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

1.1 Product identifier

REF 985688
Product name NANOCOLOR total Nitrogen 220, Robot

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 total Nitrogen TN_b 220 Reagent A
2 x 11 mL NO_3 /N (R2)
20 x 4 mL total Nitrogen TN_b 220 (R0)
2 x Sprache noch nicht definiert!
2 x Sprache noch nicht definiert!
20 x 0.18 g Decomposition tube TN_b 220 (RA)

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 (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 GHS03 GHS05 GHS07 GHS08

Signal word DANGER

Hazard identification	Hazard classes/categories
EUH031	031 not defined
H226	Flam. Liq. 3
H272	Ox. Sol. 2
H290	Met. Corr. 1
H302	Acute Tox. 4 oral
H314	Skin Corr. 1B
H315	Skin Irrit. 2
H317	Skin Sens. 1
H318	Eye Dam. 1
H319	Eye Irrit. 2
H334	Resp. Sens. 1
H336, H335	STOT SE 3

2.1 Classification of the substance or mixture

100 mL total Nitrogen TN_b 220 Reagent A

Do not need labelling as hazardous

Signal word -

No hazard class

11 mL NO_3 /N (R2)

GHS02 GHS07

Signal word WARNING

Hazard identification	Hazard classes/categories
H226	Flam. Liq. 3
H319	Eye Irrit. 2
H336, H335	STOT SE 3

4 mL total Nitrogen TN_b 220 (R0)

GHS05 GHS07

Signal word DANGER

Hazard identification	Hazard classes/categories
H290	Met. Corr. 1
H302	Acute Tox. 4 oral
H314	Skin Corr. 1B

Sprache noch nicht definiert!

GHS05 GHS07

Signal word DANGER

Hazard identification	Hazard classes/categories
EUH031	031 not defined
H290	Met. Corr. 1
H302	Acute Tox. 4 oral
H314	Skin Corr. 1A
H318	Eye Dam. 1

Sprache noch nicht definiert!

Do not need labelling as hazardous

Signal word -

No hazard class

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0.18 g Decomposition tube TN_b 220 (RA)

GHS03 GHS07 GHS08

Signal word DANGER

Hazard identification	Hazard classes/categories
H272	Ox. Sol. 2
H302	Acute Tox. 4 oral
H315	Skin Irrit. 2
H317	Skin Sens. 1
H319	Eye Irrit. 2
H334	Resp. Sens. 1
H335	STOT SE 3

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). Inner packages up to 10 mL need max. 2 symbols (Annex I - 1.5.2.4.1 / 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). This labelling exemption is NOT valid for sensibilizing substances.
Oxidizing mixtures with signal word: **DANGER** and **H272** must not be labelled with H and P phrases **until 125 mL** .
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).

100 mL total Nitrogen TN_b 220 Reagent A

Do not need labelling as hazardous
Signal word: -

11 mL NO_3 /N (R2)

GHS02 GHS07

Signal word: WARNING

4 mL total Nitrogen TN_b 220 (R0)

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.

Sprache noch nicht definiert!

GHS05 GHS07

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Signal word: DANGER

H314
Causes severe skin burns and eye damage.

P260sh, P280sh, P303+361+353, P305+351+338, P310
Do not breathe dust/vapours. Wear protective gloves/eye protection. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

Sprache noch nicht definiert!

Do not need labelling as hazardous
Signal word: -

0.18 g Decomposition tube TN_b 220 (RA)

GHS03 GHS07 GHS08

Signal word: DANGER

H317, H334
May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

P261sh, P280sh, P342+311
Avoid breathing dust/vapours. Wear protective gloves/eye protection. If experiencing respiratory symptoms: 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. ---

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, skin contact, impairments of health when ingested in small quantities. May cause sensitization by skin contact, also in repeated contact of small amounts. May cause allergy or asthma symptoms or breathing difficulties if inhaled. -

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

100 mL total Nitrogen TN_b 220 Reagent A

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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.

11 mL NO_3 /N (R2)

Chemical: *2,6-dimethylphenol* CAS No.: 576-26-1
Classification: H301, Acute Tox. 3 oral, H311, Acute Tox. 3 derm., H314, Skin Corr. 1B, H411, Aquatic Chronic 2
Formula: $C_8H_{10}O$; $(CH_3)_2$ -C_6H_3 -OH
Pseudonym: 2,6-xylenol
TSCA Inventory: listed
REACH Reg. No.: 01-2119552794-29-xxxx
EC No.: 209-400-1 Indice No.: 604-006-00-X
RTECS: ZE6125000 MFCD: 00002240
KE No.: KE-35435, >5% Toxic 97-1-274
Concentration: 0.1 - <1 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

Chemical: *2-propanol* CAS No.: 67-63-0
Classification: H225, Flam. Liq. 2, H319, Eye Irrit. 2, H336, STOT SE 3
Formula: C_3H_8O
Pseudonym: isopropanol, IPA, propan-2-ol
TSCA Inventory: listed
REACH Reg. No.: 01-2119457558-25-XXXX
EC No.: 200-661-7 Indice No.: 603-117-00-0
RTECS: NT8050000 MFCD: 00011674
KE No.: KE-29363
Concentration: 35 - <50 %
acc. CLP (GHS): H226, Flam. Liq. 3, H319, Eye Irrit. 2, H336, STOT SE 3

4 mL total Nitrogen TN_b 220 (R0)

Chemical: *o-phosphoric acid* CAS No.: 7664-38-2
Classification: H290, Met. Corr. 1, H302, Acute Tox. 4 oral, H314, Skin Corr. 1B
Formula: $H_3PO_4 \cdot H_2O$
Pseudonym: orthophosphoric acid
TSCA Inventory: listed
REACH Reg. No.: 01-2119485924-24-xxxx
EC No.: 231-633-2 Indice No.: 015-011-00-6
RTECS: TB6300000
KE No.: KE-27427
Concentration: 25 - <40 %
acc. CLP (GHS): H290, Met. Corr. 1, H302, Acute Tox. 4 oral, H314, Skin Corr. 1B

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: 51 - <65 %
acc. CLP (GHS): H314, Skin Corr. 1B

Sprache noch nicht definiert!

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Chemical: *potassium hydroxide* CAS No.: 1310-58-3s
Classification: H290, Met. Corr. 1, H302, Acute Tox. 4 oral, H314, Skin Corr. 1B
TSCA Inventory: listed
REACH Reg. No.: 01-2119487136-33-xxxx
EC No.: 215-181-3
RTECS: TT2100000 MFCD: 00003553
KE No.: KE-29139, Toxic 97-1-137
Concentration: 5 - <14 %
acc. CLP (GHS): H290, Met. Corr. 1, H314, Skin Corr. 1B

Chemical: *sodium hydroxide* CAS No.: 1310-73-2s
Classification: H290, Met. Corr. 1, H314, Skin Corr. 1B
Formula: NaOH
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, >5% Toxic 97-1-136
Concentration: 5 - <10 %
acc. CLP (GHS): H290, Met. Corr. 1, H314, Skin Corr. 1B

Chemical: *sodium disulfite* CAS No.: 7681-57-4
Classification: H302, Acute Tox. 4 oral, H318, Eye Dam. 1, EUH031, 031 not defined
Formula: $Na_2 O_5 S_2$
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: 80 - <100 %
acc. CLP (GHS): H302, Acute Tox. 4 oral, H318, Eye Dam. 1, EUH031, 031 not defined

Sprache noch nicht definiert!

Chemical: *water* CAS No.: 7732-18-5
Classification: No criteria for classification or naming of chemical not required.
Formula: $H_2 O$
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.

0.18 g Decomposition tube TN_b 220 (RA)

Chemical: *sodium carbonate* CAS No.: 497-19-8
Classification: H319, Eye Irrit. 2
Formula: $Na_2 CO_3$
TSCA Inventory: listed
REACH Reg. No.: 01-2119485498-19-xxxx
EC No.: 207-838-8 Indice No.: 011-005-00-2
RTECS: VZ4050000
KE No.: KE-31380
Concentration: 20 - <50 %
acc. CLP (GHS): H319, Eye Irrit. 2

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Chemical: *potassium peroxydisulfate* CAS No.: 7727-21-1
Classification: H272, Ox. Liq. 2, H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H317, Skin Sens. 1, H319, Eye Irrit. 2, H334, Resp. Sens. 1, H335, STOT SE 3
Formula: $K_2 O_8 S_2$
Pseudonym: potassium persulfate
TSCA Inventory: listed
REACH Reg. No.: 01-2119495676-19-xxxx
EC No.: 231-781-8 Indice No.: 016-061-00-1
RTECS: SE0400000 MFCD: 00011386
KE No.: KE-12177
Concentration: 60 - <80 %
acc. CLP (GHS): H272, Ox. Liq. 2, H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H317, Skin Sens. 1, H319, Eye Irrit. 2, H334, Resp. Sens. 1, H335, STOT SE 3

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. Take to a doctor, in a raised position if there are breathing difficulties.

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. Administer a Dexamethasone spray as soon as possible. Ensure quiet, warmth, and provide resuscitation if necessary. In the event of respiratory distress ensure that the patient inhales oxygen. Secure the breathing, heart and circulatory function. ---

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

Chronic Effects: May cause sensitization by skin contact, also in repeated contact of small amounts. May cause allergy or asthma symptoms or breathing difficulties if inhaled. ---

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. Inform patient respectively further measures and the possibility of long-term damages. ---

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

WARNING: Flammable (GHS regulation). May form explosive vapour-air mixtures. Formation of hazardous and caustic vapour-air mixtures possible. ---

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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.

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. Use only in well-ventilated working areas. Use a safety bottle when shaking test tubes.

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 total Nitrogen TN_b 220 Reagent A
Chemical: *water* CAS No.: 7732-18-5

11 mL NO_3 /N (R2)
Chemical: *2,6-dimethylphenol* CAS No.: 576-26-1
NIOSH: not listed ppm
[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 ppm

Chemical: *2-propanol* CAS No.: 67-63-0
DNEL: [inh] 500 mg/m³
DNEL = Derived No-Effect Level (for workers)
$PNEC_{(fresh\ water)}$: 140.9 mg/L
PNEC = Predicted No Effected Concentration
TRGS 900 (DE): 200 ppm / 500 mg/m³
E/e respirable
Short-term exposure factor: 2 (II), Y
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded
SUVA(CH) MAK value: 200 ppm / 500 mg/m³
TRGS 903 (DE): [Aceton B/b, U/b] 25 mg/L

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

NIOSH: [TWA] 400 ppm / 980 mg/m³
NIOSH STEL: 500 ppm / 1225 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] 400 ppm / 980 mg/m³

4 mL total Nitrogen TN_b 220 (R0)

Chemical: *o-phosphoric acid* CAS No.: 7664-38-2
DNEL: 2.92 mg/m³
DNEL = Derived No-Effect Level (for workers)

EU value: [TWA] 1 /[STEL] 2 mg/m³
TRGS 900 (DE): [8h] 1 / [15min] 2 mg/m³
E/e respirable

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

SUVA(CH) MAK value: 1 mg/m³
NIOSH: TWA 1 / ST 3 mg/m³
NIOSH STEL: 3 mg/m³
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: TWA 1 mg/m³

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

Sprache noch nicht definiert!

Chemical: *potassium hydroxide* CAS No.: 1310-58-3s
DNEL: 1_{inh} mg/m³
DNEL = Derived No-Effect Level (for workers)

SUVA(CH) MAK value: 2 e mg/m³
NIOSH: C 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: none

Chemical: *sodium hydroxide* CAS No.: 1310-73-2s
DNEL: 1_{inh} mg/m³
DNEL = Derived No-Effect Level (for workers)

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

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

SUVA(CH) MAK value: 2 e mg/m³
NIOSH: 2 mg/m³
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: TWA 2 mg/m³

Chemical: *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

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Sprache noch nicht definiert!
Chemical: *water* CAS No.: 7732-18-5

0.18 g Decomposition tube TN_b 220 (RA)
Chemical: *sodium carbonate* CAS No.: 497-19-8
DNEL: 10_{inh} mg/m³
DNEL = Derived No-Effect Level (for workers)
TRGS 900 (DE): -
E/e respirable

Chemical: *potassium peroxydisulfate* CAS No.: 7727-21-1
DNEL: [derm] 18,2 mg/kg bw/day; [inh] 2.06 mg/m³
DNEL = Derived No-Effect Level (for workers)
TRGS 900 (DE): -
E/e respirable
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

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
Use for open access of these substances for example a protection filter, class A/AX. 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

100 mL total Nitrogen TN_b 220 Reagent A
Appearance: liquid | Colour: colourless | Odor: odorless
pH: 6-8
Specific gravity: 1,00 g/cm³

11 mL NO_3 /N (R2)
Appearance: liquid | Colour: rose | Odor: alcoholic
pH: 6-8
Flash point: 18,5 °C
Specific gravity: 0,9 g/cm³
Solubility in water: 0-100 %

4 mL total Nitrogen TN_b 220 (R0)
Appearance: liquid | Colour: colourless | Odor: odorless
pH: 0-1
Specific gravity: 1,79 g/cm³
Solubility in water: 0-100 %

Sprache noch nicht definiert!
Appearance: powder (solid) | Colour: colourless | Odor: odorless
pH: 13-14
Solubility in water: 0-40 %

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Sprache noch nicht definiert!

Appearance: liquid	Colour: colourless	Odor: odorless
pH:	6-8	
Specific gravity:	1,00 g/cm³	

0.18 g Decomposition tube TN_b 220 (RA)

Appearance: solid	Colour: colourless	Odor: odorless
pH:	5-7	
Solubility in water:	0-30 %	

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

SECTION 10: Stability and reactivity

10.1 Reactivity

Strong CORROSIVE, 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. Observe labeled storage temperature. ---

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 total Nitrogen TN_b 220 Reagent A

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

11 mL NO_3 /N (R2)

Chemical:	*2,6-dimethylphenol*	CAS No.: 576-26-1
TSCA Inventory:	listed	California Proposition 65 List: not listed
Target Organs:	Leber, Niere	
Australia NICNAS:	not listed	Canada CEPA 1999: DSL yes
Japan CSCL/PRTR:	PRTR - Class I Designated Chemical Substance Yes, Japan PDSCL: not listed	
Japan ISHL:	not listed	
South Korea TCCA:	not listed	
Korea Exist.Chem.Inventory:	KE-35435, >5% Toxic 97-1-274	
$LD50_{orl\ rat}$:	296 mg/kg	
$LC\_Low_{ihl\ rbt}$:	500 mg/m³	
$LD50_{drm\ rat}$:	2325 mg/kg	
$LD50_{drm\ rbt}$:	1000 mg/kg	
$LD50_{orl\ mus}$:	450 mg/kg	

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Chemical: *2-propanol* 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 ≥1,0%/≥0,1%, Article 57-2 (SDS required)
South Korea TCCA:
Korea Exist.Chem.Inventory: KE-29363
$LD50_{orl\ rat}$: 5045 mg/kg
$LC\_Low_{orl\ hmn}$: 3570 mg/kg
$LC50_{ihl\ rat}$: 16_{4h} g/m³
$LD50_{drm\ rbt}$: 12.8 g/kg

TRGS 905 (DE): R_F C

4 mL total Nitrogen TN_b 220 (R0)

Chemical: *o-phosphoric acid* CAS No.: 7664-38-2
TSCA Inventory: listed California Proposition 65 List: not listed
ACGIH: 1 ppm
Exposure Routes: inhalation, ingestion, skin and/or eye contact
Target Organs: Eyes, skin, respiratory system
Symptoms: irritation eyes, skin, upper respiratory system; eye, skin, burns; dermatitis
Australia NICNAS: not listed Canada CEPA 1999: DSL Yes
Japan CSCL/PRTR: not listed, Japan PDSCL: not listed
Japan ISHL: listed ≥1,0%/≥1,0%, Article 57-2 (SDS required)
South Korea TCCA: not listed
Korea Exist.Chem.Inventory: KE-27427
$LD50_{orl\ rat}$: 1530 mg/kg
$LC50_{ihl\ rbt}$: 1.689 mg/L
$LD50_{drm\ rbt}$: 2750 mg/kg
Acute Effects: Cause after oral intake, impairments of health when ingested in small quantities.
TRGS 905 (DE): R_F C

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

Sprache noch nicht definiert!

Chemical: *potassium hydroxide* CAS No.: 1310-58-3s
TSCA Inventory: listed
Exposure Routes: inhalation, ingestion, skin and/or eye contact
Target Organs: Eyes, skin, respiratory system
Symptoms: irritation eyes, skin, respiratory system; cough, sneezing; eye, skin burns; vomiting, diarrhea
Japan ISHL: listed ≥1,0%/≥1,0%
Korea Exist.Chem.Inventory: KE-29139, Toxic 97-1-137
$LD50_{orl\ rat}$: 273 mg/kg

Chemical: *sodium hydroxide* CAS No.: 1310-73-2s
TSCA Inventory: listed
Exposure Routes: inhalation, ingestion, skin and/or eye contact
Target Organs: Eyes, skin, respiratory system

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Symptoms: irritation eyes, skin, mucous membrane; pneumonitis; eye, skin burns; temporary loss of hair
Japan CSCL/PRTR: not listed, Japan PDSCL: not listed
Japan ISHL: listed ≥1,0%/≥1,0%, Article 57-2 (SDS required)
Korea Exist.Chem.Inventory: KE-31487, >5% Toxic 97-1-136
$LD50_{orl\ rat}$: 500 mg/kg
$LD50_{drm\ rbt}$: not applicable
$LD50_{orl\ mus}$: 40 mg/kg

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
Acute Effects: Cause after oral intake, impairments of health when ingested in small quantities.

Sprache noch nicht definiert!

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

0.18 g Decomposition tube TN_b 220 (RA)

Chemical: *sodium carbonate* CAS No.: 497-19-8
TSCA Inventory: listed
Korea Exist.Chem.Inventory: KE-31380
$LD50_{orl\ rat}$: 4090 mg/kg
$LC\_Low_{orl\ rat}$: 4000 mg/kg
$LC50_{ihl\ rat}$: 2300_{2h} mg/m³

Chemical: *potassium peroxydisulfate* CAS No.: 7727-21-1
TSCA Inventory: listed California Proposition 65 List: not listed
Australia NICNAS: Yes (PEC/18) Canada CEPA 1999: DSI Yes
Japan CSCL/PRTR: not listed, Japan PDSCL: not listed
Japan ISHL: listed ≥1,0%/≥0,1%, Article 57-2 (SDS required)
South Korea TCCA: not listed
Korea Exist.Chem.Inventory: KE-12177
$LD50_{orl\ rat}$: 802 mg/kg
Acute Effects: Cause after oral intake, inhalation of vapours/dust, skin contact, impairments of health when ingested in small quantities.
Chronic Effects: May cause sensitization by skin contact, also in repeated contact of small amounts. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
TRGS 907 (DE): Sah

SECTION 12: Ecological information

12.1 Toxicity

Following information is valid for pure substances.

100 mL total Nitrogen TN_b 220 Reagent A

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

11 mL NO_3 /N (R2)

Chemical: *2,6-dimethylphenol* CAS No.: 576-26-1
$LC50_{pimephales\ promelas/96h}$: 22-27 mg/L
$EC50_{daphnia/48h}$: 11.2 mg/L
Water hazard class (DE): 2 WGK No.: 1689

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Dispersion coefficient$_{(octanol-water)}$: 2.36
Storage class (VCI): 6.1 C

Chemical: *2-propanol* CAS No.: 67-63-0
PNEC$_{(fresh\ water)}$: 140.9 mg/L
PNEC = Predicted No Effected Concentration
LC50$_{fish/96h}$: 1400 mg/L
EC50$_{daphnia/48h}$: 13.3 g/L
IC50$_{scenedesmus\ quadricauda/72h}$: >1000 mg/L
EC10$_{pseudomonas\ putita/16h}$: EC5: 1050 mg/L
Water hazard class (DE): 1 WGK No.: 0135
Dispersion coefficient$_{(octanol-water)}$: 0.05
Storage class (VCI): 3

4 mL total Nitrogen TN$_b$ 220 (R0)

Chemical: *o-phosphoric acid* CAS No.: 7664-38-2
Avoid contact of substance/mixture to environment.
LC50$_{fish/96h}$: 3-3.5 mg/L
Water hazard class (DE): 1 WGK No.: 0392
Storage class (VCI): 8 B

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

Sprache noch nicht definiert!

Chemical: *potassium hydroxide* CAS No.: 1310-58-3s
Avoid contact of substance/mixture to environment.
LC50$_{pimephales\ promelas/96h}$: 880 mg/L
EC50$_{daphnia/48h}$: 660 mg/L
Water hazard class (DE): 1 WGK No.: 345
Storage class (VCI): 8 B

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

Chemical: *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

Sprache noch nicht definiert!

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

0.18 g Decomposition tube TN$_b$ 220 (RA)

Chemical: *sodium carbonate* CAS No.: 497-19-8
LC50$_{fish/96h}$: 300 mg/L
EC50$_{daphnia/48h}$: 265 mg/L
Water hazard class (DE): 1 WGK No.: 0222
Storage class (VCI): 12-13

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Chemical: *potassium peroxydisulfate* CAS No.: 7727-21-1
Water hazard class (DE): 1 WGK No.: 1350
Storage class (VCI): 5.1 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

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) class 5.1 III, **Excepted Quantities** (≤30 mL/∑≤1 L) = ADR/ IATA E1
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. (2-propanol mixture)
14.3 Class: 3 14.4 Packing group: II
Road transport
Classification code: F1
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: 3215 14.2 UN proper shipping name: Persulphates, inorganic, n.o.s.
14.3 Class: 5.1 14.4 Packing group: III
Road transport
Classification code: O2
Limited Quantity: 5 Kg Tunnel restriction code: E
Excepted Quantity: E 1
Air transport
PAX: 559 max. weight PAX: 25 Kg
CAO: 563 max. weight CAO: 100 Kg
Maritime transport
EmS: F-A, S-Q Storage category: B
Maritime pollutant (5.2.1.6): P* (Limited Quantity (LQ) until 5 L|kg per inner package)

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14.1 UN number: 3264
14.2 UN proper shipping name: Corrosive liquid, acidic, inorganic, n.o.s. (o-phosphoric acid, 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

14.5 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

H226	Flammable liquid and vapour.
H272	May intensify fire; oxidizer.
H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
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.
P260D	Do not breathe vapours.
P260sh	Do not breathe dust/vapours.
P261sh	Avoid breathing 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].
P304+340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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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.
P342+311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P390	Absorb spillage to prevent material damage.
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.

16.4 Further information

MACHEREY-NAGEL GmbH & Co. KG provides the information contained herein in good faith being up-to-date of own realizations at revision time. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgement in determining its appropriateness for a particular purpose.
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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
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
TRGS 907, German engineering rules governing listing of substances and causes of sensitizations, updated November 2011
KÜHN, BIRETT Merkblätter Gefährliche Arbeitsstoffe (Data Sheets of Hazardous Substances)

Revisions/Updates
Reason for Revision: 2016-03 Adaptation of regulation 1221/2015/EU

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