/96h</sub>: 23<sub>24h</sub> mg/L  
 EC50<sub>daphnia/48h</sub>: 29.7 mg/L  
 Water hazard class (DE): 1 WGK No.: 0515  
 Storage class (VCI): 8 B

## 8 mL Paracetamol reference solution

Chemical: *ethanol* CAS No.: 64-17-5  
 PNEC<sub>(fresh water)</sub>: 0.96 mg/L  
 PNEC = Predicted No Effect Concentration  
 LC50<sub>daphnia magna/48h</sub>: >100 mg/L  
 LC50<sub>pimephales promelas/96h</sub>: 13400 - 15100 mg/L  
 LC50<sub>leuciscus idus/96h</sub>: [48h] 8140 mg/L  
 LC50<sub>fish/96h</sub>: 13 g/L  
 EC50<sub>daphnia/48h</sub>: 9.3-14.2 g/L  
 IC50<sub>scenedesmus quadricauda/72h</sub>: [7d] 5000 mg/L  
 EC10<sub>pseudomonas putita/16h</sub>: [EC5] 6500 mg/L  
 Water hazard class (DE): 1 WGK No.: 0096  
 Dispersion coefficient<sub>(octanol-water)</sub>: -0.31  
 Storage class (VCI): 3

Chemical: *test chemical(s) (ppm)* CAS No.: -  
 Storage class (VCI): 12

## 50 mL Potassium hexacyanoferrate(III) solution

Chemical: *potassium hexacyanoferrate(III)* CAS No.: 13746-66-2  
 Water hazard class (DE): 2 WGK No.: 490  
 Storage class (VCI): 12-13

## 8 mL Quinine reference solution

Chemical: *ethanol* CAS No.: 64-17-5  
 PNEC<sub>(fresh water)</sub>: 0.96 mg/L  
 PNEC = Predicted No Effect Concentration  
 LC50<sub>daphnia magna/48h</sub>: >100 mg/L  
 LC50<sub>pimephales promelas/96h</sub>: 13400 - 15100 mg/L  
 LC50<sub>leuciscus idus/96h</sub>: [48h] 8140 mg/L  
 LC50<sub>fish/96h</sub>: 13 g/L  
 EC50<sub>daphnia/48h</sub>: 9.3-14.2 g/L  
 IC50<sub>scenedesmus quadricauda/72h</sub>: [7d] 5000 mg/L  
 EC10<sub>pseudomonas putita/16h</sub>: [EC5] 6500 mg/L

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Water hazard class (DE): 1 WGK No.: 0096  
 Dispersion coefficient<sub>(octanol-water)</sub>: -0.31  
 Storage class (VCI): 3

Chemical: *test chemical(s) (ppm)* CAS No.: -  
 Storage class (VCI): 12

## 100 mL Spray reagent acc. to Dragendorff-Munier

Chemical: *bismuth(III) nitrate, basic* CAS No.: 10361-46-3  
 Water hazard class (DE): 2  
 Storage class (VCI): 12-13

Chemical: *potassium iodide* CAS No.: 7681-11-0  
 LC50<sub>fish/96h</sub>: 2190 mg/L  
 Water hazard class (DE): 1  
 Dispersion coefficient<sub>(octanol-water)</sub>: 0.04  
 Storage class (VCI): 12-13

Chemical: *L(+)-tartaric acid* CAS No.: 87-69-4  
 Water hazard class (DE): - WGK No.: (5094)  
 Dispersion coefficient<sub>(octanol-water)</sub>: -0.76  
 Storage class (VCI): 12-13

## 100 mL Toluene/Diethyl ether (55:35)

Chemical: *toluene* CAS No.: 108-88-3  
 PNEC<sub>(fresh water)</sub>: 0.68 mg/L  
 PNEC = Predicted No Effect Concentration  
 LC50<sub>daphnia magna/48h</sub>: [4d] 3.78 mg/L  
 LC50<sub>fish/96h</sub>: [4d] 5.5 mg/L  
 EC50<sub>daphnia/48h</sub>: 3,23 mg/L  
 EC50<sub>pseudokirchneriella subcapitata/72h</sub>: [3h] 134-207 mg/L  
 Water hazard class (DE): 2 WGK No.: 0194  
 Dispersion coefficient<sub>(octanol-water)</sub>: 2.73  
 Storage class (VCI): 3

Chemical: *diethyl ether, ether* CAS No.: 60-29-7  
 LC50<sub>pimephales promelas/96h</sub>: 2560 mg/L  
 LC50<sub>leuciscus idus/96h</sub>: 2840 mg/L  
 EC50<sub>daphnia/48h</sub>: >100 mg/L  
 Water hazard class (DE): 1 WGK No.: 0080  
 Dispersion coefficient<sub>(octanol-water)</sub>: 1.05  
 Storage class (VCI): 3

## 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). Or collect in solvent waste (waste code number 07 07 04).

### 13.1 Waste treatment methods

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Normally it is possible to empty small amounts (diluted!) into drains. Empty containers of corrosive reagents prior to disposal, rinse with water.

## SECTION 14: Transport information

**14.1. UN number:** 3316    **14.2. UN proper shipping name:** Chemical Kit  
**14.3. Class:** 9    **14.4. Packing group:** II  
*Road transport*  
 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:**

**14.1 UN number:** 1154    **14.2 UN proper shipping name:** Diethylamine  
**14.3 Class:** 3    **14.4 Packing group:** II    Additionally class: 8  
*Road transport*  
 Classification code: FC    Tunnel restriction code: E  
 Limited Quantity: 1 L  
 Excepted Quantity: E 2  
*Air transport*  
 PAX: 352    max. weight PAX: 1 L  
 CAO: 363    max. weight CAO: 5 L  
*Maritime transport*  
 EmS: F-E, S-C    Storage category: E

**14.1 UN number:** 1993  
**14.2 UN proper shipping name:** Flammable liquid, n.o.s. (2-propanol, toluene, diethyl ether, ether, acetone, ethanol, ethyl acetate mixture)  
**14.3 Class:** 3    **14.4 Packing group:** II  
*Road transport*  
 Classification code: F1    Tunnel restriction code: E  
 Limited Quantity: 1 L  
 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:** 3266    **14.2 UN proper shipping name:** Corrosive liquid, basic, inorganic, n.o.s. (ammonia solution)  
**14.3 Class:** 8    **14.4 Packing group:** II  
*Road transport*  
 Classification code: C5    Tunnel restriction code: E  
 Limited Quantity: 1 L  
 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, contains only small amounts of these 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

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## 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](http://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.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.
EUH066	Repeated exposure may cause skin dryness or cracking.

#### 16.1.2 List of relevant P phrases

P201	Obtain special instructions before use.
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.
P261sh	Avoid breathing dust/vapours.
P264W	Wash with water thoroughly after handling.
P273	Avoid release to the environment.
P280sh	Wear protective gloves/eye protection.
P301+310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P301+312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P302+352	IF ON SKIN: Wash with plenty of water.
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.
P331	Do NOT induce vomiting.
P403+233	Store in a well-ventilated place. Keep container tightly closed.

### 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.

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## 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, 4<sup>th</sup> adaptation of CLP regulation to technical and scientific progress

Regulation 669/2018/EU, 4<sup>th</sup> adaptation of CLP regulation to technical and scientific progress

Regulation 1480/2018/EU, 4<sup>th</sup> 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

Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work

TRGS 905, German engineering rules governing carcinogens and mutagens, updated 03/18

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